TerraNova 3

Home Activities by Grade Level

Table of Contents

GRADE K MATHEMATICS

GRADE K OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Number Search** Being able to recognize numbers, not just in schoolbooks, but in the surrounding environment, brings new meaning to numbers and how people use them. Walk around your home with your child, and challenge your child to find numbers. Guide your child as necessary. Note numbers on price tags, numbers on cereal boxes, recipes, the local paper, a magazine, even a book your child is reading, such as chapter numbers and page numbers. Talk about the purpose of the number. For example, does the number tell about size? Let your child draw pictures and write sentences about the numbers and objects they find. **MODERATE MASTERY** ◒ **Count and Compare** Students must be able to count items in a group and then compare the total amount with another group of items. Walk around your home, your yard, or a local park. Choose items with your child that your child would like to count. For example, he or she could count flowers in a bunch; toys on the playground; toys at home or in the yard. Draw a simple picture of each item, and have your child write the number. When completed, spread out the drawings, and invite him or her to compare and analyze the numbers. Which objects did he or she see the most? The least? How does he or she know? Challenge your child to organize the drawings, from the lowest to highest numbers.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Grocery List** Counting, adding, and subtracting go hand in hand, and are all important skills to have. Invite your child to help you put together a grocery list. Point to items that are running low, such as bananas, cereal, pet food, toiletries, apples, cheese, eggs, or beverages. Have your child count and write down the number of items you currently have. Then ask your child how many more of these items the family needs. For example, if your family only has two apples, your child might think the family needs at least six apples. Guide your child to write a simple subtraction equation to solve the problem: $6 - 2 = 4$. It may help to make the equation an addition problem: $2 + 4 = 6$.
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure	**LOW MASTERY** ○ **Measure Me** Students in kindergarten should understand the idea of a measurement unit. A unit is something used to describe and compare things like height, weight, and temperature. Units in these examples could be feet, pounds, or degrees Fahrenheit. In this activity, have your child compare his or her height with your height by using his or her hand as the unit. On a wall, use a piece of tape or a sticky note to mark your child's height. Mark your height on the same wall. Have your child determine how many hands tall he or she is, and how many hands tall you are. It may be interesting to place a mark at seven feet, the height of some basketball players. How many hands tall is a seven-foot tall basketball player?

rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**MODERATE MASTERY** ◒ **Measure by Hand** Students will eventually explore specific units of measure, like inches, feet, yards, and centimeters. For now, students can experiment with measurement using more common units, such as their hands. For example, demonstrate how to place your hands, finger to palm, one after the other, to measure a kitchen table. Encourage your child to measure a number of objects around the home, keeping track of the measurements on a piece of paper. What objects were longest? Which ones were shortest?
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Circle vs. Ball** Recognizing what distinguishes a two-dimensional shape from a three-dimensional shape is an important math and visual skill. Invite your child to draw a simple circle on a sheet of paper. As your child watches, draw a horizontal line across the circle through the center. Explain that the circle has width. Then draw a line from top to bottom. Explain that the circle has height. Say, *A circle has two dimensions*. Now show him or her a ball. Hold the ball side to side and say, *This ball has width*. Hold it from top to bottom. Say, *The ball has height*. Then hold it back to front. Say, *It also had depth! The ball has three dimensions. A circle in three-dimensions is a ball or sphere.* Help your child compare other related two- and three- dimensional shapes, such as a square and a cube or a triangle and a prism. **MODERATE MASTERY** ◒ **Curves or Corners?** It is important to identify geometric shapes by their appearance. Have your child draw or trace simple shapes like a square, circle, oval, triangle, and rectangle. (Tracing will ensure that the shapes are exact.) Ask your child to finger trace each shape. As your child moves his or her finger along the shape, have him or her describe the line as *straight* or *curved*. Ask your child what he or she notices about the shapes that have curved lines. (These shapes have no corners.) Ask what he or she notices about the shapes that have straight lines. (They have corners.) How many sides do curved shapes have? (One.) How many sides do shapes with corners have? (triangle: 3; square and rectangle: 4.) Let your child cut out the shapes and group them according to whether the shapes have curves or corners.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems	**LOW MASTERY** ○ **Line 'em Up!** Bar graphs help us interpret data. Make a bar graph out of food to practice reading these graphs. Choose foods that are easily handled, such as bananas, apples, cookies, or baby carrots. On a clean table, invite your child to help you line up the different foods in rows. For example, you will have a row of apples, a row of bananas, and so on. Each food should also line up with the food below it. In this way, the foods will be evenly spaced. Have your child count the foods in each row to compare the numbers. Help him or her conclude that the longest rows have the most foods; the shortest rows have the least amount of foods. Help your child understand that bar graphs help us compare things quickly (and visually). **MODERATE MASTERY** ◒ **Weather Report** When students analyze numerical data, they often are asked to draw conclusions by recognizing trends (or patterns). Help your child practice drawing conclusions by studying

compare data describe, evaluate data	weather trends. For seven to ten days, have your child note the temperature outside at one time of day (e.g., 5 PM each day). Write the temperature on a calendar for each day. Make sure your child understands that temperature is measured in numbers, called *degrees*. Have your child read the numbers with you. Then, after the designated time, analyze the temperatures to try to notice a trend. Ask, *Is the weather getting warmer? How can you tell? Is the weather getter cooler? How can you tell?*
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **What Comes Next?** Recognizing patterns and "what comes next" is not only an important math skill, but also an important early-learning skill. Set up a simple alternating pattern on your kitchen table, using common household items. For example, you might line up a fork, a spoon, a fork, a spoon. Ask your child which utensil should come next in the pattern. Encourage your child to complete the pattern for several cycles. Set up another pattern, this time deleting an object from the middle. For example: apple, banana, _____ banana. Ask your child which object will complete the pattern (apple). For an added challenge, have your child make a pattern for you to finish.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **It's "Not" a Chore!** The ability to problem-solve using math applications is part of real-world math. Students can experience problem solving as you ask them simple questions about number totals while doing daily chores. For example, suggest to your child that a couch needs four pillows. Ask your child how many pillows the couch has, and tell your child to count them. Then ask your child how many more pillows are needed to make a total of four. Or explain that you've dusted five picture frames on a bookshelf. Ask your child how many more frames need to be dusted. Tell your child to count all the frames and then figure out how many frames are left. Let your child help you with your counting and problem solving, suggesting their own real-world number problems.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **What Does That Recipe Call For?** Students should be able to relate real-world words to mathematical ideas. Pull out some recipes or directions (for food, or mixing your own soap, or putting something together, etc.) and have your child examine them. Ask your child to identify and underline each word or group of words that can be represented by mathematical words or symbols. Point out words like "double" and "half" and relate them to multiplication and division, etc. Have your child create a "key" showing some of the real-world phrases and their math "translations." For example, "double" can be translated to mean "multiply by 2." Ask your child what other real-world math he or she can find and add to the "key."

Return to Table of Contents

GRADE K READING

GRADE K OBJECTIVES	MASTERY
Oral Comprehension literal interpretive	**LOW MASTERY** ○ **Story Artists** Sometimes, young children have a hard time listening to a story and following what is happening. Help your child practice by reading a short passage or a part of a story or picture book to him or her. Ask your child to listen closely to what is happening or to what is being described. Then, with your child, draw a picture of the story or the scene you read aloud. As your child draws, encourage him or her to explain what he or she is drawing. In this way, your child will recall details or information from the passage. Then read the passage again while your child looks at his or her drawing. Ask your child to point to details in the drawing as they are read from the story. **MODERATE MASTERY** ◒ **Storybooks vs. Real-World Reading** Sometimes students think that reading is something they'll only encounter through books and stories. Students need to understand that they will use reading in everyday life, too. Gather a number of objects together that have short passages for you to read, including storybooks, game-cartridge boxes, cereal boxes and toy instructions. While keeping the items hidden, read from each item, one at a time. Ask your child to listen closely. Have your child explain whether the words tell a story or whether the words say something in real life, such as the words on a cereal box. Ask your child to explain how he or she is able to figure out where the text or reading material comes from. Have them explain which words give clues. Reveal the items, and then sort the printed materials into two categories: storybooks and real-world reading.
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Sequence Cereal Boxes** Sequencing, or following the order in which events happen, is an important reading skill. To practice this skill, choose written material with steps or instructions, like a recipe, that is easy to draw. Select six scenes or steps. Using small boxes (such as single-serving cereal boxes), trace six rectangles onto paper and cut them out. (You will need six small boxes; the boxes are easy for young hands to move around). Draw a picture for each scene or step in the instructions on each of the rectangles, and glue each drawing to a different box. Read the story or instructions with your child, then show your child the cereal boxes. Work with your child to place the events in the correct order. Help your child use sequence words such as *first, then, next* and *finally.* **MODERATE MASTERY** ◒ **Finger Paint Sight Words** As children learn to read, they learn to recognize common words that appear more often than others. These simple words are called sight words, or high-frequency words. Read a picture book with your child and call attention to some of the sight words you come across, such as *the, a, I, me, you, go, for, to, us, we,* and so on. Also show your child words that have to do with the topic you are reading. For example, if you are reading about a dog, point out the word *dog*. To reinforce these words, invite your child to finger-paint them. Have your child finger-paint the words in bold colors on large paper. Refer to your child's "painting" to review these words again.

Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Each Character Matters** Students enjoy reading more when they have a good understanding of how the actions of characters (people in the story) affect a story's plot (what happens in the story). This is also an important part of understanding the text. With your child, select a short story with several characters. Read the story aloud, and ask your child to point out each time a new character is introduced and write down each character's name. When you finish the story, ask your child to look at the list and describe how each of the characters affected the other characters in the story. Ask your child to give as many details as possible and explain how each character affected the whole story and how the story would be different if the character hadn't existed.
Introduction to Print environmental print sound/visual recognition word analysis	**LOW MASTERY** ○ **Beginning-Sound Scavenger Hunt** Recognizing the sounds at the beginning of words is an important reading skill. To reinforce beginning sounds, invite your child to go on a scavenger hunt through your home, looking for words that start with certain letters and sounds. For example, write the letter *r* on a self-sticking note. Say the letter and the sound with your child. Then ask your child to find something in your home that begins with that letter, such as *rug* or *raincoat*. Place the note card or self-sticking note on that item. You can also point to items in your home, say the word with your child, and have your child identify the letter that makes the beginning sound. Have your child write the beginning letter on a self-sticking note, and label the object. Leave the labels posted and review the sounds again with your child. **MODERATE MASTERY** ◒ Rhyming-Word Mobile Rhyming words are an important part of learning to read. Each rhyming word is part of a word family. By learning one word, your child is really learning many words that belong to the same family. For example, cat, bat, rat, and mat are rhyming words, and they belong to the 'at' word family. Help your child learn common word families by choosing simple words that are easy to draw, such as in the list above. Some others include: man, van, can, fan, pan; pin, bin, fin, tin; bug, rug, tug, pug; frog, dog, log, fog. Have your child draw each figure from one-word family on sturdy paper and cut it out. Write the word for your child on the back of the drawing, and say the word with your child. Then tape the drawings to strings. Your child can tie the strings for each word family to a different clothes hanger.

Return to Table of Contents

GRADE 1 SOCIAL STUDIES

GRADE 1 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Exploring a Community Map** First-grade students often have difficulty understanding that maps are drawings of what places look like from above. To help your child make this connection, find a simple map of your community. Place the map on the floor and have your child stand above the map and look down. Point out areas that your child will recognize: your street, a main highway, a lake, a park, shopping centers, and the school. Show the compass rose and explain the four directions. Now, take the map along with you on a walking tour of the area. Follow along with the map showing your child the route you are walking and the things you are seeing along the way. Have your child help you determine the direction you are traveling by referring to the compass rose. **MODERATE MASTERY** ◒ **Map a Make-Believe Place** Maps help students learn about the places around them and also allow them to imagine new and unfamiliar places. To help your child become more familiar with maps, invite him or her to draw a map of a make-believe place. Start by showing child-friendly maps found in a children's picture atlas. Point out the map's features (bodies of water, roads, mountains, etc.). Then have your child write down things that he or she would like to have on his or her map. Ideas include a forest, mountains, beach, cave, castle, lake, campground, roads, trails, and highways. Help your child draw a map of this make-believe place on poster board. Then let him or her explore this new place by traveling from place to place with toy cars on the map's trails and roads.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Modern Marvels** In first grade, students learn the difference between the past and the present. To help your child understand this concept, explain that many things we have today people did not have long ago. Show your child advertisements in a magazine. Point out cars, computers, telephones, and airplanes. Ask, *Did people have these things long ago?* Ask your child to think about what people might have used instead of these things. Point out items that people *did* have long ago: clothing and furniture. Explain that even though people in the past had these things, they didn't necessarily look like things we have today. Show pictures in historical books or on the Internet of furniture, transportation, and clothing from another time period to show the comparison between past and present. Now have your child draw pictures of things from the past and present. **MODERATE MASTERY** ◒ **Tell About Today** It is difficult for many students to imagine what life was like in the past. To help your child with this concept, spend some time comparing the past with the present. Visit your local library and ask the children's librarian for help in locating a picture book or short work of historical fiction. Read the book with your child and point out various details such as clothing, transportation and housing. Discuss with your child how the characters in the story differ from your family. Ask, *Which activities do they do differently than us and how? Which activities would you like to try? What could you share with the story's characters about today's world? What might the story's family like best about today's world?* At home, encourage your child to draw a picture of and write a sentence about the story.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Safety Signs** First graders need to become familiar with and understand traffic safety signs. Explain to your child that these signs provide people with important information. Find examples of traffic signs in a book or on the Internet and show them to your child. Ask, *Have you ever seen any of these signs in our community?* Have your child guess what these signs mean and then discuss their actual meaning. Now take your child on a driving or walking "Safety Sign Tour" in your community. Point out a sign and quiz your child on the sign's meaning. Encourage your child to look at the area around the sign. Then ask, *Why do you think these signs have been placed in these locations?* Help your child understand that traffic signs are meant to keep people in the community safe. **MODERATE MASTERY** ◒ **Good Neighbors** As students become aware of their community, they learn that everyone, even children, can play an important role. Tell your child that one way to participate in the community is by being a good neighbor. Ask your child what he or she thinks being a good neighbor means. Discuss these ideas. Then talk about things your family might do for others as well as some things your neighbors might do for you. Recall with your child a neighbor or community member your child likes. Have your child create a thank-you card for this person and deliver the card together. Explain to your child that he or she has just demonstrated one way to be a good neighbor—by showing appreciation to others.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Community Workers** One way students can become aware of their community is by recognizing the people who work in it. Take your child on a tour of your community. Have your child draw pictures of community workers such as mail carriers, police officers, firefighters, librarians, teachers, shop owners, landscapers, electrical company representatives, grocery-store cashiers, and restaurant staff. As your child draws, explain how this person's job impacts your child and your family. When you return home, talk about the workers that your child comes in contact with the most. Then help your child use his or her drawings to make stick puppets of frequently-seen community workers. Encourage your child to use the puppets to explain the job this community worker does and how your child interacts with him or her. **MODERATE MASTERY** ◒ **Needs Versus Wants Collage** In first grade, students learn the difference between needs and wants. Needs are things that all people require in order to live, such as shelter, food, clothing, medical care, and education. Wants are things people would like to have but don't necessarily need like toys, televisions, jewelry, and fancy vacations. Find a magazine that can be cut up. Look through part of it with your child and decide together if advertisements show needs or wants. Next divide a sheet of large construction paper in half, and write "Needs" and "Wants" at the top of each half. Have your child look through the rest of the magazine and cut out pictures. Then have him or her glue the pictures onto the correct side on the chart. After the chart is complete, have your child explain why these items are needs or wants.

Return to Table of Contents

GRADE 1 MATH

GRADE 1 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Peruse a Catalogue** Students need to recognize that numbers appear in many places. The numbers they find are examples of real-world math. To prove your point, flip through a mail-order catalogue that you've received at home. Choose a catalogue that has items of interest to your child, such as books, toys, video games, children's clothing, and so on. Then ask your child to point out all the numbers he or she sees. Talk with your child about the purpose of each number. For example, some numbers are product codes to identify the item. Some numbers are sizes. And, of course, some numbers are prices. Let your child cut out pictures from the catalogues to make a collage. Ask your child to circle the numbers. You can help him or her label each number with its purpose. **MODERATE MASTERY** ◒ **Price Tags** Understanding money and money value is an important skill. One way to help children count money is by relating the money to real-world amounts. Find items in your home that still have price tags on them. Most likely, you might still find price tags on clothing or perhaps simple items bought directly at the check-out aisle. Show your child the price, and ask your child to read it. Then present your child with a collection of bills and coins. Make sure you have the proper bills and coins for the amount on that price tag. Challenge your child to choose the correct bills and coins to pay for that item. Guide your child as necessary, reviewing the value of each bill and coin.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **How Much Do We Still Need?** Students need to recognize that math can help them solve real-world problems, not just problems in school. To demonstrate, choose a simple recipe to cook with your child. As you gather the ingredients with your child, hold back on some. For example, if a recipe calls for two eggs, bring out only one egg. Ask your child what is missing, and agree that you need one more egg. With your child, write or say a simple subtraction or addition problem: 1 egg + 1 egg = 2 eggs. If the recipe calls for 4 cups of milk, only measure out 2 cups. Again, ask your child how much more you need. Help your child understand that using math to solve problems is part of everyday life. **MODERATE MASTERY** ◒ **School Store** Topics within math usually aren't separated in the real world like they can be separated in school. For example, storeowners not only count the amount of products they have, they also determine prices. With your child, set up a "school store" using your child's own school supplies, such as paper, pencils, erasers, crayons, and notebooks. With your child, count how many of each item he or she has. Explain that you are "taking stock." Then apply prices to each item. Tell your child that you will act as a customer. Pretend to purchase several items from your child's store, then work with your child to count the items you've bought and come up with the total price for each set of items. Prices should be simple, like 5¢ for a pencil.

Operation Concepts model problem situation operation sense order of operations permutations, combinations operation properties represent operations	**MODERATE MASTERY** ◒ **Page Count** Subtraction and addition are math operations, as are multiplication and division. You can practice identifying math operations as you read with your child each night. Begin by asking how many pages the book has. Read half the book, and ask how many pages are left. Ask, *How can we find out?* (We can subtract.) Help your child subtract the total number of pages from the number of pages you've read to figure out the number of pages left. After reading several books, ask your child, *How many pages have been read all together?* With your child, add up the total number of pages. If all the books had the same number of pages, such as fifteen, introduce multiplication as well. For example, if there are three books, the total number of pages is forty-five pages (3 multiplied by 15).
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Toy Lineup** Measurement is finding the size of an object. Size can be expressed by length and width, by weight, or by volume. Help your child practice this important skill by measuring the height of toys at home. Using a ruler or a tape measure, help your child select toys to measure. Before you begin, ask your child to identify the unit of measure on the measuring device (inches/centimeters) Help your child measure each toy, starting at the bottom and ending at the top. Ask him or her to write down the measurements and to draw or write the name of the toy. Then have your child look at the measurements. Ask, *Which toy is tallest? Which toy is shortest? How can you tell?* **MODERATE MASTERY** ◒ **Estimating Size** When students estimate, they are making a "good guess." Estimation is recognizing the relationship between numbers and amounts. Invite your child to estimate sizes of objects in your home and record the results. Start by asking your child if he thinks a pencil is 10 inches or 10 feet long. Next, ask your child if he thinks a sofa is 6 inches or 6 feet long. Then have your child look around the house for three types of objects: – Objects that are shorter than the pencil – Objects that are longer than the pencil, but shorter than the sofa – Objects that are longer than the sofa Review the list with your child.
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems	**LOW MASTERY** ○ **Painting Symmetry** Symmetry occurs when one side of an image is exactly the same, or a mirror image of, the other side of the image. Let your child experiment with symmetry. Give your child a sheet of light-colored sturdy art paper. Tell your child to fold the paper in half. Then demonstrate how to drip paint in the crease of the paper, and have your child fold the paper in half. Help your child press the paper together, spreading the paint inside. Then have your child open the paper. Ask your child what he or she notices. Point out that the paint blob on one side of the crease is a mirror image of the paint blob on the other side of the crease. Explain that this mirror image is called symmetry. **MODERATE MASTERY** ◒ **2-D vs. 3-D** It is important that students are able to tell the difference between a flat, two-dimensional drawing and an object that has three dimensions (3-D). Ask your child to draw the

apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	following objects: a square, a circle, a triangle, a rectangle. Help your child label each shape, too. Then ask your child what is special about these shapes. Guide your child to notice that these shapes have length and width; they are flat. Then show your child a square block, a ball, a pyramid or prism, and a rectangular box. Ask your child to compare the flat drawings with these three-dimensional objects. Explain that 3-D objects have length and width, as well as depth. Challenge your child to match the two-dimensional shapes with the three-dimensional shapes (square—block; circle—ball; triangle—prism/pyramid; rectangle—box).
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **The Beneficial Bar Graph** Numbers and data can be organized in graphs. Graphs make it easier to compare information and draw conclusions. Students need to be able to read and understand graphs to compare numbers. One type of graph is called a bar graph. Information is lined up, and readers compare the "bars." With your child, find and line up some paper clips end to end, one line of paper clips for you and another for your child. Determine, according to the length of the line, who has more paper clips. Encourage your child to explain his or her answer. Then count the paper clips in each line to confirm your child's ideas. Discuss how viewing the paper clips in lines (like a bar graph) quickly shows who has more. **MODERATE MASTERY** ◒ **Height Tally** Sometimes simply looking at numbers has little meaning. But, when those numbers are arranged in graphs, they suddenly come to life. To demonstrate this with your child, measure each person in your family—even the family pet—and write the numbers on a sheet of paper. Have your child put the numbers in order, from smallest to largest. Then ask your child to help you measure the heights on a wall, drawing a slash mark for each height one next to the other (left to right). These height markers represent a form of a bar graph. Point out that sometimes when numbers are presented in a graph, the information is much easier to understand.
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Pasta, Please** Being able to recognize and extend patterns is an important early-math skill. Not only does it hone visual discrimination, it also engages critical thinking, a skill that carries over to many other math applications. Ahead of time, start a necklace chain of pasta shapes. Use shapes that are hollow, such as rigatoni, elbows, and pinwheels. Thread the pasta onto a string, following a specific pattern. Then show the necklace to your child, along with a bowl of extra pasta pieces. Ask him or her to identify the shapes in order. Then ask your child which shape should come next to extend the pattern. Have him or her look through the pasta bowl, find the next shape in the pattern, and thread it onto the string. Encourage your child to continue the pattern until the necklace is complete. **MODERATE MASTERY** ◒ **Number Scarf** Students can recognize patterns in the arrangement of numbers. This helps with number recognition, as well as critical thinking. Ahead of time, cut out a long, thick strip of paper, like the shape of a scarf. Cut the ends of the paper into fringe to further resemble a scarf. On the paper scarf, write a number pattern, such as 1, 3, 5, 3, 1, 3, 5, 3, 1, 3, 5, etc. Present the paper scarf to your child. Have your child read the number pattern, then challenge him or her to identify which number should come next. Let your child write the

	numbers to extend the pattern. Ask your child to explain the reason for his or her choices. If you have a real scarf, ask your child to identify any pattern there might be in the scarf. For example, there may be diamond shapes that vary in color in a pattern.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Donation Notation** Recognizing that math helps solve everyday problems encourages students to appreciate its value. Invite your child to help you look through your closet to select clothes and shoes to donate to a local clothing drive. Then ask him or her to help you sort the clothing into like piles, for example, pants, shirts, dresses, sweaters, and so on. Have your child help you count the number of items in each pile. Ask him or her to write down the numbers. Then speculate how you can figure out exactly how many items of clothes you are donating. Help your child write a number equation to figure out the amount, for example: 6 pants + 10 shirts + 3 sweaters = 19 items of clothing. **MODERATE MASTERY** ◒ **Party Patrol** Math and problem solving are more a part of students' lives than they might realize. Pointing out the role that math plays in their lives will help foster a deeper understanding and appreciation of math operations. Pose a real-world math problem for you and your child to solve. Suggest that your child's class is having a party. Several parents have volunteered to make cupcakes, one for each child. Your class has thirty-two students. One parent is making twelve cupcakes and another parent is making ten cupcakes. Ask, *How many cupcakes should you make, and how do you know?* Help your child add 12 + 10 to get 22; then subtract 32 – 22 to get 10. Help your child conclude that math helped you figure out that you need to make ten cupcakes.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Decorating Sense** Communicating math ideas shows an understanding of math. It also demonstrates that students feel comfortable using math operations. Invite your child to add decorations to a room in your home, or do this as a pretend activity. It can be your child's bedroom, a family room, even the kitchen. Encourage your child to make suggestions by saying sentences, such as "Let's add two or three pictures to the wall. Let's take away one of those pillows. Let's add an extra lamp to that table." Point out to your child the math words he or she uses. With your child, draw a before-and-after picture of the room. Ask your child to circle the items that were added and to draw an X through the items that were taken away or "subtracted." **MODERATE MASTERY** ◒ **Meal Math** Students can prove their proficiency in math by using math terms in everyday communication. You can help your child practice using math vocabulary the next time you sit down together for a meal. As you add food to your child's plate, ask your child to describe what you are doing. Encourage your child to use the word *add*: "You are adding food to my plate." As your child eats, ask your child to explain what is happening to the food on his or her plate. Guide your child to use the words *take away* or *subtract*: "I am subtracting food as I eat." If your child goes back for seconds, encourage your child to say, "I am adding more food to my plate."

Return to Table of Contents

GRADE 1 READING

GRADE 1 OBJECTIVES	MASTERY
Oral Comprehension literal interpretive	**LOW MASTERY** ○ **Be a Book Reviewer** Read a story with your child. Then, have your child do a book review to see whether he or she would encourage others to read this book. Ask your child to decide whether he or she liked the book and then use details, or things that happened in the story, to explain his or her answer. Ask questions to guide your child, such as, *Who was this story about? Where did it take place? What did the main character in the story do? What is the main character like? Would you like this character for a friend? Why or why not? How did the story end?* You might write down your child's answers so he or she can read them back to you. **MODERATE MASTERY** ◒ **Comparing Lives** When students feel a personal connection with a character in a story, they enjoy reading more. After you have read a story with your child, ask your child to explain how he or she is the same as or different from the main character (the person or animal the story is about). Help your child by asking questions such as, *Does the main character go to school? Does she have a close friend? What does she like to do for fun? How is this the same as something in your life?* Then have your child fold a piece of paper in half and draw the main character on one side of the fold and him or herself on the other side, including what is the same or different about them.
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Reporter Role-Play** Being able to remember details or information about a story is important for understanding the story. One activity that can help your child practice remembering details is to role-play being a reporter. Read a story or part of a story ahead of time, and write down five or six questions that ask about things that happen in the story. Then have your child read the story, or read it together. Then "interview" your child about specific details in the text using your questions. Ask your child to pretend he or she is being interviewed for the news. You can also have your child pretend he or she is the reporter and have him or her write the "news story" by answering the questions. **MODERATE MASTERY** ◒ **Don't Be Silly!** Being able to follow the sequence of a story (the order of events) and understand story details are very important reading skills. Choose a passage (a short story or article) to read with your child. You can read silently or aloud together. Then say silly misstatements about what you have read, and ask your child to correct you. For example, if you read a passage about elephants, you might say, "I read that elephants love to eat hot-fudge sundaes!" Your child should correct this statement with the correct elephant diet. Help your child write a sentence for this detail (for example, *Elephants eat plants)*. If your child struggles to recall the details or the order of events, re-read the passage together and guide your child to the correct answer.

Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Story Snapshots** It is important for students to know the basic elements or parts of a story. They include the main characters (who the story is about), the setting (where and when the story takes place), and usually a problem the main characters must solve. Read a story with your child, then ask your child to draw "snapshots" of the story elements on index cards. Ask your child questions to guide the drawings. For example, ask, *Who is this story mostly about? Where does this story happen? What problem does the main character have? How does the main character solve the problem?* When the drawings are complete, help your child attach them to colored paper to resemble a photo-album page. Then work with your child to write a brief caption or title for each "snapshot." **MODERATE MASTERY** ◒ **Making a Movie** The basic elements or parts of a story include main character (who the story is about), setting (when and where the story takes place), and plot (what happens in the story). The plot usually includes a problem the character needs to solve, events that lead to a climax (turning point, where things start to change) and the solution to the problem. Help your child recognize these story elements. After reading a story, suggest to your child that Hollywood would like to turn the story into a movie. Ask your child to identify the main character and to suggest someone they know who might play this character. Then have your child describe what the sets should look like. Challenge your child to also retell the problem and the solution. Finally, ask your child if the story would make a good movie.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**MODERATE MASTERY** ◒ **Add a Fantasy Character** A fictional (made-up) story that could actually take place in real life is called "realistic fiction." If something that does not exist in the real world, such as a monster or a talking animal, is added to the story, it becomes a work of fantasy (something that does not exist in real life). Invite your child to tell you a story about something real that could actually happen in your neighborhood. Your child can even be the main character. Write down the story or record it. Then ask your child to tell the story again, this time adding a fantasy element, such as a dragon or a ghost or an outer-space creature. Let your child have fun with the story, perhaps illustrating it as well. Point out how the story differs from the realistic version.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**MODERATE MASTERY** ◒ **What Is Missing?** In order to be successful readers, students must be able to identify punctuation marks (symbols that separate words into sentences and sentence parts) and when they should be used. Copy a paragraph from a familiar story in large handwriting, leaving out the punctuation but keeping the capital letter at the beginning of each sentence. Read the paragraph with your child and ask if he or she notices anything missing. Discuss how to know where the ending punctuation (periods and question marks) should go. Remind your child that a sentence begins with a capital letter. Have your child write in the missing punctuation. Explain that periods and question marks are important because they let the reader know when a sentence ends, which makes sentences and paragraphs easier to read.

Introduction to Print environmental print sound/visual recognition word analysis	**LOW MASTERY** ○ **Sight Word Memory** Sight words are simple words that appear most often in print. Words like *a, the, I, you, we, see, it, is, for, us, go, no, yes, at,* and *to* are sight words. Being able to recognize sight words helps your child read more fluently (with an easy flow). Playing this game will help your child practice his or her sight words. You will need 20 index cards. Choose 10 sight words, and write each word on two separate cards so that you have two cards for each word. Mix up the cards and lay them face-down. Then ask your child to turn over two cards. Have your child read the words. If the words are the same, your child keeps the matched pair. If not, have your child turn the cards back over and try again. The game ends when your child has taken all the word pairs. **MODERATE MASTERY** ◒ **I'm Thinking of a Word** As students become better at reading, they understand the relationships between letters, the sounds they make, and how letters form words. To give your child practice with letter sounds, have him or her go on a scavenger hunt through a favorite storybook. Read the book ahead of time, choosing beginning sounds, ending sounds, and vowel (a, e, i ,o, u) sounds for your child to find. For example, if you chose the word *fan,* say, *"I am thinking of a word. It begins with the* f *sound. It has a middle sound like the* a *in* apple*, and it ends with the* n *sound."* Make the letter sounds for your child. Then encourage him or her to read the sentence, paragraph, or page to find the word you are thinking of.

Return to Table of Contents

GRADE 1 SCIENCE

GRADE 1 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Plant Predictions** Predicting, observing, recording, and concluding are just a few of the skills used in science. Try this easy experiment at home with your child. You will need two leafy houseplants of the same type and size. Ask your child what most plants need to live, such as water, air, light, and soil. Then ask your child to predict what might happen if a plant does not get water. Write down your child's prediction. For the next few days, water one of the plants but not the other. Have your child observe and draw the plants in a notebook each day. When the unwatered plant begins to wilt, review your child's prediction. Help your child sum up what he or she has learned in a concluding sentence, for example, "Plants need water to stay healthy." **MODERATE MASTERY** ◒ **Mixing Colors** Whenever students ask questions or are curious about the world around them, they are engaging in science inquiry. Try the science of mixing colors to help your child practice science inquiry. Using paints or markers, put the primary colors blue and yellow on a piece of paper. Ask your child, "What do you think will happen if you mix blue and yellow together?" Invite your child to mix the colors on paper. Ask your child, "What do you see? How did blue and yellow change?" Your child should observe that blue and yellow together make green. Continue in this way, asking your child to predict what color will appear when blue and red are mixed (purple), then when red and yellow are mixed (orange). Tell your child that asking questions and watching what happens are great ways to find out and learn something new.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Chocolate Guesses** Forming a hypothesis, or guess based on previous observations, is an important science skill. Ask your child what would happen if you put an ice cube on the counter. Your child will probably say that the ice cube melts. Ask your child, "Do you understand why this happens?" Explain that the ice cube becomes warmer, or absorbs heat (energy), and changes phase from solid to liquid. Get a chocolate bar and ask your child what will happen when the chocolate absorbs heat. Your child will probably guess that the chocolate will melt. Test this hypothesis by putting the chocolate in a bowl and warming it in the microwave. Watch the chocolate melt. Pour the liquid chocolate over some ice cream and observe that the chocolate starts to turn solid again as it absorbs cold from the ice cream…unless you eat it before that happens! **MODERATE MASTERY** ◒ **Solids and Liquids** Grouping objects according to similar characteristics is an important part of science investigation. One way to group objects is by states of matter, that is, by whether the object is a solid or a liquid. Help your child observe and identify the differences between solids and liquids. Start by asking your child to identify solids in the kitchen, such as knives, cold butter, and vegetables. Explain that solids do not easily change shape. Next, ask your child to identify liquids, such as juice, milk, and water. Ask your child how the liquids are different from the solids. Have your child experiment by pouring water into

	containers of different sizes and shapes. This will help your child see that liquids easily change their shape, but solids do not
Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Life Cycle Sequence** Life science includes the study of animals. Students can engage in this study by exploring animal life cycles. Obtain a book about baby animals from your local library. Have your child identify each animal, and then help him or her match the baby animal with its mother. Identify animals that hatch from eggs, like chicks or ducklings. Explain that the egg, the baby animal, and the adult animal are all phases of the animal's life cycle. Share with your child a more complex life cycle, like that of a frog or butterfly. You can probably download photographs from the Internet to share with your child or reference a library book. Challenge your child to identify which phase comes first, second, and so on, by pointing to the correct picture. **MODERATE MASTERY** ◒ **Local Habitats** The places animals live in the wild are called habitats. Habitats can be very large, like a rain forest, or much smaller, like a city park or a backyard. Invite your child to explore and observe an animal habitat. Bring along drawing paper as you venture to your own backyard, a local park or nature trail, or a nearby seashore or lake. Invite your child to sketch the natural scenery, and then help him or her notice and label any animals. Animals include birds, squirrels, frogs, reptiles, bees, flies, dragonflies, butterflies, and ants. Your child should not touch any animals, but simply observe and draw them. Help your child conclude that natural settings are habitats—places to live—for these animals.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate	**LOW MASTERY** ○ **Sky Scenery** Earth and space science involves noticing things about the sky. With your child, observe the moon, the sun, a starry night sky, and a cloudy sky (or view photographs from books or the Internet.) Ask, *Which do you think is closer, the clouds or the moon? Why?* (Answer: Clouds are closer because you cannot see the moon when it is cloudy.) Ask, *Which do you think is bigger, the moon or the sun? How big are the stars?* Demonstrate that objects that are farther away seem smaller by having your child close one eye and look at a coin held at arm's length. Challenge your child to cover a lamp or a window with the coin. Explain that the moon is actually much smaller than the sun, but many times closer to Earth. Discuss how the sun is actually a star that is just a lot closer than other stars. **MODERATE MASTERY** ◒ **Track the Sun** The sun is an integral part of earth and space science. Help your child note the effects of the sun's changing position during the day. Choose a sunny day to periodically note the position of the sun with your child. Help your child describe the sun as low in the sky or high in the sky, and note how it changes throughout the day. Point out the effect of the sun's position on shadows. Shadows are longest when the sun is low in the sky and shortest when the sun is directly overhead. Ask your child whether the position of the sun has any effect on temperature. (Answer: The sun feels warmest when it is directly overhead.) Do this several times throughout the year and discuss any changes in the sun's position through the seasons.

Science and Technology careers design of technology science and technology use of technology	**MODERATE MASTERY** **How Sound Travels** Scientists have studied sound for many years, leading them to develop many modern-day technologies. Help your child experiment with sound and surrounding objects. Play a consistent sound-making device (such as a cell phone ringtone or a child's toy) in different rooms in the house. With your child, stand a set distance from the device and note how loud it sounds. Ask, *Where did it sound loudest? Softest?* Point out that the sound coming out of the device was the same every time. Rooms with hard surfaces, such as the bathroom and kitchen, reflect sounds, helping the sound waves reach your ears. In rooms such as the living room and bedroom, the soft furniture, curtains, and/or carpets absorb sound, making it seem dampened. Review what you have learned with your child: Sound travels through air and is reflected and absorbed by objects.

Return to Table of Contents

GRADE 2 SOCIAL STUDIES

GRADE 2 OBJECTIVES	MASTERY
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Label a Map** Often, young students have difficulty interpreting maps. The map's lines may seem to blend together and the map's symbols may be confusing. Choose a simple map from a children's atlas. Write specific map features (legend, compass rose, scale, state or county borders, water bodies, location numbers and letters) on separate sticky notes. Review these features with your child explaining the importance of each. Now give the notes to your child one at a time and have him or find that feature on the map and place the note on top. Have your child explain to you what each feature's purpose is. Ask questions such as, *What information does this feature tell or show you? How would this feature be helpful to you?* Continue until all sticky notes have been placed on the map. **MODERATE MASTERY** ◒ **People Change the Land** It is important for students in Grade 2 to realize that people have the ability to change the world around them. Show your child two pictures: one of a wilderness landscape and one of a city. Help your child compare the two images. Ask questions such as, *Which picture shows nature? How has nature been changed by people in the other picture?* Then talk about your own community. Invite your child to name things made by people such as streets, shops, homes, and schools. Then ask your child to think of things in your community that are natural features such as lakes, rivers, beaches, mountains, and forests. Make a two-columned chart with "Natural Features" on one side and "Man-Made Features" on the other. Ask your child to draw several examples for each column. Have him or her explain to you why each picture was drawn in this location.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **My, How You've Grown!** Students learn how communities change in second grade social studies. Help your child recognize changes in your community by pointing out changes made to your home, yard, or street. Point out a new tree planted in your yard or a freshly-painted house nearby. Now talk with your child about some of the larger changes that have been made in your community. Remind your child about new stores that have opened; a housing development that was built; or improvements that were made to a local park. Explain that both small and large changes have happened in every community in the past and will continue to happen in the future. If possible, show your child pictures of your community from long ago to show how much different the community is today. Now ask your child to draw a picture of what he or she thinks your community might look like in the future. **MODERATE MASTERY** ◒ **Cultural Foods** In Grade 2 social studies, students learn how people share their cultures with others. To help your child better understand this concept, discuss how your family shares its traditions and cultures with others. Your family might cook special cultural dishes which you bring to neighborhood parties. Or maybe your family enjoys music or arts that are reflected in your home's decor. After this discussion, ask your child to think about foods he or she enjoys that come from a culture other than your own. List the foods your child names. Choose one of these dishes and together with your child make it for dinner. As you do so, help your child come to the conclusion that making and eating food from other cultures can help people gain an appreciation for these cultures.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Community Services** Second grade social study students learn what types of services the government provides. To help your child understand this concept, have your him or her list the places in the community that you frequently visit (library, post office, grocery store, pizza parlor, dry cleaners). Then ask your child if he or she knows which place is run by the government and which is run by private businesses. Explain why each answer is correct or incorrect. Now mention other places in the community that are run by the government such as the firehouse, police department, and public schools. Explain that the people who work in these places help the community and are paid with money that community members pay in taxes. For fun, let your child use an old shoebox to create a model of your local post office, library, or municipal center. Assist your child in labeling the model. **MODERATE MASTERY** ◒ **Who Makes the Rules?** In second grade, students learn the importance of laws and rules. Ask your child to explain what a law is. Agree that a law is like a rule—it is something that must be obeyed and followed. Review any rules your child must follow in your home. Ask, *Who makes these rules?* (parents or guardians) Then talk about rules your child must follow at school. Ask, *Who makes these rules?* (teachers and the principal) Then ask, *Why are rules important?* (They keep us safe and help us know what's expected of us.) Ask your child to think if there are any rules that the school should add. Have your child explain why these rules would be good for the students or the school. Help your child write a sentence that states his or her new school rules.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Boosting Business** Since businesses are part of a community they are also part of social studies. Take your child with you to a local shop, bookstore, toy store, florist, or bakery. Ask your child to describe what he or she sees. Ask, *Where do you think the shop owner gets all these things? How do you think the shop owner makes money?* If possible, interview the shop owner or one of the store workers. Suggest that your child ask questions about what it's like to run a store and sell products. At home, talk with your child about what you both have learned. Explain that one way a business can sell more things is to advertise. Review advertisements in your local newspaper or a magazine. Then have your child create an advertisement for the store you just visited today. **MODERATE MASTERY** ◒ **Take It to the Bank!** Some young students might have a difficult time understanding the purpose of a bank. To help your child with this concept, take him or her to visit your local bank. While there, explain that banks are places where people put their money for safekeeping. Show your child how you can put money into the bank with a deposit slip and take money out with a check or withdrawal slip. You can actively involve your child in a deposit by taking your loose change with you to the bank. Some banks have change-counting machines that print out a total for you to deposit. Let your child pour the change into the machine, then read the receipt together. Explain that this money will be deposited into your family's bank account. You may also want to set up a savings account for your child and allow him or her to make small deposits.

Return to Table of Contents

GRADE 2 MATH

GRADE 2 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Comparing Book Pages** Comparing numbers to determine more or less is a crucial math skill. You can compare numbers at home by asking your child to look at the total number of pages in grade-appropriate books. The books can be fiction or nonfiction. Have your child write each book title, and then the number of pages. Include about ten books. Ask your child to study the page numbers to determine which books have the most pages. Which books have the least? Challenge your child to arrange the books according to book length, studying the numbers he or she wrote. Check your child's order to make sure it begins with the shortest book and ends with the longest book. **MODERATE MASTERY** ◒ **Paper Squares** Fractions can be hard to understand, but they're still important to learn. Help your child practice fractions with paper squares. You will need five identical squares that are big enough to fold and write in. In the center of one square, write the number 1. Point out that it is one whole square. Now fold another square in half, and unfold it. Write ½ on each side of the fold. Say: "One-half + one-half = one whole square." Fold another square in half, then in half again. Ask your child to write ¼ in each square. Say: "One-quarter + one-quarter + one-quarter + one-quarter = one whole square." Arrange the whole square and the fraction squares on top of each other to compare. Use the remaining squares to show 1/8ths and 1/16ths.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Goodie Bags** It is important for students to recognize that using multiplication is more efficient than adding large groups of like numbers (for example, 5 + 5 + 5 can be written 3 × 5). Invite your child to help you set up goodie bags, as if you are having a party. Line up six brown lunch bags, then one or two easy-to-handle foods, such as boxes of raisins, cookies, apples, and individually wrapped candies. Set a number for each food (each bag must have four cookies, six candies, two apples, three boxes of raisins). Challenge your child to use multiplication to figure out how much of each food you need: 6 bags × 4 cookies = 24 cookies; 6 bags × 6 candies = 36 candies; and so on. Have your child count the foods to make sure you have enough. Fill the bags accordingly. **MODERATE MASTERY** ◒ **Takeout Menu** Money is not only an important math skill; it is part of everyday life. The more familiar students become with the role money plays in their lives, the more they'll value and understand how money is used. The next time you order takeout food, share the menu with your child. Ask your child to locate the prices of the foods. Make sure your child can distinguish between the part of the price that stands for dollars and the part that stands for cents. Then compare the food prices with your child, determining which dishes cost the least and which are more expensive. Finally, choose foods to order. Work with your child to add up the total cost. Conclude by helping your child count out the dollar and coin amounts using real money.

Operation Concepts model problem situation operation sense order of operations permutations, combinations operation properties represent operations	**LOW MASTERY** ○ **Picture This** Math operations include addition, subtraction, multiplication, and division. Students need to recognize which operation to use when solving problems. Show your child a photo album with individual sleeves for each picture. Ask your child how you could figure out how many photographs the album will hold. Ask, *Which math operation could help us find out?* Help your child realize that he or she should multiply the number of sleeves on each page by the number of pages in the album. Ask your child to count the sleeves and pages, and help him or her write the multiplication equation (# of sleeves × # of pages = # of photographs). Then ask your child how you could figure out how many sleeves are full (addition) and how many empty sleeves are left (subtraction). Have fun viewing the album while counting photos and empty spaces. **MODERATE MASTERY** ◒ **New for School** As students recognize which math operations to use when solving math problems, they also come to realize how math plays a role in their everyday lives. Suggest to your child that the school is ordering new supplies for his or her class. Have your child write down how many students are in class. Then explore different examples involving math, and ask your child how to find the answer. For example, ask, *Each student needs three pencils. How many pencils are needed altogether? How can we find out?* (Multiply the number of students by the number of pencils.) Or *Six students can each use one computer. How many computers should your school order for your class? How can we find out?* (Divide the total number of students by the number per computer (6).) Continue in this way with other examples.
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Let's Leap** Measurement involves an understanding of numbers as well as the tools used for measuring. Ask your child which measuring tool would work best for measuring how far he or she can leap. Show several measuring tools to generate ideas: a ruler, a tape measure, a measuring cup, a scale. Talk about what each tool measures. (Ruler/tape measure: length; measuring cup: volume; scale: weight.) Agree that a ruler or a tape measure is the best tool for measuring a leap. Designate a starting point, either indoors or outside, and ask your child to leap as far as possible. With your child, measure the distance and write it down. Let your child leap several more times, measuring each leap. Compare the measurements to determine which leap was the longest. **MODERATE MASTERY** ◒ **Calendar Calculations** The passing of time is something that can be measured. Review a calendar with your child. Have him or her identify the current month. Ask your child to count how many days are in the month and tell you how he or she knows. Make sure your child recognizes that a month starts with Day 1 and counts the days up to the last day. So the date of the last day is how many days are in that month. Then discuss the number of days in a week (seven) and how many weeks are in the current month. Have your child identify the current day. Then pick a day in the future, and have your child figure out how many days are in between.

Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Shape Scavenger Hunt** When studying geometry, students must learn how to recognize and identify shapes. You can help your child with shape definition by looking in and around your home for shapes. Start by asking your child to draw simple shapes, like a square, a circle, a triangle, an oval, and a rectangle. Help your child compare the shapes by asking questions. Ask, *Which shapes have straight lines and angles?* (square, triangle, rectangle) Ask, *Which shapes have curved lines?* (circle, oval) Ask, *How are the square and the rectangle different?* (The sides of a square are all the same length.) Now take your child through your home and around your neighborhood, and have him or her identify shapes. Encourage your child to draw the objects and label them with the shape word. **MODERATE MASTERY** ◒ **Facial Symmetry** Symmetry is when one side of an object is the mirror image of the other side. For example, butterfly wings are symmetrical. Recognizing symmetry is important for visual discrimination and recognizing patterns. Have your child look through your home for items that are symmetrical. Demonstrate how to hold something, such as a pencil, in the middle of the object to study what's on each side of the pencil for symmetry. Point out to your child that faces are symmetrical. Give your child a picture of himself or herself. Cover half of the face with a piece of paper. Challenge your child to draw the other half of his or her face on the paper, using the one visible side of the photograph for reference. Explain that the drawing doesn't have to be perfect, but that it should try to show symmetry.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Chances Are** Probability concepts are more common than many students might think. Probability is the likelihood or chance that something will occur in the future. If you have candy with different colors available (for example, jelly beans), count out ten of one color and five of another color. Ask, *Which color are you more likely to pick if you pull a candy out of a bag without looking?* (Your child is more likely to grab the color of candy that there is more of in the bag). Now have your child give it a try! Have them record the color of the candy, place it back in the bag, and try again. After about five tries, he or she should see that pulling out one color of candy (the color of the ten candies) is more likely than grabbing the other color. **MODERATE MASTERY** ◒ **Basketball Probability** Probability is the chance that something will happen. Probability is usually measured as a percentage or a fraction. Invite your child to take ten shots with a basketball (or ten shots with a wadded piece of paper at a trash can). Ask: *Out of ten shots, how many will you make? How likely is it that you'll shoot one hundred percent, meaning you'll make all ten baskets?* Then encourage him or her to make ten shots. Play along with your child. Before it is your turn, ask him or her to guess how many shots you'll make and express it as a probability (like 50% which is five out of ten). *What if you take shots backward?* (The probability of making a shot backward will likely go down to maybe ten percent—that is, you and your child will likely make only make one out of ten.)

Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Keep Going!** Recognizing simple geometric patterns is a skill that students will use as they learn higher-level math, like algebra. Help your child practice and prepare by setting up a pattern for them to complete. Use common objects around your home, such as index cards to represent rectangles and buttons to represent circles. For example, start with two index cards then three buttons then two more index cards. Ask your child to extend the pattern. (Three more buttons.) Have your child explain his or her choice. Then take away some items in the middle of the pattern (have your child close his or her eyes as you do this), and challenge your child to figure out which items are missing. Now it's your child's turn! Have your child create his or her own pattern and then challenge you to extend it. **MODERATE MASTERY** ◒ **Seeing the Pattern** Recognizing patterns in a series of numbers helps students understand the relationship between numbers. It also increases their understanding of math operations, which then helps them develop higher-level skills. Explore some common number patterns with your child. Write the numbers 2, 4, 6, 8, and 10 on a sheet of paper. Ask your child which number should come next and why. (The number 12; the pattern is that each number is two more than the previous number.) Then write 1, 5, 9, 13, and 17, and have your child explain which number comes next. (The number 21; four is being added to get the next number.) Additional patterns can include counting by 3s and 5s. As your child gains confidence, leave out a number or two in the middle of the pattern. Challenge your child to figure out the missing number(s).
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **What's Missing Here?** As students become better at solving math problems, they should recognize what information is needed to get an answer. Help your child identify key information by viewing sports scores in your local paper. Point out the scores, and ask your child to tell you who won. Ask, *How do you know?* (The team with the highest score is the winner.) Then ask your child by how many points the team won. Ask, *What information do we need in order to solve this problem?* Help your child understand that he or she needs both scores to determine the difference. Then ask, *Has the winning team ever scored more points than they did in this game?* There is not enough information. To answer this question, your child should determine that they need the winning team's scores from all of their previous games. **MODERATE MASTERY** ◒ **Are We There Yet?** Recognizing the information needed to complete and solve a math problem is an important skill. Use a car trip to help your child figure out what information is needed to solve the question, *Are we there yet?* Start by checking the time before the journey begins. Have your child write down the time. Then ask your child what time you will arrive at your destination. Ask, *What information do we need to answer this question?* (The missing information is the traveling time.) Tell your child the traveling time, for example, one hour and thirty minutes. Then have your child figure out the estimated time of arrival, based on this time. Ask for updates on the remaining time as the trip continues.

Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Algebra Tiles** Manipulatives (items used to help model math problems) can give students a more hands-on way to understand algebra. Use toothpicks to represent ones and squares (game tiles or cutout squares) to represent the variable *x.* Write and model an equation, then solve it step by step until your child sees that one square (the variable) is equal to a certain number of sticks (ones). For the example $3x + 2 = 6 + x$, lay three squares and two sticks next to six sticks and one square. Now regroup the manipulatives as you would to solve an algebra equation. Remove one square from each side (that is, subtract one *x* from each side). Now you have $2x + 2 = 6$. Next remove two sticks from each side, leaving $2x = 4$. Group the four sticks into two groups so your child can see that four sticks equals two squares, or $x = 2$. **MODERATE MASTERY** ◒ **Picture the Problem** Many problems can be solved by visualizing proportions. Help your child make diagrams to solve proportion problems. Take, for example, the following problem. *Jimmy did two hours of work and Barry did three hours. They were paid $50 for the whole job. How much should each person get?* Have your child draw a five-inch wide rectangle and label it "Five Hours." Divide the rectangle into five parts (one part is an hour) and shade two parts for Jimmy and three parts for Barry. Next draw another five-inch-wide rectangle below the first rectangle and label it "$50." Each inch equals $10. Jimmy should get $20 (two parts of the five hours for $10 per hour), and Barry should get $30.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Matt the Stat** Graphs and statistics are all around us. Students should be familiar with them and feel comfortable communicating the information they provide. Take time to discuss the graphs and statistics you see with your child. For example, ask your child to explain and find a good example of things, such as gasoline prices, that show an *increasing* or *decreasing trend*. Study multiyear trends and ask your child if they see any *seasonal patterns*. Ask your child, *Is the average statistic being graphed a* mean *or* median*?* Discuss the value of each type of average. (The *mean* works well with large samples. The *median* is better for small samples as it is less affected by *outliers*.) Once you get the discussion moving, try to get your child to lead the discussion covering as many math concepts as possible. **MODERATE MASTERY** ◒ **Vocabulary Brainstorm** Help your child relate math to everyday life with this "operations brainstorm." As you are walking, taking public transit, or driving together, talk about how math words get used in everyday language. Some examples to start you off are as follows: "things really added up" (detective novels), "our problems seem to be multiplying" (management), "does it add up?" (budgeting), "that's trouble times three!"(storytelling), "take off the labor costs, and it still adds up!" (contracting), "divide the dough" (cooking), and "let rise until double" (cooking). See how many examples your child can come up with on his or her own, and turn it into a trivia contest by taking turns thinking of new ones.

Return to Table of Contents

GRADE 2 READING

GRADE 2 OBJECTIVES	MASTERY
Oral Comprehension literal interpretive	**MODERATE MASTERY** ◒ **A Mixed-Up Day** It is important for students to be able to follow the words of a story or article as it is read aloud to them. To practice this skill with your child, have him or her draw pictures of ten activities done on a regular day on individual, small papers. These can include brushing his or her teeth, running for the bus, or playing with a friend. Then write a short story together about a day in which these everyday activities did *not* happen in the normal order (for example, a day when your child ran for the bus *before* brushing his or her teeth). Read the story aloud, then ask your child to put the pictures in the same order as the activities occurred in the made-up story.
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Sequence of Events** Students must be able to follow a story's sequence, or order of events, in order to fully understand what is happening in the story. This activity can help your child practice event-sequencing skills. First, cut out several paper strips, measuring about 2 inches by 8 inches. Have your child read a short passage from a story he or she has read. Ask your child to think about what happened in the passage first, next, and so on. On each paper strip, have your child write a sentence that tells about one event from the story. Then mix up the strips, and have your child place the strips in the correct order. **MODERATE MASTERY** ◒ **Vocabulary Pantomime** As students read more challenging material, they will come across new vocabulary words. To help your child learn new vocabulary, review a story or a nonfiction (not fantasy) book your child is reading. With your child, scan the words to find vocabulary words that are important to know in order to understand the story. Ask your child to write the words on index cards. Then have him or her find the definitions or meanings of the words either in the story or in a dictionary. Read the words together, encouraging your child to use each word in a sentence. Then place the cards face-down in a pile. Take turns selecting a card, keeping the word a secret. Pantomime or act out the word and its meaning, challenging yourself and your child to identify the correct word.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **What Might Happen Next?** The relationship between cause and effect is not always clear to students. A *cause* is something that happens first. It *makes* something else happen. What happens as a result of the cause is the *effect*. For example: *Because it was raining* (the cause), *the baseball game was cancelled* (the effect). This fun activity will help your child understand cause and effect. Let your child cut out old magazine pictures of something happening, and glue them to a sheet of paper. Ask your child to write a sentence that tells about the picture. Then ask your child to write a second sentence that explains what might happen next. Challenge your child to think about different effects that could be the result of the same cause.

	MODERATE MASTERY ◒ **Story Quilt** In order to understand what they read, students need to know the basic parts of fiction (stories that are not true): main character(s) (who the story is about), setting (where and when it happens), plot (key events), conflict (the problem), climax, (key turning point) and solution (how the problem is solved). To help your child understand these basic elements, fold a paper into several squares, like the squares of a quilt. After your child has read a story, have him or her draw the main character, the setting, important events from the plot, and so on, in the squares. The last square of the "quilt" should show how the problem is solved. Then ask your child to identify and explain each picture and how each drawing relates to the story.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Reality vs. Fantasy** Realistic fiction includes made-up stories about real-life situations. Fantasy fiction, on the other hand, includes made-up stories about things that could not exist or happen, such as monsters, dragons, talking animals, magical powers, and so on. This activity can help your child learn to tell realistic fiction from fantasy fiction. Select several stories of each type of fiction ahead of time, and read them one at a time with your child. Ask your child to identify the elements of the realistic stories, such as main characters (people in the story), a realistic setting (where and when the story takes place), and real-world problems and solutions. Then have your child list fantasy elements of the stories. Finally, ask your child which type of story he or she likes to read and why. **MODERATE MASTERY** ◒ **What Will Happen Next?** When reading a story, good readers often can guess what happens next. This is called *making predictions*, and it is an important reading skill. It shows that the reader has an understanding of the characters (the people), the plot (what is happening) and the problem the characters face. This activity can help your child learn to make predictions while reading. Read through a book your child has not read yet and mark places in the book where you could ask your child to predict what might happen next. Then read the book together. Write down your child's predictions, asking your child to explain how he or she came up with each prediction. Then continue reading to find out what really happens. Compare your child's predictions and the actual outcomes together.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **A Grand Introduction** A *topic sentence* is usually the first sentence in a paragraph. Topic sentences provide the main idea of the paragraph. Sentences that follow the topic sentence give details that support or further explain the topic sentence. Students must learn how to write a good topic sentence. To help your child improve this skill, borrow some nonfiction children's books (about real people, places, things, events or ideas) from your local library. Choose paragraphs that demonstrate good use of topic sentences. Then share these paragraphs with your child. Have your child identify the topic sentence and tell the main idea in his or her own words. Read the rest of the paragraph to determine whether the sentences that follow support the topic sentence. Discuss with your child whether the topic sentence is a good one. If not, ask your child to rewrite the topic sentence.

	MODERATE MASTERY ◒ **Photo Essay** When writing reports or essays, students need to begin paragraphs with topic sentences. A *topic sentence* tells the main idea or point of the paragraph. The sentences that follow provide details or information that support the main idea. This activity will help your child practice writing good topic sentences. Find a photograph you like. It can be a personal one, such as one from a family vacation, or one from a magazine. Ask your child to write a short paragraph about the picture. If the photograph is a personal one, your child can begin by identifying the event. If the photograph is from a magazine, your child's topic sentence should explain the main idea of the photo. When your child finishes the paragraph, review his or her work, making sure the sentences that follow the topic sentence provide supporting details.
Introduction to Print environmental print sound/visual recognition word analysis	**LOW MASTERY** ○ **Letters and Sounds** In order to become good readers, students must be able to identify letters and the sounds they make. Help your child practice letter and sound recognition by reading during everyday activities. Look through a children's magazine or nonfiction book (tells about real people, places, things, events or ideas) and ask your child to read the headings or titles of articles. When driving around point out examples of print, such as a STOP sign, and ask your child to read them. At the food store, look at food labels together. Have your child identify the first letter (beginning sound), the last letter (ending sound), as well as sounding out unfamiliar words. Ask your child to find words that he or she would like to learn to read and help identify the different sounds in the words. **MODERATE MASTERY** ◒ **Put It Together** Students read better when they are able to recognize *compound words*, or words formed by putting together two simple words, such as *snowman*. To help your child understand compound words, take a walk around your home together, and point out objects that have compound words for names. Then challenge your child to figure out compound words as you pose simple riddles. For example, *I am a shelf for books. What am I?* (a bookshelf) *I'm a pot for flowers. What am I?* (a flowerpot) *I'm a brush used for painting. What am I?* (a paintbrush) Other compound words could include *bedroom, toothbrush, flashlight,* and *football.* Write each compound word you find on an index card, and have your child cut the cards in half, separating the original two words that make up the compound word. Mix up the halves, and challenge your child to put the compound words back together again.

Return to Table of Contents

GRADE 2 SCIENCE

GRADE 2 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Kitchen Science** Some important skills in science include making predictions, recording observations, and drawing conclusions. Invite your child to apply these science steps as he or she observes and helps you in the kitchen. For example, as you heat a pot of water to cook pasta, show your child the solid pasta before you put it in the boiling water. Ask your child, "What do you predict will happen when I put the pasta in boiling water?" With proper supervision, let your child watch the pasta as it cooks. Ask your child to make observations and describe what happens. Once the pasta has finished cooking, ask your child what he or she has learned, for example, that heat and boiling water make solid pasta soft. **MODERATE MASTERY** ◒ **Bubble Science** When students apply science inquiry, they demonstrate a curiosity about the world. Science inquiry can involve exploring a question about a topic of interest, doing an experiment, making observations, and drawing conclusions that explain what you have learned. Invite your child to experiment with bubbles. Using a bubble wand, have your child try to blow a bubble using plain water. Ask your child to predict if this will work, then observe that it will not. Next, have your child add a small amount of dishwashing liquid to the water, and record the amount. Ask your child to try to blow a bubble with the new mixture. Repeat this a few times, adding dishwashing liquid each time and recording the amount. Ask your child, "How much dishwashing liquid makes the best bubble?" Point out to your child that he or she has just completed an experiment, just like a real scientist!
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **In Motion** Recognizing how things move and what causes them to move are important aspects of physical science. Help your child understand movement by observing things that move in your home and around your neighborhood. Give your child a notebook and ask him or her to draw things that move, such as leaves on a tree, cars, animals, birds, kitchen appliances, balls, and airplanes. Discuss with your child what makes each object move. For example, the wind makes the leaves blow; an engine and gasoline make a car go; electricity makes kitchen appliances run; a bat hitting a ball makes the ball fly; the energy inside a cat allows it to jump. Encourage your child to write a sentence that explains what he or she has observed about moving objects. Point out to your child that by doing this, he or she is thinking like a scientist. **MODERATE MASTERY** ◒ **The Sun's Energy** Life on Earth depends on the energy we get from the sun. Invite your child to observe the sun's energy in action. Take your child outside on a sunny day, and ask your child to describe how the sun feels. Explain that the heat your child feels is the sun's energy. Now take a damp piece of clothing and hang it in the sun. Ask your child to predict what will happen to the clothing. Have your child check the clothing every 15 minutes or so, and record any changes. Your child should observe that the clothing becomes drier and drier. Help your child conclude that the sun's energy dried the clothing. You can explain

	that the sun's heat evaporated the water by turning it into water vapor, which floated into the air.
Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **What Animals Need** Learning about animals is part of life science. Encourage your child to think about animals in the wild and the things they need. Challenge your child to name two things that both people and animals need. Agree that both people and animals need food and shelter, or a place to live. Then invite your child to name some animal homes. Looking through nonfiction books or the Internet, find pictures of animal homes, such as a beaver's lodge, a bird's nest, a beehive, a cave, a hole in a cactus, a hollow log, or a pond. Help your child say the name of the animal home, as well as the name of the animal that lives there. Talk about why this is a good home for that animal. **MODERATE MASTERY** ◒ **Where Do They Live?** (parent focused) As students learn about animals, they discover that animals live in different habitats. A habitat provides the things an animal needs, like food and shelter. Challenge your child to sort animals according to their habitats. Ask him or her to draw three habitats: an ocean, a forest, and a snowy landscape for a polar region. Then hold up word cards with animal names (or picture cards, if you have them). With your child, identify the animal and then ask where this animal lives. Animal habitats can include: ocean (shark, lobster, octopus, fish); forest (deer, raccoon, black bear, bee); polar region (polar bear, musk ox, Arctic fox, penguin). Have your child place the picture or word card on the drawing of the correct habitat. Then talk about features of the animals' bodies that help them live in each habitat.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate	**LOW MASTERY** ○ **Soil Samples** Whenever students dig in the dirt or observe trees and other plants, they are engaging in Earth science. Earth science involves exploring the physical properties of our world, such as its soil. Get your child thinking like a scientist by letting him or her examine soil. Use a magnifying glass, if possible. Obtain soil by letting your child dig a sample from your backyard or garden. You can also visit a local garden shop for soil samples. Using a plastic spoon to move around the dirt, ask your child if the soil is all the same. Point out that some pieces are bigger than others. Call attention to any dead leaves, twigs, or even insects. Encourage your child to draw and label specific items. Explain that all these things are part of the soil. They add nutrients to the soil, which help plants grow. **MODERATE MASTERY** ◒ **Clouds and Weather** Observing clouds and the weather they bring is an everyday application of Earth science. Over several days, discuss the cloud formations you and your child see. Have your child draw the clouds. Note what kind of weather occurs when you see the clouds later in the day. Help your child write a sentence describing the kind of weather associated with the cloud— rain, cooler temperature, or perhaps a bright, sunny day. Then present your child with pictures of clouds and their names, found in a nonfiction book, an encyclopedia, or on the Internet. Have your child compare and match the clouds he or she drew with the clouds in the pictures. Read about the weather each cloud brings, and ask your child if observations confirmed this information.

Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Portable Power** Electricity powers more than just those devices that plug into a wall outlet. Ask your child what kind of energy battery-powered flashlights, radios, and toys rely on. Explain that energy is stored inside batteries. Wires that form a loop connecting the batteries to other parts of a device carry electrical current (electricity). Demonstrate this by opening a flashlight or other battery-powered device and looking for the wires. If you drive a car, point out that a car also contains a large battery to power the radio, lights, and windshield wipers. Talk to your child about how batteries make things more convenient, and find out where you can recycle batteries near you. **MODERATE MASTERY** ◒ **What Would We Do Without It?** A lot of the technology we use every day helps us prepare, cook, and preserve food. With your child, talk about technology and food, and find as many devices as possible that help with making and storing food (e.g., refrigerator, freezer, microwave oven). Think about how life would be different if each of these devices did not exist. For example, without a refrigerator, how often would you need to buy groceries? Discuss how these technologies were not common before the last century, and research ways that people cooked and stored food before these technologies were invented. Topics to learn more about include wood-burning stoves, iceboxes, milk distribution, and using salt to keep ice cream cold.
Personal and Social Perspectives in Science environment health resources technology and society	**MODERATE MASTERY** ◒ **Hybrid Talk** It is important that students understand that science directly influences their lives and the community. Ask your child if he or she has heard the term “hybrid car.” Explain that these cars use two power sources to move, gasoline and electricity, while ordinary cars use only one (gasoline). Discuss reasons why these cars are good for the environment. Talk about pollution and how gasoline is a fossil fuel (once it is used, it is gone forever). Use the Internet to research different hybrid vehicles. Make a list of the ways that hybrids are better for the environment than gasoline-fueled cars. If you can, find pictures. Then the next time you and your child are near a busy road, try to find the hybrid cars. See how many you can count.

Return to Table of Contents

GRADE 3 SOCIAL STUDIES

GRADE 3 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Continents, Countries, and States** It is important that students learn about continents, countries and states. To help your child, print a North America outline map from the Internet. Tell your child that this is the continent of North America and it is made up of three countries. Have your child cut out the three countries as you name each of them. Ask your child to write the country's name on the appropriate piece before the continent puzzle is reassembled. Now look at a United States map and point out the different states that make up the country. Find your state on the map. Have your child color the area on his or her puzzle where your state is located. Finally, using a world map or globe, show your child the world's five other continents. Point out the different countries that make up those continents. **MODERATE MASTERY** ◒ **Nature versus People Collage** Students should understand that the world is made up of both natural and human-made features. To check your child's understanding of this concept, create a Nature versus People collage. Help your child cut out magazine pictures of both types of features: mountains, bridges, cities, tunnels, monuments, lakes, rivers, beaches and so on. Now draw a line down the center of a piece of art paper. Have your child write "Made by People" on one side and "Made by Nature" on the other side. Ask your child to glue the pictures onto the appropriate side. Then ask your child to draw pictures on each side of the collage that also belong in those categories. Discuss with your child how the changes that people make to the environment can be both positive and negative.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Cityscape** In social studies, students discover how people change the world around them. Students can best relate to this concept by discovering how their own community has changed over time. Take your child to your local library and find a book on your city's history. Examine the photographs. Look for streets or areas of town that you recognize. Ask, *Do you recognize this place in the picture? What is different about it?* Choose five or six photographs and ask the librarian to make photocopies for you. Then take your child on a tour of your town. Go to the places in the photographs and have your child compare the picture with what he or she sees now. Ask, *Who changes the city? Why do you think it was changed?* Have your child evaluate whether these were positive or negative changes and explain why he or she feels this way. **MODERATE MASTERY** ◒ **A Calendar of Holidays** Many holidays honor people and events that are important in a country's history. Review a yearly calendar with your child and read aloud a list of the holidays. Then ask your child to draw a picture that represents each holiday. For example, for the month of January, point to Martin Luther King, Jr. Day. Ask, *Why do we have a holiday to honor Martin Luther King, Jr.?* If your child isn't sure, research him at the library or on the Internet. Then have your child draw his picture and write the date of the holiday. Continue with other major U.S. holidays. Then mix up your child's drawings and ask him or her to put the holidays in time order. Encourage your child to consider another person or event in American history who could be honored with a holiday.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **City Council Meetings** Citizens can voice their opinions and ask for changes to be made from elected leaders. To let your child see this in action, take him or her to a city council meeting. During the meeting, have your child draw pictures of each council member and the mayor. Help your child spell the names of each person correctly below his or her picture. Following the meeting, discuss some of the issues talked about in the meeting. If citizens asked questions about issues, ask, *Why would citizens think these things are important?* Have your child think of things he or she is concerned about in the community. Brainstorm with your child ways that he or she could bring these issues to the attention of city leaders (go to a city council meeting, write a letter, and so on). **MODERATE MASTERY** ◒ **You Can Make a Difference!** As students learn about government, they should understand that government is made up of people just like them. They should also realize that people in the United States get to choose their government officials through elections. Explain to your child that even young children can make a difference and help bring about change in government. Ask your child to name something in your community that he or she would like to see changed. Ideas include cleaning up a neighborhood park, expanding the children's section of the library, or having a curfew for teens. Help your child write a letter about the desired change to someone specific in your local government. Discuss any responses your child receives.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Goods and Services** Students need to develop the ability to distinguish between goods and services. Goods are items that people buy such as clothing and food. Services are tasks performed by people. Service professions include: doctors, mail carriers, utility workers, teachers, and so on. Gather a selection of items from your house that represent both goods and services. For services, you might include a library book, your electric bill, or your child's report card. For goods, you may include food, toys, books, or clothing. Then mark two shoeboxes with "Goods" on one and "Services" on the other. Explain to your child the difference between goods and services. Then challenge your child to sort the items into these two groups. Ask your child to explain the reasons for each choice. **MODERATE MASTERY** ◒ **Community Role-Play** Students should understand the difference between consumers and workers. Consumers shop at stores, eat in restaurants, and buy gasoline for their cars. Employees at these stores and restaurants are called "workers." As consumers spend money, they help businesses make money to pay their workers. With your child, list some of the ways that your family acts as consumers. Now ask your child to choose a particular community shop or restaurant. Take turns being the consumer and worker with your child in a role-play situation. Prompt your child to recognize proper courtesies while speaking with a worker. Explain that both consumers and workers are very important to our community. Without them, it would be difficult for people to get the things they need.

Return to Table of Contents

GRADE 3 MATH

GRADE 3 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Fractions in Recipes** A basic fraction fact is the larger the denominator (the number on the bottom of a fraction), the smaller the value of the fraction. This can be a difficult concept for students to understand. Choose a recipe with several different fractions. Have your child write the fractions on a piece of paper. Help your child then write the fractions in order from smallest to largest. Show your child the difference between these fractions by using a measuring cup and water. Have your child measure 1/4 cup of water and pour it in a glass; measure 1/3 cup of water, and pour it in a separate glass; measure 1/2 cup of water, and pour it in a third glass. Be sure to use glasses that are the same size. Which glass has more water? Which fraction is bigger? **MODERATE MASTERY** ◒ **Which Works Best?** It is important for students to recognize the best math operations to use when solving a real-world problem. Encourage your child to explain which operations (addition, subtraction, multiplication, and division) work best in different situations. For example, say, *We are having twenty people over for dinner. I'd like each person to have two dinner rolls. What is the quickest way for me to figure out how many dinner rolls we need?* Guide your child to understand that it is best to multiply twenty by two to get forty dinner rolls (*20 × 2 = 40*). Explore other examples over several days as situations arise. For example, if you buy a pizza that costs $16.85 and use a $20 bill to pay for it, ask your child what operation to use to figure out how much change you will get back (*$20 – $16.85 = $3.15*).
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **The Cost of a Meal** Estimating is an important skill. Help your child practice estimating dollar amounts by planning a favorite meal and shopping together for the ingredients. With your child, create a menu and list everything that you need to purchase. As you are shopping, have your child check the price of each item, round it to the nearest dollar, and record the amount on the list beside the item. Before you check out, ask your child to add the amounts to find the estimated total. Compare the estimate to the actual price. Discuss with your child how estimating can help shoppers stay within a budget and notice if they are being overcharged. **MODERATE MASTERY** ◒ **The Price Is Right!** Estimating is essentially making a "good guess." It is using prior knowledge to come up with a reasonable guess. Invite your child to practice estimating by doing the following money activity. Show your child pictures in a catalog of fun objects. You might choose a candy or cookie catalog, a DVD catalog, a sneaker catalog, and so on. Encourage your child to choose an item and estimate how much it costs. Have your child write down his or her estimated price. Then reveal the actual cost. Help your child compare the two prices. Was your child's price higher or lower? What is the difference in price? How can your child figure out the difference (by subtracting)? For fun, let your child choose items for you to estimate as well.

Operation Concepts model problem situation operation sense order of operations permutations, combinations operation properties represent operations	**LOW MASTERY** ○ **Video Game Math** It is important for students to recognize how they use math every day. To do so, they should be able to identify specific math operations that help them solve problems, such as addition, subtraction, multiplication, and division. The next time your child enjoys a video game, participate with him or her. Pay attention to how points are scored, and call attention to it. Help your child notice when points are added or deducted, and ask which math operations are being applied. Also notice if points are multiplied, and call attention to this operation too. Then ask your child to explain why keeping score and using numbers are important to the game. Encourage your child to discuss the purpose of numbers in determining a winner and keeping track of the player's progress. **MODERATE MASTERY** ◒ **Hot Dog and a Soda** Recognizing which math operations to use, such as addition, subtraction, multiplication, or division, is an important math skill. The next time you go to a game or a movie, invite your child to help determine costs. Point out the concession prices, which are listed on the menu board. If you are buying more than one item (for example, three hot dogs and three sodas), ask your child which math operation can help figure out the total price (multiplication). Once your child has rounded and multiplied to get the estimated cost for each type of item, ask him or her to figure out how much money you will spend in total (addition). Round up and add the prices to get an estimated total. After checking out, compare your child's estimate with the actual amount.
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Measuring Tools** Measuring is a way to find the size or weight of something. In order to measure, students must recognize which tools are used to measure different things. Display several measuring tools you have around your home, such as a measuring cup, measuring spoons, a scale (a small kitchen scale for ounces, a larger bathroom scale for pounds), a ruler, a tape measure, and a yardstick. Point to each tool, and ask your child to identify it. Then suggest a situation for measuring, and challenge your child to name the correct tool to use. For example, *We need to measure two cups of flour to make cookies. Which measuring tool do we need (the measuring cup)? We need to measure the space for the new couch. Which tool should we use (the tape measure or yardstick)?* **MODERATE MASTERY** ◒ **Perimeter Problems** The perimeter is the sum of all the sides of a shape or a polygon. For example, the perimeter of a square is the sum of all four sides; the perimeter of a pentagon is the sum of all five sides. Invite your child to measure the perimeter of objects around your home. Provide him or her with a ruler or a tape measure. Then help your child measure each side of an object, such as a table, a countertop, a computer monitor, or a television screen. Have your child add up the measurements of each side to get a total. Explain that this total is the measurement of the object's perimeter. Help him or her compare which objects have the biggest perimeter and which have the smallest.
Geometry and Spatial Sense plane figure solid figure angles triangles	**LOW MASTERY** ○ **Shape Symmetry** Symmetry occurs when one side of an image is a mirror image of the other side. Recognizing symmetry demonstrates a student's ability to think critically and notice

parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	patterns. Help your child find the symmetry in simple geometric shapes. Ask your child to draw a square, a circle, a rectangle, and a triangle. Your child can draw additional polygons, such as a pentagon (a five-sided shape) or a hexagon (a six-sided shape). Challenge your child to draw a line that splits the shape in half, revealing its symmetry. Ask, *Is there more than one line of symmetry?* (There are several lines of symmetry in many cases. For example, the circle has countless lines of symmetry— any line that crosses the center of the circle.) Then have your child fold the shape in half to check for symmetry. **MODERATE MASTERY** ◒ **It's a 3-D World** When students first learn about shapes, they discover two-dimensional shapes drawn in their textbooks. As they graduate to three-dimensional (3-D) shapes, they take their math skills into the real world. That's because most of what we see around us is 3-D. Take a walk around your neighborhood or community, and encourage your child to notice 3-D shapes. For example, many apartment buildings and houses are 3-D rectangles (rectangular cubes). Roofs of houses create three-dimensional triangles (prisms). Tires and wheels on cars create three-dimensional circles (cylinders). Encourage your child to draw and label these and other shapes found in the community. Review specific vocabulary for 3-D shapes, such as *cube, cylinder, sphere, pyramid,* and *prism.*
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Local Weather Patterns** Probability is the chance that something will occur. Ask your child, *If it rains every day in a tropical rain forest, what is the probability of rain in that same forest?* (It would be 100%.) Ask, *If it rarely rains in the desert, what would the probability of rain be in the desert?* (It would be close to 0%.) These examples will help your child understand what probability means. Now, discuss the weather in your area for a particular time of year. Ask your child to give the probability of precipitation. If it rained ten out of thirty days in the same month a year ago, what would be a good prediction for the probability of rain this year. Help your child understand that, given this information, 10/30 or 33% would be a reasonable probability. **MODERATE MASTERY** ◒ **Favorite Teams** Analyzing the records of sports teams can help students connect probability to data. When determining probability, students are essentially making a prediction based on trends in past data. Help your child read, from the newspaper or internet, the records of sports teams. Point out the wins and losses, as well as the standings of other teams in that division. Then ask your child what the probability is that certain teams will continue to win or continue to lose. Encourage your child to explain his or her ideas. (Winning teams are more likely, or have a greater probability, of winning than do losing teams.) Then, for the next several days, or until the teams play again, monitor the teams' wins and losses. Talk with your child about how close the probabilities are to the actual outcome.
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation	**LOW MASTERY** ○ **The X Factor** Algebra requires students to figure out the missing values in an equation based on the other numbers in that equation. For example, have your child look for the pattern in the following number pairs: (1,2), (2,4), (3,6), and (4,8). (Each time the first number increases by 2.) Ask, *What would be a good way to write this pattern mathematically?* (This pattern can be written as the equation: 2 × (first number) = second number.) Now

graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	try the pattern: (1,3), (2,5), (3,7), and (4,9). Ask, *What changed from the first pattern?* (One was added to the second number in each pair.) Ask, *How could we change our equation to show this?* (The new equation is: 2 × (first number) + 1 = second number.) Now, have your child create his or her own equation to produce several number pairs. **MODERATE MASTERY** ◒ **Magazine Pages** When students see numbers in a series, the numbers usually appear in sequential order. Sometimes, however, numbers may be missing from the series. Identifying which numbers are missing demonstrates that students have an understanding of numbers and number order. Challenge your child to identify missing numbers by looking at the page numbers of a magazine. Review the magazine ahead of time. Often page numbers are skipped or missing. Ask your child to locate pages you know are numberless. Help your child find the missing number by counting off from numbered pages. Ask your child to find some more missing page numbers and figure out what they should be numbered. Have your child write the page numbers on sticky notes to mark the numberless pages. When finished, have your child read all the page numbers in the magazine in order.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Shop at Home** Understanding which math operations help students solve problems is an essential math skill. Math operations include addition, subtraction, multiplication, and division. Encourage your child to consider math operations as you look through a mail-order catalog together. Have your child choose items that he or she would like to buy as gifts for family members. Ask, *Which math operation do we use to find out how much money we have spent?* (Addition—add up the prices.) Say, *We can only spend $50*. Ask, *Which math operation do we use to find out how much money we have left?* (Subtraction—subtract the total purchases from $50.) Ask, *If we want to buy three of the same item, how do we figure out how much money we will spend?* (Multiply the price by three.) **MODERATE MASTERY** ◒ **Recipe Review** As students better understand math, they'll begin to realize how much math there is in everyday life. As a good example, choose a recipe to review with your child. Point out the measurements for each ingredient. You might have your child find the measuring tools to show you how much each measurement is. Then point out the numbers that tell how many people the recipe serves. Say, *We only need to make half as much as the recipe calls for*. Ask, *How do we figure out how much of each ingredient to use?* Guide your child to realize that you should divide the ingredients by two or in half. Then suggest that you wish to double the amount of food. Ask, *How do we figure out the amount of ingredients needed now?* (We multiply by two.)
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **World Records** Being able to communicate using math vocabulary shows an understanding of math operations. Help your child use math words as he or she looks through a book of world records. Point out that many records are noted with numbers. Encourage your child to describe what the numbers indicate, such as measurements. Challenge your child to talk about the world records in terms of math. For example, say, *This ice cream sundae was measured in feet. The biggest sundae used so many scoops of ice cream. That's over 100 more scoops than we eat in our sundaes!* Encourage your child to use math

	operations in the discussion. For example, the difference in scoops of ice cream was found by subtracting one amount from another. **MODERATE MASTERY** ◒ **Planning a Garden** Students should be able to communicate with math terms in everyday activities. Help your child practice communicating math ideas as you plan a garden. Show your child a seed packet for a plant you might wish to grow. Have your child find the measurements that tell how far apart the seeds should be planted. Then have your child describe how to plan the garden using math terms. For example, say, *We need to measure the space between seeds. We need to divide the garden plot in equal segments.* Ask, *How many of these seeds can we plant in one row? If we plant a seed that requires less space (say half), how many more seeds could be planted in this row?* Have your child write down directions for planning the garden incorporating math vocabulary into the instructions.

Return to Table of Contents

GRADE 3 READING

GRADE 3 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Ready, Set, Action!** Events in a story happen in a particular sequence or order. Students need to be able to follow this sequence of events in order to understand what they are reading. A fun way to help your child recall the sequence of a story is by inviting your child to retell the story as if he or she were setting up scenes for a movie. Ask your child to think about making the story into a movie. *What would happen in the opening scene?* Have your child write "Opening Scene" on a sheet of paper, followed by a few sentences that describe the scene. Repeat this process for "Scene 2," "Scene 3," etc., until the entire story has been retold in order. **MODERATE MASTERY** ◒ **Vocabulary Concentration** As students read new and more challenging texts, they'll be introduced to more difficult vocabulary. Understanding the vocabulary will be necessary for understanding the reading. Review a nonfiction piece (writing that gives information or describes real events) your child is currently reading. With your child, select about ten vocabulary words that are related to the subject. Write each word on an index card. On separate index cards, have your child write each word's definition. Then play a game of "Vocabulary Concentration." Mix up all the cards, face-down, and spread them out. Have your child turn over two cards at a time, looking to match the word with its definition. Once a match has been found, have your child use the word in a sentence, then remove the paired cards from the playing area.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Meet My Favorite Character** It is important for students to be able to describe characters or people from the stories they read. Ask your child to help you "get to know" a beloved character from a book, movie, or TV show. Draw a large circle on a piece of paper and divide it into four sections. Label the sections: "Looks," "Acts," "Thinks," "Likes and Dislikes." Ask your child to write words or phrases about each of these character traits in sections of the circle, and then share them with you. Also ask your child to verbally describe how the character acted during an interesting event in the story. **MODERATE MASTERY** ◒ **Character Point of View** Stories are told by a narrator or story teller. This narrator can be someone outside of the story (called a third person) who knows the thoughts and feelings of all of the characters. An example of this type of narration is "He smiled and thought about how lucky he was." Other times, a story is told from one character's (someone in the story) point of view, who only knows his or her own thoughts and feelings. An example of this type of narration, called first person, is "I smiled at my unbelievable luck." To help your child analyze a character's point of view, select a story your child has read and ask your child to rewrite the story from a different point of view. Tell your child to imagine how the character feels, thinks, and reacts to events and other characters.

Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Video Game or Bust?** Students usually know what types of stories they enjoy reading. Invite your child to share their opinions (personal feelings and thoughts) about the stories he or she is reading. Have your child write down the story title, then write a few sentences to express opinions about specific parts of the story. For example ask, *what does your child think about the actions and thoughts of the characters (people the stories are about)? What is your child's opinion of the setting (where and when the story takes place)? Is the solution to the characters' problems a good solution?* Then ask your child if he or she thinks the story would make a good video game. Ask your child to describe how to play this video game. *What would he or she call the game? What would be the goal of the game?* **MODERATE MASTERY** ◒ **Comparing Nonfiction** As students conduct research (looking for information) for reports and other projects, they'll come across numerous nonfiction books (writing that gives information or tells about events**)** on the same topic. Students must be able to decide if nonfiction books have the information they need. Ask your child to choose a topic of interest. Visit your local library, and help your child find nonfiction books about the topic. With your child, flip through each book. Ask your child to decide if the book provides good information. For example, *does the book have current facts (information that is true)?* Check the date of the book to find out*. Does the book have recent photographs, drawings, or diagrams? Is the writing clear and interesting?* Have your child choose the most helpful book. Then ask him or her to explain his or her choice.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Be a Word Detective** Students will not always know all of the words they come across in books. They'll need to be able to figure out the meaning of unfamiliar words. One way students can do so is to look for context clues. Context clues are words and information around the unfamiliar word that help readers figure out the word's meaning. Ahead of time, read an article from a children's magazine or from one of your child's textbooks. Circle words that might be new to your child, but that have clues within the article that lead to their meaning. Then read the article together. Challenge your child to define the words you've chosen. Guide your child to discover the words' meanings as you point out clues within the article that help define them. **MODERATE MASTERY** ◒ **Examining Graphic** Graphic features, such as diagrams (drawings that explain something about the topic), and graphs (a visual way of showing the relationship between two or more things), are often part of nonfiction (writing that gives information or describes real events) texts. When reading nonfiction, students should get information from the main text and from the graphic features. Flip through a nonfiction children's book and look for graphic features. For example, in a frog book, there might be a diagram of the frog life cycle, a graph showing the number of frogs born each month, and a map showing locations of poisonous frogs. Ask your child to explain how the graphic features add to the text. Discuss the main focus of the book, and guide your child to figure out how the graphic information supports the main idea.

Introduction to Print environmental print sound/visual recognition word analysis	**MODERATE MASTERY** **Word Families** Students must be able to recognize the individual sounds within word families. On five small pieces of paper, write down four word families, such as *-at*, *-an*, *-ot*, and *–in* and *Lose a Turn.* Put all of the pieces of paper into a bag, shake them up, select one piece of paper, and have your child read it. If it is a word family, your child must add a letter to create a word and record it on a word list. For example, for *-at*, your child could add "c" for *cat.* If your child cannot think of a word or picks *Lose a Turn*, the paper is placed back in the bag and then it is your turn. When all the word family cards are gone, the game is over. The winner is the one with the most words on his or her list.

Return to Table of Contents

GRADE 3 WRITING / LANGUAGE

GRADE 3 OBJECTIVES	MASTERY
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**MODERATE MASTERY** ◒ **Sentence Dictation** In order for students to write proper sentences, they must be able to distinguish complete sentences from incomplete sentences or phrases. A complete sentence has a subject (who or what the sentence is about) and a verb (the action or state of being that describes the subject). An incomplete sentence, which is usually called a phrase, is either missing a subject or a verb. Dictate sentences and phrases for your child to write. Ask your child to find the verb. Ask your child to find the subject that the verb describes. If the sentence has both a subject and a verb, it is complete. If the sentence is not complete, ask your child to make it complete. Have your child figure out what is missing—the subject or the predicate—and write that part of the sentence. Check your child's sentences to make sure they are complete.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Making Bold Topic Statements** Students need to identify topic sentences when they read. They must also compose good topic sentences in their own writing. Newspaper headlines are great examples of clearly stated topics. Designed to catch readers' attention, headlines also need to let readers know what a story is about. Choose some picture books or familiar stories such as the *Three Little Pigs*. Write one headline for each story and then ask your child to match the headlines to the stories. For example, a headline for the *Three Little Pigs* could be "Huffing and Puffing No Match for Pigs with Bricks." Then ask your child to write their own headlines for other stories. **MODERATE MASTERY** ◒ **Let's Brainstorm!** Students can improve their writing by brainstorming descriptive words, phrases, and ideas. Brainstorming is letting ideas flow, writing down anything that comes to mind. To reinforce brainstorming, invite your child to look through a colorful magazine or art book. Encourage your child to choose a photograph that he or she finds particularly interesting and fun. With your child, brainstorm words that describe the image. Have your child write down the words. The words can describe physical details as well as actions and emotions. Then have your child write a paragraph that describes the image. Suggest that your child start with a a topic sentence, a sentence that introduces the picture. Then instruct your child to continue with the description, choosing words that you have brainstormed. Check your child's writing to make sure he or she has written complete sentences (they have a subject and a verb—something or someone doing something).
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Find the Mistakes** Being able to find mistakes in someone else's writing helps students think about their own writing more carefully. Guide your child to find and correct errors or mistakes. Choose a short paragraph from a book your child is reading for school. Copy the paragraph on to lined paper, making mistakes as you re-write it. For example, start a sentence with a lowercase letter. Leave off punctuation (the symbols that show that a sentence has ended). Misspell words. Write subjects (who the sentence is about) and verbs (action words) that don't agree in number (such as *That girl ride my bus*). Have your child circle the mistakes. Then ask your child to rewrite the paragraph, correcting each error. Compare the corrected version to the original to make sure all errors were found.

	MODERATE MASTERY **Correct Me If I'm Wrong** Editing is an important step in the writing process. Students must recognize mistakes, such as missing capital letters or punctuation (symbols that mark the end of a sentence) or sentences that don't agree in number (such as *Those dogs lives next door)* and rewrite sentences to make ideas clearer. Write a short paragraph for your child to edit. Write sentences that are unclear, that don't agree (such as *My cat are striped),*or that have the wrong action word tense (such as *This morning, I eat breakfast while I walk to school).* Ask your child to read the paragraph and find all of your mistakes. Have your child suggest ways to fix sentences that might sound awkward. Then rewrite your paragraph with your child's suggestions. Compare the edited version with the original. Point out how editing improved the writing.

Return to Table of Contents

GRADE 3 SCIENCE

GRADE 3 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Plants Need Air** Science inquiry involves several key steps: making predictions, recording observations, conducting an experiment, analyzing data, and drawing conclusions. Help your child practice the steps of science inquiry with this simple experiment. Your child probably knows that plants need water. Explain that plants also need air. Discuss with him or her how you could do an experiment to confirm this fact. Start by wrapping several leaves of a houseplant with plastic wrap. Have your child predict what will happen to those leaves. Ask him or her to observe the leaves over several days, drawing pictures of how the leaves change. Then ask your child to analyze the data and explain what the experiment helped him or her conclude, for example, that plants need air to live. **MODERATE MASTERY** ◒ **Make It Rain** Asking why things happen is a first step in science inquiry. Ask your child if he or she knows what makes rain and then try this experiment. Put equal amounts of water into two clear glasses. Cover the top of one glass with plastic wrap secured with a rubber band. Put the glasses on a sunny windowsill. Ask your child to predict what might happen. Have him or her check the glass every half-hour and describe any changes. Eventually the water levels in both glasses decrease and water drops form on the inside of the plastic wrap. Help your child conclude that the sun's heat evaporated the water, changing it into water vapor. When the vapor in the covered glass rose and hit the plastic wrap, it turned back into water drops. This is similar to how the sun's energy makes rain.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Tug of War** In physical science, students will learn that a force must be applied to an object to make it move. The amount of force, as well as the size and weight of the object, determine how fast and far the object will move. Invite your child to experiment with force by playing a game of tug of war with family and friends. Position you and your child at opposite ends of a large rope and pull it. If you use the same force as your child, the rope will be hard to move one way or the other. Then invite a friend or family member to join your child and pull. Point out that the added pulling force is stronger than yours and the rope moves more easily. Conclude that the amount of force determines how an object moves. **MODERATE MASTERY** ◒ **Observing Movement** Students will recognize that shape can affect motion. Invite your child to experiment with 8 ½" by 11" sheets of paper, folded or crumpled in different ways: folded in quarters, folded in eights or smaller, crumpled loosely, crumpled tightly, folded into a paper airplane, and left flat. Your child should drop two of the sheets from the same height, at the same time. How did they fall? Which sheet reached the ground first? Have him or her toss the paper and observe how it moves. Ask, *How does folding the paper in different ways cause it to move differently?* Continue to experiment with different pairs of folded/crumpled paper, as well as the amount of force your child uses to toss the paper. Explain that air resistance causes some objects, like a flat sheet of paper, to move more slowly than others, like a crumpled wad.

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **What Do They Have in Common?** As students study life science, they learn the features that make animal groups different. Animal groups include mammals, reptiles, birds, amphibians, marsupials, and insects. Invite your child to sort animals accordingly. First, have your child summarize what is special about each type of animal. For example, birds lay eggs, have feathers, and most of them can fly. Marsupials have fur and their babies grow inside pouches. Most reptiles have scaly skin and hatch from eggs. Present your child with photographs, magazine articles, or books about various animals. Find images of animal skeletons. Only some groups have a bone skeleton—which ones? Ask your child to identify the group to which the animal belongs. What features helped your child draw this conclusion? Check ideas against your resource or in an encyclopedia. **MODERATE MASTERY** ◒ **Wildlife Menu** As students study life sciences, they'll learn about animals and the food chain. A food chain shows how plants and animals are eaten in the wild. For example, in a pond, an insect larva might dine on plants, while a fish will eat the larva. A bird might then eat the fish. Invite your child to choose animals that he or she finds interesting, and help your child research what the animals eat. Then ask him or her to create a wildlife menu that identifies the animal and its diet. Discuss with your child any animals that might hunt their chosen animals for food. Explain that this series of predator (hunter) and prey (food) is part of the food chain.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate	**LOW MASTERY** ○ **Water Cycle** The water cycle is the movement of water between Earth and the atmosphere through its various states: vapor, liquid, and solid. Use your kitchen as the laboratory for a fun experiment about the water cycle. You will need a hand mirror, an oven mitt, and a tea kettle. Put the mirror into the freezer. Fill the kettle with water and put it on the stove to boil. Once the water is boiling, put on the oven mitt and have your child watch as you carefully hold the mirror over the steam. Together watch rain begin to fall from the mirror! Ask your child to name the states of water you have seen (liquid, gas) and the changes from one to the other (evaporation, condensation). **MODERATE MASTERY** ◒ **Compare Rocks** Rocks are part of Earth's crust, which is the top layer of our planet. You can broaden your child's understanding of rocks and Earth science by exploring the rocks in your community. Point out all the things that are made of rocks and where you see them, such as in a local park, on the façade of some buildings, or in gardens, as marble or stone statues. You might have your child draw the places where stone and rocks are found. Then locate a place where you can collect rocks, and have your child do so. Encourage your child to describe and compare the rocks. Help your child discuss the differences between them. For example, some rocks look like they are made of many different materials glued together, while others look the same all over, and still others have layers.
Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Paper and Packages** Science plays a huge role in the advancement of technology. Help your child explore the history of paper, starting with ancient Egyptian, Chinese, and Mesoamerican cultures.

	Research and discuss how advances in science led to advances in paper technology. What inventions made paper inexpensive and easy to produce in the 1800s? You might want to try making paper from rags or recycled paper. Discuss how the wood pulp used to make paper is grown. Is it a renewable resource? Finally, discuss paper recycling. Have your child research what kinds of paper can and cannot be made from recycled paper. **MODERATE MASTERY** ◒ **Moving Through Time** Many technologies we rely on today are the result of inventions dating from ancient times. Open a discussion with your child by asking how people transported goods before cars, trains, and buses were invented. Agree that horses and horse-pulled carriages were a main form of transportation in many cultures for the past few thousand years. Using books or the Internet, help your child research where the first wheels were found and how the wheel spread from region to region. Also inquire about other ways people transported things, such as the *travois* used by Plains Indians, transport over water and snow, and human-powered transport such as rickshaws. Take your child to a natural history or indigenous cultures museum to view examples of different transport methods.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Endangered Species** Science requires us to understand how our actions affect the rest of the planet. Human activities sometimes put organisms at risk of extinction. To prevent this, the United States makes laws to protect threatened or endangered species. Help your child find out which at-risk species live close to your area. How do laws work to protect them? What human activities put them at risk? Some human activities reduce the number of habitats available for animals to live in. Help your child create a list of things you can do to help protect a threatened or endangered species in your area. **MODERATE MASTERY** ◒ **Helping the Planet** Human activities can impact Earth's well-being. For example, pollution from factories harms the planet, while recycling helps it. Have your child explain recycling in his or her own words. Recycling means to take something old and use the materials in it to make something new. Ask, *Why is recycling good for the environment?* Agree that recycling materials reduces the need to mine, grow, or produce more material from scratch. All of these can deplete limited resources and produce pollution. Look through your home for items that can be recycled. Check with your community about recycling pickups or drop-offs. If your home does not have one, work with your child to set up a recycling area with drawings and labels of recyclable items. Conclude that recycling, reducing, and reusing materials are ways we can take care of our environment.

Return to Table of Contents

GRADE 4 SOCIAL STUDIES

GRADE 4 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **What's in My Region?** This map activity will help your child learn more about the region your state is part of. To start, find an outline map of your region on the Internet. Next do some research to find out industries and recreation sites in your region. To determine the industries that are most important, ask, *What are some important ways of earning a living in our region? Is farming important in one area? Are factories common elsewhere?* Design your own symbols for each industry and draw them on the map in the proper places. To determine types of recreation, ask, *What are some fun places to visit in our region? Are there lakes or hiking trails? Are there amusement parks?* Create symbols for each leisure activity and place them on the map. Be sure to include a key indicating what the various symbols mean. **MODERATE MASTERY** ◒ **Choose a Country** It is important for students to learn the characteristics of certain countries. To begin this activity, ask your child to choose a letter of the alphabet. Then look in a dictionary or encyclopedia to find the name of a country that begins with this letter. Locate this country on a globe or world map. Based on its location, make some educated guesses about what life may be like there. Use the visible land formations and natural resources—such as large lakes—as clues. Next do some research with your child to see how accurate your ideas are. Encourage your child to think about how an individual from this country may interact with his or her environment. Ask, *What type of job may a person have if he or she lives near a lake or ocean?*
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Rapid Change** Students often have a difficult time understanding how much change has occurred in the time that the United States has been an independent nation. To help your child understand these changes, choose one area of people's daily lives that you and your child can investigate together. Ideas include communication, transportation, food, and housing. Visit the library or spend time on the Internet researching this topic. Find an interesting fact about it in each decade beginning with 1780 Record your findings on a timeline so your child can get a visual representation of the changes that have occurred over the last two centuries. **MODERATE MASTERY** ◒ **Important Americans** There have been many important people in United States history. To review these individuals' contributions with your child, play a game called "Who Am I?". Begin by listing ten to fifteen famous people such as Abraham Lincoln, Sacajawea, Thomas Edison, Amelia Earhart, and Dr. Martin Luther King, Jr. Next do research with your child to find three interesting facts about each person. Record each set of facts on an index card. On another set of index cards, write the people's names. To play, display the name cards. Select a card from the other set and slowly read the facts, pausing after each one. Players must select the correct name to match the facts. Award three points if the card is selected after one fact, two points after the second fact, and one point after the third fact.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Volunteering** Students learn that volunteering accomplishes many things in society that may otherwise go undone. Personalize this lesson by researching with your child some different organizations in your community that are run by volunteers. Visit the Chamber of Commerce and ask for any information they might have. Pay attention to local news for announcements of volunteer events. Many faith-based organizations may also be helpful. With your child, select an opportunity for volunteering that is of interest and make time to participate in it in the near future. After you volunteer, discuss what it is like to work with others to make a difference in the community. **MODERATE MASTERY** ◒ **Voting** Students need to be taught the importance of voting at a young age so they'll want to vote when they're old enough. To help your child appreciate the importance of voting, have a mock election at your house. Set up a polling booth with a ballot for your child to use. Make up a list of people who are running for office. Let your child go in first and just vote for whomever he or she wants. Then, after the voting has taken place, ask your child how he or she decided on whom to vote for. Explain that it's better if we are informed voters. We should find out about the candidates by listening to them speak or reading their views. This way we can make sure we are voting for someone who has the same views as we do. To further enhance the importance of voting, bring your child with you when you vote in a real election. Or bring your child to hear a candidate speak.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **The Long Journey to Market** Production and distribution of goods is an important part of our economy. To help your child gain a deeper understanding of the concept, discuss the production and distribution of common goods in your house. First, choose a product from your kitchen such as a carton of milk. Discuss with your child the following questions about the product. *What is needed to get the milk?* (a healthy cow; a milking machine; equipment for pasteurizing the milk; the carton) *How does this product get to market?* (Cartons of milk are loaded onto trucks and driven to the store.) *What are important factors to consider when transporting this product?* (Milk must be kept cold.) *When do people want this product?* (People always want milk. Milk has to be used by a certain date or it will sour.) Repeat this activity with other common household products. **MODERATE MASTERY** ◒ **Budget Basics** As students study economics, they should begin to think about budgets. Many students have difficulty grasping the importance of saving money. Present to your child the "⅓–⅓–⅓" approach to managing money. For example, if your child accumulates $9 worth of change in a piggy bank, permit your child to spend $3 of it on anything he or she may want. Another $3 should be set aside for something more costly that your child wants to buy, such as a new computer game. The final $3 should be viewed as savings, money that would be good to have if something unexpected were to happen like getting a flat tire on a bike. This method of personal budgeting will help your child realize that it's best to plan out how we want to use our money instead of spending it all in one place.

Return to Table of Contents

GRADE 4 MATH

GRADE 4 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Food Fractions** Help students visualize and order fractions while making a fun meal. Get some pita bread or make pancakes. Write fractions such as 1/2, 2/3, 1/4, 1/3, 2/5, and 4/6 on 3″ by 5″ cards next to the pita bread or pancake. Then cut each pita to represent the fraction that is written next to it. Have your child organize the pitas in order from smallest fraction to largest fraction. When the pitas are organized in the correct way, dig in (add whatever toppings you like)! A second way to play is to decorate the fractions that fit together—for example, 2/3 and 1/3 fit together to make one whole, 2/5 and 3/5 equal 1—scramble the pieces in a pile, and then make them into pizzas. After they're cooked, put each match together. Then, serve and eat! **MODERATE MASTERY** ◒ **Visual Number Ordering** With your child, write numbers such as 1.10, 1.02, -4/5, and 1 2/3, each on one side of a 3″ by 5″ card. On the other side, *draw* what the number would look like by drawing squares: one whole shaded square for each whole number and one square with a portion shaded for the decimal or fraction amount. For example, represent 2/3 with one square shaded two-thirds full and represent 3.5 with three fully shaded squares and one halfway-shaded square. Show your child different ways to divide up the same square to shade different amounts. Draw a number of cards from the deck and place them face-up. Help your child arrange the numbers from least to greatest. When your child is satisfied, turn the cards over to see that the numbers with less shading are smaller.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Count Your Money** Many students need practice adding decimals. Equating decimal numbers with amounts of money expressed in coins can help. Pennies ($0.01), nickels ($0.05), dimes ($0.10), and quarters ($0.25) can be written as cents on the dollar. Provide your child with some loose change, a pencil, and some paper. When you ask your child to add two quarters, one dime, and three pennies, they may be able to do it fairly quickly. However, when you write 0.25 + 0.25 + 0.10 + 0.01 + 0.01+ 0.01, you may leave your child a little confused. Have your child practice adding a handful of change and then add the decimal equivalents on paper. **MODERATE MASTERY** ◒ **Counter Calculations** It is important that students in this grade understand multiplication and division. Use fun counters (for example, candies or pennies) to help your child multiply and divide by one digit. Multiply 7 × 8 by making seven groups of eight counters and totaling them. Divide forty-five by five by dividing forty-five counters into five groups and counting the total in one group. If you use counters that can be grouped by color, you may find that your child has an easier time counting them. This is also a good time to practice skip-counting (for example, 5, 10, 15, 20, 25, 30, 35, 40, 45). Proficiency in skip-counting can help your child visualize multiplying and dividing.

Operation Concepts model problem situation operation sense order of operations permutations, combinations operation properties represent operations	**LOW MASTERY** ○ **Cups and Counters** Making word problems a hands-on activity is a great way to improve understanding. Consider the following example with your child. Four puppies eat $20 worth of puppy food in one week. How much does it cost to feed one puppy for one week? Have your child use four cups (one for each puppy) and twenty counters (pennies or beans that each represent one dollar) to divide the twenty counters evenly into the four cups. Since there are five counters in each cup, each puppy eats $5 worth of food in one week. You could extend the logic to show your child that two puppies would eat $10 worth of food in one week or that it would cost $15 to feed one puppy for three weeks. Try using cups and counters to solve problems involving addition, subtraction, and multiplication as well. **MODERATE MASTERY** ◒ **Make a Diagram** Many students benefit from turning word problems into diagrams—it helps students to draw a picture! With your child, make up some word problems and draw diagrams to help solve them. Here is an example: A tour company has four small buses. Each bus has nine rows of seats, with six seats in each row. How many seats are there on all four buses? Have your child make a diagram to visualize the problem. For instance, your child could draw a nine-by-six grid (or set of squares) to represent the seats on one bus. Have your child multiply nine by six to get the total number of seats on the bus. Then have your child multiply this number by four to find the number of seats on all four buses.
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Mall Map** Students should understand the importance of scale drawings and how to interpret them. Explain to your child that a mall map is a directory of all the stores located in the mall (if you don't have a mall close by, use a map of a local town or city). Look at the map with your child and explain how each store shown on the map is just a scaled-down drawing of the actual store. Talk about which lines show the walls between stores, as well as which lines show the main walkway that allows people to move from store to store. Ask, *If a store is larger on the map than another store, is this true of the actual stores as well?* Test your child's idea. **MODERATE MASTERY** ◒ **House Hunt** Often, the purpose of measurement is to help with object identification. Get your child to participate in a treasure hunt around the house. Make a list of objects that are certain sizes—a box that is about 11 inches long, a dish that is 5 1/2 inches high, and so on. Send your child out on the hunt with a ruler. You might have a reward when he or she has found an object to match each request on the list. A fun variation of this activity would be to divide the list of items into numbered clues. For example, give the treasure hunter clue #1 for the 11-inch box. Place clue #2, for the 5 1/2–inch dish, inside the 11-inch box; place clue #3 inside the 5 1/2–inch dish.
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane	**LOW MASTERY** ○ **Grid Game** Many concepts in math build on students' ability to understand coordinate grids (grids). Make two ten-by-ten grids starting with 0 and going to 10 on both the x- and y-axis (check your child's math book for "coordinate grids," if you need an example). For this game, each player should keep their grid hidden from the other. Place four different-

coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	colored gumdrops on points on the grid (for example, (3, 6) or 3 on the x-axis (horizontal) and 6 on the y-axis (vertical). Take turns guessing where the candies are placed by guessing coordinates on the grid. The player with the candy must say if the other player is "off" and by how many vertical and horizontal points. For example, if the first player says, *I guess (4, 3)*, the other player might say, *You are three vertical units and one horizontal unit away from the red gumdrop*. Play continues until one player locates all of the other players' concealed candies. **MODERATE MASTERY** ◒ **Symmetry Is in the Eye of the Beholder** Understanding symmetry helps your child identify patterns and relationships. Draw standard shapes with your child on paper and discuss lines of symmetry. (For example, a circle is symmetrical in all directions as long as the line of symmetry passes through the circle's center). A pentagon is symmetrical with a line that cuts it halfway. A line corner to corner does not make two symmetrical halves. Then look for symmetry around you. You might have symmetrical windows but not a symmetrical front door. You might see symmetrical columns on one building, while another building has a more lopsided appearance. The human body is generally symmetrical (similar eyes, legs, and arms on either side of an imaginary line running down the center of our bodies). Practice viewing symmetry any time you're walking around town with your child.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Shopping Averages** Mean and median are concepts often used in the news. One researcher reports that fourth graders play video games a *median* average of one hour per day. Another researcher uses the same data and indicates the *mean* average is over two hours per day. Ask, *How could the averages be different*? *Are both researchers correct?* Assume the times from the study are 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 7, 7, 8. Ask, *How would you find the median average?* (It's the number in the middle of the list of numbers—1 hour.) Ask, *How would you find the mean average?* (Add the numbers and divide by 13—2.15 hours). Ask, *Why are the averages different?* (Children who played for seven or more hours affected the mean average more than the median average). Even though both averages are correct, discuss which average is most appropriate. **MODERATE MASTERY** ◒ **Event Probability and Media Emphasis** It can be eye-opening to analyze the probability of events we read or hear about in the news. The news often reports the most dramatic events in the nation. Help your child make a list of events in his or her day and classify each as "good" or "bad." Then have your child count the articles in a section of the paper and classify each of them in the same way. Ask, *If you use the paper as a way to predict the probability (or chance) of a "good" event taking place, what would the probability be?* (The number of "good" events divided by the total number of events multiplied by 100 will yield a percent.) Ask, *What would the probability of a "good" event be if you considered your own day*. You and your child will likely see very different probabilities!
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality	**LOW MASTERY** ○ **Pattern Play** Recognizing patterns is a big part of math. Have your child complete the following number patterns. First pattern: 3, 6, 9, ?, ?, ?. (Answer: 12, 15, 18. The pattern is adding three to the previous number.) Second pattern: 1, 3, ?, 27, 81. (Answer: 9. The pattern is multiplying the previous number in the series by three.) Now, if you think he or she is

solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	ready, have your child create his or her own patterns. See if you can figure them out. It's important that your child has a rule for creating his or her numbers. The Fibonacci Numbers – 0, 1, 1, 2, 3, 5, 8, …. have a pattern that is common in nature. See if you and your child can figure out the rule. (Answer: To get the next number in the series, add the previous two numbers.) **MODERATE MASTERY** ◒ **Skip and Miss** Finding patterns is an important skill in math. Patterns also give you an easy way to engage your child in an activity. Try the skip-count game—you can skip-count by 2s, 3s, 4s, 5s, or another number quickly, and have your child name the number or numbers you left out. You do not have to start at zero. If you say, *4, 9, 14, 19, 29, 34, 39*, your child has to say, *24*. You can start with easy numbers and work up to harder ones (for example, start with 2, 4, 8, 10, 12—the number 6 was left out). Switch roles each turn. Your child can learn by making up the riddle, as well as by solving it.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Logic to Problem Solving** Skip-counting can help students develop pattern recognition and, eventually, algebra skills. Pose the following problem. *If your child must pick four baskets of five apples each, how many apples will he or she need to pick in all?* A quick solution is simply multiplying four by five to get an answer of twenty. However, try it in another way—five plus five is ten; plus five is fifteen; plus five is twenty. Have your child then follow the same logic to find how many apples would be needed to fill six baskets with five apples each. Then ask, *If there are sixteen total apples, how many different ways could the apples be saved in baskets?* Help your child discover there are several possibilities (he or she could skip-count by two to get eight baskets of two, or skip-count by four to get four baskets of four, or skip-count by eight to get two baskets of eight). **MODERATE MASTERY** ◒ **What Would That Look Like?** Drawing pictures to organize information is a great way to solve math problems. Many students get tangled up in word problems because there seems to be too much random information. Help your child organize the following problem into a picture. Tell your child that you would like a new flower garden that is in a nine-foot by twelve-foot rectangle. But, in the middle of the flower garden, you would like to save a three-foot by four-foot area for a fountain. Ask, *How many square feet of soil will be used for flowers?* Help your child draw a picture. Use the picture to set up the problem: (9 ft × 12 ft) – (3 ft × 4 ft) or 96 square feet of flowers. Help your child make it a habit to "picture" word problems.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Here's What We Need** More and more, students are required to communicate (in writing or orally) math processes. Solving multistep word problems is a great way for your child to practice communicating process. With your child, create plans for a family vacation. Ask, *What places do you want to see?* Encourage your child to identify at least four different places in regions of the United States. Ask, *To make sure we spend as much time as possible playing, in what order should we visit these different places?* Help your child consider miles and type of road (the rate of travel is faster on the interstate). Say things like, *our rate will be higher on certain roads which will decrease or shorten our traveling time*. If there is a long leg of the trip, ask your child how to *divide* the leg into two equal parts. Continue your planning, encouraging the use of math terms.

	MODERATE MASTERY  **Shoppers' Math Lingo** It is important that students practice thinking and speaking math in everyday activities. Take your child grocery shopping with you and discuss math language as you shop. For example, if you buy a number of items that are the same price, to find the total cost, you multiply the number of items by the price of one of the items (that is, one carton of milk costs $4.00, so two cartons would cost $4.00 × 2 = $8.00). If you have a fifty-cent coupon, that amount will be *subtracted.* Show your child the unit prices of items and discuss multiplying them to get the actual cost. Have your child consider other situations where being able to use math terms would be important.

Return to Table of Contents

GRADE 4 READING

GRADE 4 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **A Game of Concentration** Play a matching game to give your child practice with vocabulary words used in school. Look in your child's science and social studies textbooks at the chapters that are being or have already been taught. Select eight words from those chapters. Write each word on an index card. Write the words' definitions on a second set of index cards. Scramble the sixteen cards and place them face-down on a table in four rows of four cards each. Have your child turn over two cards at a time. If the upturned cards show a word and its correct definition, a match is made and the cards are removed. Otherwise, the cards are turned back over and your child tries again. Continue until all cards are matched. To make the game more difficult, increase the number of cards. **MODERATE MASTERY** ◒ **Literal Meaning** Reading to your child continues to be an important activity in the elementary grades. Choose fiction (stories from the imagination) and nonfiction (writing that gives information or describes real events) books that are interesting to your child. Monitor your child's comprehension, or understanding of what he or she has read, by asking questions after you read the book. This will help you see whether he or she has a basic understanding of what you are reading. For example: *What happened after Harriet unlocked the door?* Questions like this focus on your child's ability to understand sequence (the order in which things happen). *Explain to me in your own words how you do that skateboarding trick.* This type of question gives practice in remembering and retelling. *What is an asteroid?* This question will help you decide if your child understands the vocabulary.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Inferential Meaning** Students are expected to think deeply about what they read. They need to be able to put together bits of information, including what they know from their own life, to understand things that are not stated in text. This is called making an *inference.* Read a fairy tale such as Snow White with your child. Demonstrate the type of thinking that happens when you make an inference. For example, point out the theme (the idea that occurs over and over in the story) of good (Snow White) overcoming evil (the Queen). Talk about the characters (people the story is about)—what makes them so bad (the Queen is jealous of Snow White) or so good (Snow White is kind)? Point out how one action affects characters differently (Snow White ate the poisoned apple, affecting the Dwarfs, the Queen and the Prince). **MODERATE MASTERY** ◒ **Seeking the Five Senses** Poetry is a form of writing that is packed with descriptions that appeal to the five senses. Yet understanding the imagery (the pictures that the words create in your mind) of poems is sometimes difficult for young students. Boost your child's confidence in this skill by looking at poetry in a focused way. Ask a librarian to help you select a book of poems for children. Then challenge your child to find five lines that refer to any of the five senses within the poems. He or she should find a line for each of these categories: *I Can See It! I Can Hear It! I Can Smell It! I Can Taste It! I Can Feel It!* Once your child finds the lines

	that correspond to these five categories, spend time reading and enjoying more poems together.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Point of View** Many students learn to identify a story's point of view (the viewpoint from which the story is told) by checking the pronouns (words such as *he, she, and they)* used in a story. *I* and *we* mean that the storyteller is someone outside of the story who knows the thoughts and feelings of the characters (people in the story). This is called third-person point of view. Students should consider how point of view affects stories. To help your child think about point of view, try having him or her switch the viewpoint of a favorite story. Ask your child to rewrite the opening paragraph of the story from a different point of view. Then discuss what readers gain and what they lose because of this change. Also discuss which viewpoint your child prefers and why. **MODERATE MASTERY** ◒ **Identifying Opinions** Students learn at a young age that nonfiction (writing that gives information or describes real events) texts are about real things, people, and events. Sometimes they mistakenly assume that nonfiction texts only contain facts (things that are true). It is important for students to understand that opinions (thoughts and feelings) can creep into any nonfiction writing. To help your child practice the critical thinking skill of telling facts and opinions apart, read a news or magazine article or informational piece of writing together. Challenge your child to identify any opinions that are presented in the text. Discuss what clue words help your child identify an opinion. Examples include *I think, I feel, I predict, one idea, it looks like, I believe,* and *it could/might be.*
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Think Before You Read** Good readers think about what they already know about a subject before they start reading. Help your child get into some good prereading habits with this activity. Choose one fiction book (a story from the imagination) and one nonfiction book (writing that gives information or describes real events). With your child look at the cover of the fiction book and read the title and the summary included on the cover or back of the book. Read aloud the first paragraph and the chapter titles. Look at any pictures. Then spend two minutes with your child thinking of everything you already know about the setting (where and when the story takes place), topic or subject theme (the idea that occurs over and over in the story), and characters or people in the story. Repeat for the nonfiction book. **MODERATE MASTERY** ◒ **Think While You Read** Students should think about what they are reading to check that they understand the text. Ask your child to demonstrate this type of thinking for you. Have him or her select a favorite text (piece of writing) for you to read. Then every few paragraphs your child should write questions that a good reader might ask. Questions should include things about the characters, the people in the book (*Why is Harry doing that?);* predictions or guesses about what will happen next *(What will Hermione say about Harry's choice?);* personal reactions or connections (*How would I feel if someone treated me that way?*); and that require putting information together (*What have I learned about Harry's life so far?)* As you read the story, have your child ask the questions for you to answer.

Return to Table of Contents

GRADE 4 WRITING / LANGUAGE

GRADE 4 OBJECTIVES	**MASTERY**
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **Combining Sentences** Students need to practice composing complex sentences. Create several sets of simple sentences that could be combined into a single sentence. (For example: *I have a cat. My cat is black.* Those can be combined into the sentence *I have a black cat.*) Write the sentences on one side of an index card and have your child combine them into a single sentence that he or she writes on the back of the card. Your child should be able to write sentences with compound subjects (two or more people or things that the sentence is about) and compound predicates (more than one verb that describes the subject). For example: *I wanted to go to the zoo. It rained all day.* Combined: *I wanted to go to the zoo, but it rained all day.* **MODERATE MASTERY** ◒ **Fragment Detective** Complete sentences need a subject (who or what the sentence is about) and a verb (the action that the subject takes). Students learn they need to use complete sentences when they write for school. Incomplete sentences, or sentence fragments, often occur in spoken language and informal writing, like notes to friends. To help your child recognize fragments when seen or heard, play this game. For a few days, whenever any family member notices a fragment in someone's speech or writing, he or she should point it out by saying, "Fragment!" Extend the game to include characters on television shows, song lyrics on the radio, and so on. Point out that the game should be restricted to the home, since others who are not participating might find it rude.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Does It Belong?** Students need to discriminate between relevant information (information that has to do with the subject at hand) and off-topic information (information that has nothing to do with the subject). Choose an informational article from a children's magazine. Find a paragraph with a clear topic sentence (a sentence that tells the main idea of a paragraph). Write this topic sentence at the top of a piece of paper. Then, on individual strips of paper, write other sentences, which support the topic sentence, from the paragraph. Also write a couple of your own sentences that are related to the subject but not relevant to the topic. Have your child tape the sentence strips that support the topic sentence on the paper. Ask, *How do these choices compare to the sentences in the original paragraph?* **MODERATE MASTERY** ◒ **Brainstorming and Organizing** Students need to learn to brainstorm ideas for writing, and organize these ideas. Brainstorming is letting ideas flow and writing down anything that comes to mind. Ask your child to help you write a letter to a friend or relative. Explain that you want to be sure to include all the family news. Then brainstorm ideas around different topics. For example, you might use categories such as *What the Kids Are Doing, Fun Places We've Visited Lately,* and *What We Are Looking Forward to Doing.* Show your child how to record your ideas by creating lists of topics and subtopics. Then write an introductory paragraph, one that briefly covers what will be in the letter, a paragraph for each topic, and a concluding paragraph (one that restates the main points in the letter). Your child

	will transfer these important organizational lessons to the writing he or she does in school.
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Punctuating Properly** Students are expected to proofread their writing (examine it for mistakes) for grammar (correctly formed sentences), spelling, and clarity (the author's clearly stated ideas). However, it is easier to find errors or mistakes in someone else's work. Looking for one type of error at a time is a good method. Help your child practice this type of focused proofreading by giving him or her a piece of writing with errors. Copy a paragraph or two of any text or writing, that is the right reading level for your child but leave out all punctuation (symbols that mark the end of a sentence). Then have your child proofread for punctuation, fixing the "mistakes" you made. Compare your child's edit to the original, discussing any differences. Suggest that other proofreading rounds might focus on spelling, capitalization, and grammar. **MODERATE MASTERY** ◒ **Editing Checklist** Students need to know how to edit their writing and test samples—editing is finding and knowing how to correct errors. Help focus on the most common errors by having your child create an editing checklist using these questions. Sentences: *Is every sentence a complete thought? Do they all begin with a capital letter and end with the right punctuation mark (symbols that mark the end of a sentence)? Do the verbs (the action word) and subjects (who is doing the action) agree in number (such as My sister works at the mall* not *My sister work at the mall)*? Words: *Are they spelled right? Are the pronouns (words like he, she, or they) correct? Do the words make the ideas clear?* Finally, go over a piece of your child's writing together using the checklist.

Return to Table of Contents

GRADE 4 SCIENCE

GRADE 4 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Popcorn Experiment** Students can do experiments to improve their science skills. Help your child test the hypothesis that popcorn pops because there is a little bit of water inside the kernel. Take some unpopped kernels (sold in jars) and divide it into five batches. One batch is the control group—you will pop it without treating it in any special way. Treat each of the other four batches one of the following ways to affect the water content inside: dehydrate kernels in a 200 degree oven, soak them in water, scratch their shells, or freeze them. Keeping track of each batch, pop the kernels using the same method, then compare the results. Help your child develop an explanation for differences between the popped batches. **MODERATE MASTERY** ◒ **Salty Road** Together use science inquiry skills to investigate how salt affects the melting and freezing point of water. Help state a hypothesis (prediction) about how salt changes the freezing point of water. Design an experiment to test it. For example, place both salted and unsalted water in ice cube trays and check every few minutes to determine which freezes first. Have your child record the hypothesis, experimental procedure, results, and conclusions. How does this apply to everyday life? Note that the freezing point of a substance is also its melting point, so the substance that froze last (at a lower temperature) will also melt first. For example, salting the road in winter helps deter freezing, but also has negative effects. Animals get sick from licking road salt; salt water runoff pollutes soil and kills plants.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Phase Changes Everywhere** Students will better understand phase changes when they observe and describe examples around them. Challenge your child to spot examples of phase changes occurring. Phase changes can include melting, freezing, evaporation, and condensation. Ask your child to describe how heat affected the phase change. For example, removing heat from water changes it to ice, and when water vapor (a gas) in the air touches a cold surface, it condenses to liquid water. **MODERATE MASTERY** ◒ **Friction** Students can improve their understanding of friction with this activity. Ask your child, *What causes friction, and what does friction do?* Suggest an experiment to find out: roll a ball or toy car on different flat surfaces. Which surfaces allow the ball or car to travel fastest? Which cause it to slow? Have your child rub his or her hand quickly across these surfaces. Which feels hottest? Help your child conclude that friction is caused by objects rubbing against each other, increases with rougher surfaces, and produces heat.
Life Science cells and energy changes over time ecology habitat and adaptation heredity	**LOW MASTERY** ○ **Interactions** By observing real-world interactions between living things, students can better understand the co-dependent relationships between plants and animals. The next time

life cycles organ systems taxonomy	you are outdoors, encourage your child to notice how plants and animals in the environment interact. Ask, *Do you see any examples of an animal helping a plant to survive, or a plant helping an animal?* Your child may notice a squirrel finding shelter in a tree or eating a fruit. Insects may be seen pollinating flowers in the spring and summer. Challenge your child to spot as many different examples as possible of these interactions. Lead your child to conclude that organisms in an ecosystem depend on and affect each other in many ways. **MODERATE MASTERY** ◒ **Flower Power** Reinforce the function of flowers in plants by encouraging students to study the flowering plants around them. Forests, farms, gardens, and urban parks should all have at least some flowering plants. Point them out to your child during the time of year when they bloom. Ask, *What kinds of plants produce flowers?* (garden flowers, wildflowers, trees, and many garden vegetables). *What does the flower do for the plants?* (Flowers attract pollinators, which help the plant reproduce.) *How do flowers change through the year?* (Flowers may simply wither and die, or their inner parts might hold seeds inside, or even turn into fruits or vegetables. This is most noticeable on fruit trees or vegetable garden plants.)
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate	**LOW MASTERY** ○ **Hot and Cold** By exploring how climate differs in different parts of the world, students can better understand the effects of the sun's light waves on Earth. Trace or print a map of the world from an encyclopedia or the Internet. Help your child figure out which places stay hot all year, which places stay cold all year, and which places have temperatures that change with the seasons. Next, find images of Earth's position in relation to the sun. Does sunlight hit some regions more directly (head-on)? Does it strike other regions at a slant? Lead your child to conclude that the way sunlight reaches parts of Earth's surface has an effect on climate and temperature. **MODERATE MASTERY** ◒ **Dirty Science** This activity will help students understand the differences between soils, which are essential to life on Earth. Take your child outdoors to collect soil samples from different areas. Examine the soils and ask, *How are they alike and different?* Help your child find ways to compare different soils. For example, place coffee filters in paper cups with holes poked into the bottom, and place a soil sample in each coffee filter. Fit the cups over jars, then add an equal amount of water to each (making sure the bottom of the cup clears the water level). How much water drained out? This gives an idea of how much water the different soils can hold. Ask your child, *Which type of soil if better for plants to grow in?* Lead your child to conclude that dark, rich soils that hold water are best.
Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Futuristic Food** Technology has both positive and negative consequences. Help your child learn about how technology affects a food that many people eat: wheat flour. With your child, look at some packaged foods that contain refined wheat flour. What is listed in the ingredients? This type of flour is usually called "enriched wheat flour" and is followed in the ingredients label by a list of added vitamins and minerals. Why is wheat flour enriched? Help your child do some online or library research to answer this question. How does technology help improve the flavor and shelf life of flour? How does the same technology negatively

	affect it? Why is whole-wheat flour not enriched? Discuss how enriching flour adds back nutrients that were lost in processing and makes sure that many people receive some important nutrients, like folic acid. **MODERATE MASTERY** ◒ **Weather Matters** Students will discover that science and technology have an impact on their lives. To reinforce this point, watch a television weather report with your child. Point out the graphics and the radar images. Ask, *Did people long ago have access to weather reports like these?* (No.) *How does such a detailed weather report impact our lives?* Guide your child to realize that we rely on the science of meteorology to tell us what clothes to wear, what outdoor activities we can do, if we need to prepare for a major storm, and so on. Talk with your child about severe weather that has impacted your lives. Discuss with him or her what to expect, and what steps to take, in a severe weather emergency.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Food Web** A food web shows the relationships between organisms and other organisms they consume. Ask your child to draw a food web that includes him- or herself. The poster should show the plants, herbivores, omnivores, and carnivores that are directly or indirectly involved in your child's diet, with arrows pointing from the organism being eaten to the organism eating it. For example, if your child eats chicken, the food web may show the insects and worms that chickens eat. For a more realistic food web, help your child research the diet of the livestock you eat (e.g., cows are likely to be fed corn as well as grass, and chicken feed is often made of grains and fish). Where does your child fit in to the food web? Ask your child how he or she feels about it. **MODERATE MASTERY** ◒ **Water Use** Ask your child about your family's role in the use of water resources. Where does your water come from? Where does it go after you use it? How do you participate in polluting or cleaning the water supply? Your child might be interested in visiting your town hall or an official website to find out more. Which reservoirs provide tap water to your area? Where does the water that fills them come from? If you water your lawn, do pesticides and fertilizer run off into local lakes or rivers? Where does waste water from your home go, and how is it cleaned and filtered before returning to the environment? Encourage your child to make a poster showing his or her findings.

Return to Table of Contents

GRADE 5 SOCIAL STUDIES

GRADE 5 OBJECTIVES	MASTERY
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **A Good Sense of Direction** Students should be able to develop mental-mapping skills and give people directions to familiar locations. To help your child with this skill, have him or her describe the route he or she takes to school every day. Regardless of how your child gets to school (by bus, bike, car, or walking), he or she should be able to describe the landmarks, streets, and approximate distances to the destination. If not, spend some time working on this skill until it is mastered. Next ask your child to help you come up with a set of written directions to your home from a major landmark in your area. Tell your child that you plan on using these directions for future visitors to your house. This will help him or her see the importance of getting them right. **MODERATE MASTERY** ◒ **Growth Factors** Have a discussion with your child that will help him or her bring the proper geographic perspective to social studies lessons. Find a population map of the United States in an atlas or on the Internet. Choose a city in one of the nation's largest urban areas and a town in a sparsely populated area. Discuss why these two places have developed in such different ways. Ask, *Which of these factors do you think affected growth the most: location, climate, or natural resources?* Make a list of reasons why people may want to live in a particular place. Based on your child's list, make an educated guess with him or her as to where the next "boomtown" will be in the country.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Diaries of Daily Life** To help your child better understand present-day life as compared to life in early America, do a diary-based activity. First, tell your child that both of you will be writing a diary entry about a fun day that you two have had recently. After you are finished, take your diary entries with you to your local library. Ask the librarian to recommend a source of early American diaries. Read several historical diary entries with your child. Then read the two diary entries written earlier by yourself and your child. Compare and contrast your entries with the historical ones. Ask, *What are the main differences between today's life and life in early America? How have people's lives remained the same?* Ask your child to record the answers to these questions in a two-columned chart titled "Same" and "Different." **MODERATE MASTERY** ◒ **Early U.S. History** Students should understand the causes and effects of major events in early United States history. Using a timeline is one way students can keep events in chronological perspective. With your child, do research to find the dates of key events in American history from 1765 to 1790 (listed below). Then help your child determine the impact of these events on the world and the country. Finally, work with your child to create a timeline on a large sheet of art paper that correctly places these events in their proper historical order: *Stamp Act; Boston Massacre; Boston Tea; Party; Intolerable Acts; First Continental Congress; First shots fired at Lexington; Second Continental Congress; American victory over Britain; Treaty of Paris; Articles of Confederation; Constitutional Convention; Ratification of Constitution.*

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Founding Documents** Students are expected to know the importance of key documents that have shaped the United States government. Help your child create a "Document Dictionary." Devote one page to each of the following documents: the Declaration of Independence, the Articles of Confederation, the United States Constitution, and the Bill of Rights. Include the date the document was written and the names of key people who helped to write it. Also, write a clear statement about the document's purpose and its significance. Be sure that your child understands that the Constitution is a living document that can be changed while the others are not. Do research together to find out exactly how amendments are added to the Constitution, and include a page about this process in your Document Dictionary. **MODERATE MASTERY** ◒ **The Legislative Branch** Students are expected to understand the role of the legislative branch of government and learn about the jobs of members of Congress. Your child should know that your family is represented in your state by elected officials of the legislative branch. Find a listing of the members of Congress from your state. Help your child attach names, faces, and hometowns to each of them. With your child, research the political beliefs of several of these representatives. Compare those beliefs to those of your family. Repeat this with the other representatives or with your state's legislative branch as necessary.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Global Trade** Now more than ever, global trade is an important concept for students to understand. To explore this concept at home, take your child on a "country hunt" to a local department store. This activity will help your child see how many items sold locally are made elsewhere. While at the store, look at the tags to find out where they were manufactured. Have your child record the name of each country in a notepad. Once you've returned home, have your child continue the "country hunt" in his or her closet to see if there are any other countries that haven't yet been written down. Now look at a globe or world map to locate the countries on the list. Discuss how the goods were transported to the United States and how transportation impacts the prices of the items. **MODERATE MASTERY** ◒ **How Is That Priced?** Students learn basic economic principles including how consumer goods are priced. To illustrate this concept, choose a food item at a local grocery store that varies widely in price. For example, the gourmet section will likely have imported olives that you can compare to regular olives found in another aisle. Examine the jars' labels to see where each originated. Ask, *Where did the product come from? How might this affect its price*? Now compare the lists of ingredients to see if the more expensive item contains rare ingredients. Ask, *How would this affect an item's price?* Discuss the principles of supply and demand. Ask, *How does the availability of this item affect its price? Why might some people be willing to pay more for the specialty item?* Repeat this activity with other food items.

Return to Table of Contents

GRADE 5 MATH

GRADE 5 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Reading and Problem Solving** Some students struggle to choose operations to use when solving math word problems that contain no math symbols. Help your child master written problems with these simple ideas. Copy the problems onto another piece of paper. Then highlight or underline important words. Provide a variety of colored pencils or highlighters at home—many students are motivated by, or work well with, color. Help your child learn to use the colors as a way to organize information. Help your child learn to pick out keywords, such as "and" for addition, "less" for subtraction, "total," "sum," "half," "twice," and so on. Encourage your child to circle or highlight the numbers needed to solve the problem. Use one color for numbers and another for operations. **MODERATE MASTERY** ◒ **Verbal Problem Solving** Math word problems are often challenging to students. Help your child get over this fear by introducing verbal problem solving during everyday activities. For example, if your child wants to buy something in a catalog, say you want one too, and ask your child to figure out how much two items would cost. If you're at the store buying milk, ask your child how much change you should expect to get back from a five-dollar bill. In word-problem format, write out the problems your child has solved verbally. Conquering these real-world word problems before trying to understand a comparable word problem will help your child gain confidence and continue to develop his or her problem-solving skills.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Real, Live, Estimation** Some students struggle to develop good estimation skills, often because they fail to see its usefulness. Explain to your child how you use estimation to help you in your job with project proposals, budgets, or time sheets, and to keep the household budget, to buy groceries, and so on. Then go through some examples of estimation. For example, to estimate a grocery bill, you might guess at the cost of the items in your cart; to estimate a budget, think through what is needed for a project and take an educated guess at the cost. Emphasize that estimation can be used when exact numbers are unavailable and that it can be much quicker to calculate than with exact numbers. **MODERATE MASTERY** ◒ **Comparing Apples to Apples** Comparing numbers in fraction and decimal form can be a tricky task for students. You could say it's like comparing apples to oranges. One way to help your child is to practice converting from a fraction to a decimal, or from a decimal to a fraction. Try this exercise with your child. Place the following numbers in order from smallest to largest. The numbers are 0.2, 1/10, 1/100, 0.05, 1.2. Now ask, *Can you convert the fractions in the list to decimals?* (1/10 is 0.1—there is a one in the tenth place of the decimal; 1/100 is 0.01—there is a one in the hundredth place of the decimal). Ask your child to rewrite the list with all numbers in decimal form. (0.20, 0.10, 0.01, 0.05, 1.20) Then order the list from smallest to greatest (0.01, 0.05, 0.10, 0.20, 1.20)

Operation Concepts model problem situation operation sense order of operations permutations, combinations operation properties represent operations	**LOW MASTERY** ○ **Cups and Counters** As students begin to learn more advanced math, an important concept is order of operations. This means that, in a multistep problem, multiplication and division are completed first and addition and subtraction second. Help your child understand order of operations by using cups and counters. Use counters or pennies below to complete each operation of an expression (no equal sign) or an equation (which has an equal sign). For example, help your child complete the expression 4 + 3(2) – 1. Step 1 Multiply three and two: 4 + 3(2) – 1 Step 2 Lay out three groups of two counters. That makes six: 4 + 6 – 1 Step 3 Add four counters to the six. That makes ten: 10 – 1 Step 4 Remove one counter from the ten. That makes nine: 9 **MODERATE MASTERY** ◒ **Write It Big** Students can forget to show their work when completing order of operation exercises. This can lead to errors with exercises that involve a lot of steps. Make up expressions with parentheses, division, multiplication, addition, and subtraction (for example, *write 3(4 – 1) – (7 – 5)*). Help your child clearly write each step. Review the steps that are involved in order of operations: first, do the work in the parentheses; then the multiplication and division *in order from left to right*; next the addition and subtraction *in order from left to right*. Students should do *only one step at a time*, as well as *rewrite the equation on a new line* each time they solve one step. Step 1 Complete operations in parentheses: 3(3) – (2) Step 2 Complete multiplication: 9 – 2 Step 3 Complete subtraction: 7
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Location Estimation** Students can estimate distances to tell how long it will take to get from one place to another. Practice estimating distances with your child. When you are driving your child to school (or anywhere, for that matter), try to guess how far the distance is. Write down your estimates. Then watch your odometer to see what the actual distance is. Repeat this activity on different trips until your child becomes better at estimating distance. Help your child estimate the size (length or height) of objects like toys, refrigerators, or cars. Again record your child's estimate as well as your own. Then measure the objects with a measuring tape and record the actual measurement. You can make this into an "Estimation Challenge" by having a contest to see who can make the closer estimate. **MODERATE MASTERY** ◒ **Draw an Object** Students should learn how to measure an object, as well as estimate the object's measurements. Related to measurement, students should also learn how to read and use scale drawings. Pick an object that is larger than a piece of paper (for example, a bicycle). Have your child sketch the object. Then measure the object's dimensions (height and length). Have your child record the measurements in the sketch. Ask, *By how much would you need to divide the actual measurement to fit the sketch on paper?* (If the bicycle is 42 inches tall from the handlebar to the ground, your child could divide by seven inches to make the bicycle six inches tall in the sketch.) Ask, *What is the scale of the drawing?* (The answer is 6:1—the bicycle is six times larger than the sketch).

Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Board Game** Different geometric shapes are all around us. It is important that students are comfortable identifying and communicating properties of shapes. Have your child develop his or her skills through game play. With your child create a board game with sixteen squares around the outside of a paper. Each square can include instructions or jokes. You can make the instructions anything you like, from *pat your head and rub your belly* to *advance to the square directly across the center of the board from this one*. Make or find game pieces and write the names of these shapes on separate slips of paper: circle, line, triangle, square, pentagon, hexagon, and octagon. Take turns picking a slip of paper from a hat, identify the number of sides, and advance that many spaces. The winner is the first one around the board two times. **MODERATE MASTERY** ◒ **Congruent Shapes** Help your child identify congruent shapes (shapes that are the same size and shape) on a grid by using a plastic transparency, or thin tracing paper, and a regular grid paper marked with *x* and *y* axes. Draw a polygon (a figure with three or more sides) like a triangle, square, or pentagon on the transparency. Make sure each vertex matches a coordinate on the grid paper below the transparency. Label each vertex. Write down the locations of the original vertices of the polygon. Now move the polygon by sliding, flipping, or rotating it. Have your child write down the new vertices. Does he or she agree that it's the same figure although it's in a different place? Extend the lesson by having your child use different shapes or draw the figure in different locations on the grid paper without using the transparency.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **A Detective's Life** Students need to learn to gather data and form meaningful conclusions and predictions based on the data. Take your child out to a mall or public place to do a data-gathering experiment. Set up a *yes/no* or *either/or* scenario. For example, you and your child could find a safe, sunny park bench near a busy pedestrian corner and count how many people cross at the crosswalk and how many jaywalk. Or see how many cars at a stop sign come to a full stop and how many do not. Or you could go to a busy mall, put a nickel on the floor, and count how many people walk by before someone stops to pick it up. Ask, *Given what we've seen today, what would you predict will take place on future visits? How many people will pass before someone picks up the nickel?* **MODERATE MASTERY** ◒ **A Combination Problem: Count the Shoes!** Perhaps the best way to explain and explore the concept of combinations is to jump into an example. Ask your child, *There are ten pairs of shoes to choose from. How many different combinations of shoes can you select if I let you buy two different pair?* Have your child draw two squares, one next to the other. Ask, *How many pairs of shoes do you have to choose from when selecting your first pair?* (Have your child place the answer, ten, in the first square). Ask, *How many pairs of shoes do you have to choose from when selecting your second pair?* (Have your child place the answer, nine, in the second square). Have your child multiply the numbers to get ninety. Help your child understand that there are ninety different combinations of two pairs of shoes that he or she could choose. That's a lot of combinations!

Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Grid Paper Art** Help your child develop and analyze patterns by drawing two-dimensional pyramids on graph paper. This will help him or her recognize and use patterns in word problems and other problem-solving activities. Then have your child count the squares in each row. Draw different pyramids and compare the number patterns that are formed. A pyramid could have nine squares on the base, seven on the next level, and then rows five, three, and one. Have your child make a data table of layer numbers (for example row one is 1, row two is 2, etc.) with the number of blocks in that row. Change the "steepness" of the pyramid by graphing fifteen on the base, eleven on the next row, etc. How does this change affect the pattern in the new data table? Explore different pyramids and data tables. **MODERATE MASTERY** ◒ **Do You See the Pattern**? Patterns are an important concept in math and can be interesting to explore. Use coins to play a pattern game with your child. Group the coins (for example, pennies) with one in the first group, four in the second, and seven in the third. Ask, *Can you tell how many coins will be in the next group?* (The next group will have ten coins since the pattern is adding three to the previous number.) Explain different ways to figure out the pattern until your child finds what works. Now ask your child to create numbers with the rule (2 × the group number) + 3. He or she should create groups with five (or (2 × 1) + 3), seven, nine, and eleven coins. Have your child come up with his or her own rule, create the pattern, and see if you can guess the rule.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Problem-Solving Poster** It is important that students have a plan when solving problems. Make a "guide" to problem solving with your child and have him or her place it in the house near the homework area. The more often your child sees it, the more the points will sink in. First, brainstorm what your child wants to put on the poster. Ask whether he or she has problem-solving strategies from school. Help your child decide which strategies work best, as well as which work less well. Examples of what you might put on the poster include the following: *determine what the question is asking for, identify necessary information*, *draw a diagram*, *use a pattern*, *write a list*, and *use estimation to test the reasonableness of your answer*. For each strategy, include an example of a solved problem showing how to use it. **MODERATE MASTERY** ◒ **Modeling How to Solve** There are many problem-solving strategies that will help students understand and complete problems. With your child, gather some colored pencils or pens, a math book or problems you have downloaded from the Internet, and a lot of paper. Take turns modeling how to solve the problems. Draw pictures, make diagrams, or use items such as small colored candies. You might model strategies such as how to lay out the information plainly on the page, grouping, rephrasing the question, and writing equations. Make sure to note which was best for each type of problem and why. Make fun sketches, have snacks, or anything else to spice up the activity for your child. Encourage him or her to be as creative as possible.

Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Nature and Math** Students can become more comfortable with and interested in math when they see its application in the real world. Go to a library that has a large selection of magazines and books dealing with nature and photography. Look through the magazines and books with your child to find interesting examples of mathematics. For example, discuss geometrical shapes—why bees build their hives with hexagons or why water droplets are always spherical. You might discuss math or numbers that appear in an article. For example, look for heights or weights of animals to compare to your child's height. Do you see any statistics like the mean or median? Take time to communicate with your child using all the math terms they have learned or are learning **MODERATE MASTERY** ◒ **Egg Carton Problem Solving** Students benefit from hands-on activities. Use egg cartons to help your child practice creating and solving problems. Cut out the individual cups of the carton to help model other items. Your child might imagine that the cartons are cups, beehives, or houses with people in them. Help your child turn the scenario into a math problem. For example, if your child arranges six separate eggcups in a hexagonal shape, bring out a handful of raisins. Say, *This looks like an ancient village. Let's say these raisins are people. How many people do you think live in each house?* Use mathematical terms as you discuss each idea, such as *divide the forty-two raisins I have given you into six houses*. Be sure to help your child use the appropriate math terms as you work with him or her on this activity

Return to Table of Contents

GRADE 5 READING

GRADE 5 OBJECTIVES	**MASTERY**
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Vocabulary About the Environment** As students get older, there is a greater focus on being able to read and understand reading in subject areas (such as social studies and science). There are lists of subject-area words that students should be able to define at each grade level. One topic that is getting taught more and more in both social studies and science is *the environment* (the study of the natural world and things that affect it). Using the list of words below, see whether your child can use each word in a sentence related to this topic. Look up any words that are unfamiliar to you or your child, and then help him or her create a sentence that uses the word properly. *Amazon, conserve, destruction, ecology, extinct, global warming, greenhouse gases, habitat, legislation, ozone, peril, regulate, resource, smog, species, sustain* **MODERATE MASTERY** ◒ **Reading for Information** Students should be able to read and understand real-world documents, such as schedules, event announcements, forms, instructions, and product information. Gather several of these items that are part of your family's daily life (for example, a bus schedule, labels from food products, and brochures from places of interest in your area). Read them with your child, and ask questions to see how well he or she understands them. Give tips for locating the most important information in documents like these. Teach your child to look for bold or italic type, the use of color, bulleted lists, and visual aids, such as charts and graphs (visual displays that show the relationship of two or more things), are all designed to attract the eye.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Comic Book Plots** Give your child a fun way to practice keeping track of the plot (the events) of a story line by using comic books. Each frame of a comic usually presents a single action. This makes it much easier to isolate the climax or turning point of the plot. Have your child read a complete story in a comic book. He or she should identify the frame in which the problem is made known, and then circle the frame that presents the climax or point of highest tension. The frames between the presentation of the problem and the climax have to do with building action. The frames following the climax should show how the problem is solved. Talk through the story line together when he or she is done reading and thinking about it. **MODERATE MASTERY** ◒ **Describing a Person** Students can consider story characters (people the story is about) in deeper ways by thinking about how they get to know people in real life. Suggest that your child tell you about a fellow student at school whom you have not yet met. Ask your child to describe these things: how the person looks, something the person has said that made an impression on your child, a habit or hobby the person has, what his or her personality is like, and how other people respond to this person. Point out that these are the same types of things authors include about characters when they write descriptions and dialogue in stories. Then ask your child to tell you the same information about a character in a book he or she is reading or has recently read.

Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Comparing Characters** Students are expected to remember what they learn from their reading so they can apply their new knowledge and experiences to future readings. This is called making connections between texts (writings). One fun way to practice this skill is to compare and contrast, or look at what is the same and what is different between, two characters (the people the story is about) from different stories. Ask your child to name his or her two favorite story characters. Then ask several questions that lead your child to think about the characters side by side as he or she helps you "get to know" these fictional (from the imagination) heroes. Questions might include *With which character would you rather spend a whole day and why? Would the two characters be friends or enemies? How are they alike and how are they different?* **MODERATE MASTERY** ◒ **Author's Purpose** Students are often asked to identify an author's purpose, or the reason why an author chooses to write a text. There are three basic purposes for writing: 1) to inform or give information, 2) to entertain or amuse, and 3) to persuade or convince. Any newspaper will have examples of all three types of writing. Challenge your child to find a piece of writing in the newspaper that represents each type of author's purpose. Articles that inform have only facts (things that are true). Entertainment pieces often use imagery (words that form a picture in your mind). Persuasive writing has opinions (thoughts and feelings) and asks readers to believe or act a certain way.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Context Clues** Being able to figure out the meanings of new words is a key to understanding what one reads. Students learn several skills to uncover word meanings. One strategy is using context clues (hints that can be found around the unknown word). Students learn to "read around" a new word to figure out its meaning. To understand how context clues work, practice writing with context clues. Have your child find an unusual word in the dictionary and quiz you to be sure that you do not know its meaning. Then ask your child to write a sentence that uses context clues, not the actual definition, to help identify the word. Explain that there must be enough context clues for you to figure out the word's meaning. See if you can learn a new word from your child's sentences! **MODERATE MASTERY** ◒ **Reading Across Genres** Students are expected to read about topics in different types of books and take what they learn from one book and use it when they read another book. To give your child practice with this, spend time together finding a variety of information on the topic of food. Choose an entertaining fiction book (a story that comes from the imagination), an informative nonfiction text (writing that gives information or describes real events), and a set of instructions such as a recipe. Stay as close to the topic as you can. For example, if you choose a fairy tale featuring a magical fruit tree, then select an article about an orchard, and find a great fruit salad recipe. Discuss with your child how all three books work together to create a better understanding of the topic. Encourage your child to read about favorite topics in more than one type of book.

Return to Table of Contents

GRADE 5 WRITING / LANGUAGE

GRADE 5 OBJECTIVES	MASTERY
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **Change That Sentence** Students are expected to use a variety of sentences in their writing. Challenge your child to start from a simple sentence (one that is about someone doing something) and change it to fit the different patterns. For example, *I rode my bike.* Add words to tell when, where, why, and how: *Yesterday I quickly rode my bike to the store to buy some flour for my mom.* Start over and add a comma, a conjunction (a linking word such as *and*, *or, but)*, and more information to make it a compound sentence (a sentence with at least two complete thoughts): *I rode my bike to school, and I got wet in the rain.* Take the original sentence and add a phrase or a clause (a group of words that are not a complete sentence and describe something about the subject or action) to make it a complex sentence: *Because our car is in the shop, I rode my bike.* **MODERATE MASTERY** ◒ **The Longest Sentence** Students are cautioned not to write run-on sentences (two or more incorrectly joined sentences that should be written separately). Sometimes this causes them to use only short, choppy sentences in their writing. An example of a run-on sentence is: *Matt likes to play soccer he is a good athlete*. Give your child practice in writing longer sentences while clarifying run-on sentences. Play a game in which you start with a very simple sentence. Take turns adding to it without creating a run-on until your ideas are exhausted. For example: *The house is pretty. → The house is pretty and has a nice yard. → The house across the street is pretty and has a nice yard. → I never noticed before the house across the street is pretty and has a nice yard.*
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Finding Resources** Students often need to find information for school reports or to explore something that interests them. Ask your child to name a recent topic at school that was particularly interesting. Suggest that it might be fun to learn more. Have your child consider sources of information for this topic. If you were to search on the Internet, what key words (words that would help turn up pages related to the topic) would be best? At the library, would you need to look at current resources, such as magazines and newspapers, or would there be books about the topic? What related topics would you look up? Following your discussion, encourage your child to actually find some resources on this topic. **MODERATE MASTERY** ◒ **Put It in Order** Students need to be able to sequence or put their ideas in order. One effective way to give students practice in sequencing ideas, or putting them together in order, is to have them organize "how-to" instructions. Choose a set of directions from an instruction manual, recipe book, or other resource. Write each step on a sticky note, placing the notes in a mixed-up order. Ask your child to put the notes in the correct order. To check your child's work, try following the steps. Then challenge your child to write a paragraph that presents the steps in order. Remind him or her that transition words (words that let the reader know a new idea is coming) such as *first, next,* and *finally* help readers follow the order of events.

Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Adverbs and Adjectives** Students are encouraged to use words that give strong descriptions, such as adjectives (words that describe people, places, feelings and things) and adverbs (words that describe actions). Give your child practice revising sentences to make them more descriptive. Write this sentence: *Lin is very nice.* Challenge your child to come up with five words to replace the overused adverb *very* and five words to replace the overused adjective *nice.* Ask him or her to select the best combination and write a new sentence. Then ask your child to show you some of his or her recent writings. Help him or her pick out sentences that have overused adverbs and adjectives. Have your child list as many replacement adverbs and adjectives as possible. Then have him or her rewrite the selected sentences, using some less common adverbs and adjectives. **MODERATE MASTERY** ◒ **Subject-Verb Agreement** When students proofread (check their writing for accuracy), they should focus on subject-verb agreement—when the subject (who the sentence is about) and the verb (the action the subject takes) agree in number. One subject gets a singular (one) verb (*He sings).* More than one subject gets a plural (more than one) verb (*They sing).* Play a matching game to practice. Write these subjects on separate index cards: *A flock of geese, Two bats, Rabbits and deer, A frog, The two turtles, A centipede with 100 legs.* Write these verbs on a second set of cards: *creep, creeps, flies, fly, leap, leaps.* See how quickly your child can correctly match the subjects and verbs (*A flock of geese flies, Two bats fly, Rabbits and deer leap, A frog leaps, The two turtles creep, A centipede with 100 legs creeps).*

Return to Table of Contents

GRADE 5 SCIENCE

GRADE 5 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Flower Flow** Help your child investigate how plants absorb water through their roots, but transport it to all the other cells in the plant. How does water travel through the plant? Test this together by adding food coloring to a glass of water. Cut the stem of a white flower or a stalk of celery at a 45-degree angle, and place it in the colored water. You should see the food coloring moving up the celery stalk, and flowers should also show color, although not as rapidly. All plants that live on land have tubes inside that transport water. Explain that water moves up very thin tubes on its own, and plants lose some water from their leaves, which also helps carry water upward. Ask your child to describe what happens when drinking from a straw. Removing the air or liquid at the top of the straw causes liquid at the bottom to move upward. **MODERATE MASTERY** ◒ **Clean Science** Students learn basic science skills by doing hands-on science projects. Have your child do a simple experiment to test which store-bought cleanser is best at removing baked-on grease from your stovetop or oven (or other kitchen stains). Your child should discuss the experiment with you first. Ask, *Is the experiment a fair test? Is it safe to carry out? Does it do a good job of testing effectiveness? What is the control?* Test the cleansers on similar greasy areas and leave an area untreated as a control. Suggest that the cleansers be randomly placed in unlabeled containers to prevent bias on the part of the testers. Your child should record exactly what was done and what results were seen. You can then figure out which cleanser was more effective.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Bridging the Gap** Help your child experiment with bridge designs employing simple materials like cardboard, sticks, or straws, tape, and glue. Then, test the bridge's strength, durability, and resiliency by placing it over a gap, like a small hole in your yard or two stacks of books. Apply weight from either the top (place a book on it) or the bottom (suspend a small weight from below). A very simple yet very strong bridge can be made from fan-folded paper or cardboard. Remind your child that triangles will provide more strength and support than squares. Encourage him or her to try several designs, test their performance under different conditions (amounts and arrangements of weights), and to write detailed observations, including diagrams, of each structure's performance. **MODERATE MASTERY** ◒ **Transport and Friction** Devices and methods to move people and things have always had to deal with the same basic physical forces. Help your child research different methods of moving over land. The wheel is the most common device, but other methods include magnetic levitation and motion over snow. How do all of these methods make motion easier? The wheel is a simple machine that reduces friction by rolling over the ground instead of dragging over it. How do other methods reduce friction? How does reducing friction make movement easier? Help your child conclude that friction is a force that goes against the direction of motion. Reducing friction allows a vehicle to be moved using less force.

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Classification Challenge** Students can practice classifying organisms into basic groups by observing living things around them. Take your child to a garden, park, or other outdoor area and see how many animals you can spot. You can even do this at a supermarket. Help your child classify the animals into groups such as insects, arachnids (spiders), crustaceans (lobsters and shrimp), bivalves (clams and oysters), fish, mammals, birds, and reptiles. Ask, *Is this animal a vertebrate? (Does it have a backbone?)* Check your child's answers in an encyclopedia or on the Internet. **MODERATE MASTERY** ◒ **Natural Diet Plans** Help students learn biology terms for types of consumers by applying the terms to everyday observations. Ask your child to define the terms: *consumer* (an organism that obtains energy by consuming other organisms), *producer* (an organism that makes its own food; such as plants or algae), *herbivore* (an organism that eats plants or algae), *omnivore* (an organism that eats both plants and animals), *insectivore* (an insect-eater), *carnivore* (a meat-eater), *generalist* (an organism that eats a wide variety of foods), *specialist* (an organism that eats just a few foods), *predator* (a hunter), *prey* (a hunted animal), and *filter feeder* (an organism that strains food out of the water). Look at the animals in people's homes and backyards, movies, zoos, nature shows, the wilderness, and the supermarket. Help your child apply the defined terms to the organisms you see.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate	**LOW MASTERY** ○ **Edible Rocks** Making models of rocks can help students understand the important differences between different rock types. Ask your child to name and describe the three basic types of rocks. (Sedimentary rock is made of pieces of different materials pressed together. Metamorphic rock is formed under high pressure and/or temperature. Igneous rock forms when molten rock cools.) Help your child find pictures and descriptions of these rock types from the Internet or library. Then challenge your child to make models of the rocks (or the rock-forming process) by selecting appropriate cookie recipes. For example, meringues can model igneous rock because they are made from a liquid that harden, and walnut-chocolate chunk cookies can represent sedimentary rock, because different materials are visible in them. Bake and enjoy "rock cookies" with your child! **MODERATE MASTERY** ◒ **Changing Sun** Observing changes throughout the year will help students understand how the relationship between Earth and the sun changes from season to season. Encourage your child to observe the path and position of the sun at different times of the year. Ask, *At midday, is the sun high overhead, or is it lower in the sky?* If a clear plastic half-sphere is available (such as discarded electronics packaging or a disposable bowl), help your child draw the path of the sun through the sky. Place an object representing your home under the plastic dome, and draw an arc from "East" to "West." Repeat this for different times of the year. How is the path different? What is different about Earth's position?
Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **The Power of Wind** Technologies often evolve over time. For example, the windmill, an ancient device that uses wind power to generate motion, still helps us today. Encourage your child to use the

	Internet or visit a local library to research windmills. What are the different purposes of the windmill? Traditional uses include grinding grain or pumping water. What societies have used the windmill and what did they contribute to it? The wind turbine is the electricity-generating descendant of the windmill. Where are wind turbines used today? Not all windmills are the same—discuss advantages of each different design. Have your child label a diagram that explains the structure and function of a basic windmill. It might be fun for your child to also build a model windmill. **MODERATE MASTERY** ◒ **Make a Movie** Students will learn that many of today's technologies have developed from simple science concepts. Help your child learn about how cartoon animation has changed from images on a series of individual frames to computer-generated images. Encourage your child to experiment with early movie technology by making a flipbook. On about ten index cards, he or she can draw a series of images. On the first card, your child can draw a car at one end. On the next card, tell him or her to draw the same car, but slightly ahead of where the first car was drawn. Have your child continue in this way, slightly drawing the car further across each card. Demonstrate how to hold the cards together and "flip" them, and watch as the car seems to move across the card.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Science, Technology, and Health** Science and technology are essential to health and medicine. Ask your child if he or she remembers receiving vaccinations, such as a tetanus booster. Together research how vaccines were invented and how they work to keep people from getting contagious diseases. Ask your child what other technologies affected the ways we treat patients. Discuss how microscopes allowed scientists to discover cells and the bacteria that cause many infections. Doctors now use sterilization (the killing of any infectious microbes) when treating or operating on patients. The invention of the thermometer gives doctors accurate information about a patient's body temperature. Challenge your child to learn more about the things he or she encounters at the next doctor's visit. **MODERATE MASTERY** ◒ **Reduce, Reuse, Recycle** Ask your child to think about how television and other media have affected your family's and community's commitment to reducing, reusing, and recycling. Ask, *Who is doing it and why? Are more people doing it? Are people talking about it at home, in school, and in their neighborhoods? Have you done in-class projects on recycling? What are different ways to reduce waste? Why is this so important? Could your family do more reducing, reusing, and recycling? How?* Help your child suggest changes your household can make to reduce, reuse, and recycle, and see how well the family sticks to these changes for the next two weeks.

Return to Table of Contents

GRADE 6 SOCIAL STUDIES

GRADE 6 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Let's Go!** Students can practice their mental-mapping skills by navigating a short trip from their home to a destination of their choice. After choosing a familiar destination with your child, set out on foot or by car. Have your child give you all necessary directions such as "turn right here" or "make a left at the corner." Have your child also tell you whether you are traveling north, south, east, or west and to approximate the distance you will travel on each street or portion of the trip. If your child makes a mistake, allow him or her to figure out how to get back on route. When the destination is reached, review the path taken. Have your child sketch a map, showing the streets and intersections you passed. Use the map to guide you home. **MODERATE MASTERY** ◒ **Where Would You Like to Go?** Students who map destinations can learn about distance, geography, and climate. Have your child find the location of where you live on a world map or globe. Then ask your child to choose any destination in the world. On a sheet of paper, create a two-columned chart with your hometown and the chosen destination as the columns' titles. Ask your child to add information about each place including lines of latitude and longitude and geographical features such as rivers and mountains. Next ask your child to create a route for travel from your home to the chosen destination. Encourage your child to answer some questions regarding the traveled route, such as: *Does the route travel north or south? How may the climate of the destination differ from your home's climate?* Add this information to each appropriate column of the chart.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Visit a Museum** Students can make connections to the past by visiting museums. On a visit to a local museum or historical society, view the artifacts and exhibits on display with your child. If possible, tour the museum with a guide or encourage your child to ask staff members questions about specific artifacts. When applicable, have your child compare the artifacts to objects in today's world. Ask, *What might life have been like for the person who used this object? Do you think everyday tasks were easier or more difficult during that time period?* Guide your child to make inferences about the values and customs of the time period. Before leaving, try to confirm these inferences with a visit to the museum's reading room or a brief chat with museum personnel. **MODERATE MASTERY** ◒ **Time for Timelines** Timelines help students visualize the order in which historical events took place. Examine a timeline found in a textbook or other historical source with your child. Ask him or her to identify the range of years listed on the timeline. Read about the events together. Discuss how life may have changed between each event. Ask your child, *Do you think any earlier events caused later events to happen? Do you think a particular event could have brought on war, peace, hardship, prosperity, or some other situation to the people who lived at that time?* To check your child's answers to these questions, research the events in reference books or on reputable educationally-based websites.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Finding Solutions** Students can see democracy in action when they watch groups who are trying to influence government. To help your child have this opportunity, identify an individual or organization that has recently proposed new laws or programs in your state or community. An example of this is a neighborhood crime watch group. Request a visit with an individual or member of the group to discuss this issue. During the visit, encourage your child to ask, *How have local leaders responded to your issue? Are you pleased with the results so far? Why or why not?* If possible, take your child to a meeting at which the issue is addressed. Afterward, have your child write a brief account of what he or she learned from this experience with the democratic process. **MODERATE MASTERY** ◒ **Democracy by Definition** Students who understand key aspects of democracy gain insight into the rights of citizens. To help your child understand this, begin by reading a dictionary definition of the word. Ask your child to explain how this definition applies to the type of government we have in the United States. Then together read a list of protections each citizen is granted by the Bill of Rights. Discuss what these rights mean and how they fit the definition of a *democracy.* Now have your child write a story about what life might be like in the United States if we didn't have a democracy or a Bill of Rights. Encourage your child to think about how his or her life would be different under a different form of government.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Advertising and You** When students think critically about advertising messages, they are able to make more responsible buying decisions. Watch several television commercials with your child and encourage him or her to pay attention to how each product or service is depicted. Ask, *Who are the people in the commercial? What are they like? What groups of consumers do the commercials intend to attract? Do you think it is a good idea to buy the item? Why or why not?* Discuss the different ways responsible consumers make decisions. Explain how people create budgets and review the differences between purchasing items people *need* as opposed to items people *want*. Ask your child to keep track of the commercials he or she sees over the next week and write or explain how each advertisement tries to get consumers to buy the products shown. **MODERATE MASTERY** ◒ **Top Sellers** When students understand why some goods are in short supply, they can make connections to the ways manufacturers determine the prices of goods. Have your child think about a product that was recently in high demand. Recall news accounts of people waiting in lines at stores to purchase a certain toy or a video game system. Ask, *Was the item expensive or inexpensive?* Remind your child that in such situations, often only a small number of items are available. When supply is low and demand is high, manufacturers can often sell the item for a higher price. Have your child choose an item. Research where the product was manufactured and whether the price was lowered because demand fell or because supplies increased (or vice versa if the price was raised).

Return to Table of Contents

GRADE 6 MATH

GRADE 6 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Measuring Fractions** Use a set of measuring cups or spoons in different sizes to help your child understand fractions. Make a long number line on a sheet of paper. Write 0 on the far left of the number line and 1 on the far right. Now write the fractions represented by each cup or spoon in order between 0 and 1 (for example, 1/8, 1/4, 1/3, 1/2, 2/3, 3/4). Find out if your child understands that smaller fractions are closer to 0, while larger fractions are closer to 1. (If you do not have a set of measuring cups or spoons, use a measuring cup to measure out 1/8, 1/4, 1/3, 1/2, 5/8, 2/3, 3/4, and 1 cup of water, pouring each amount into an identical glass or clear plastic party cup. You can even add a few drops of food coloring to each cup.) **MODERATE MASTERY** ◒ **Food Fractions** Help your child understand equivalent fractions by cutting food into smaller and smaller fractions. This will help him or her understand that even if you cut the food into smaller parts, it is still the same overall amount. Symmetrical foods like an apple, slice of bread, cake, or pie work best. Start by cutting the food into quarters. Split one quarter into halves (2/8 of the original), another quarter into fourths (4/16 of the original), and another quarter into thirds (3/12 of the original). You may split the food further to show even smaller fractions of the original. Be sure your child understands that the overall amount of food remains the same regardless of how many times it is divided. Ask your child to represent each cut portion of the food by a fraction, then add up the fractions to show that they total one.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Mall Math** Math makes more sense in a real and interesting context. Take your child to the mall or grocery store with a calculator and a notebook. Look at items that are on sale. For each item, write down the regular price, percentage discount, dollar amount of the savings, and the sale price. Show your child two ways that you can calculate the dollar amount of the savings and the sale price. For example, 30% off a $40 sweater could be calculated as 0.30 (percentage discount) × $40 (original price) = $12 (dollar amount of the savings), then $40 – $12 = $28 (the sale price). Give your child an imaginary budget and ask for a list of all the things he or she would buy within that budget. Show your child how much more he or she can buy when items are on sale. **MODERATE MASTERY** ◒ **Money Fractions** Help your child practice operations with fractions by using coins. Ask your child to write what fraction of a dollar each coin represents. A fifty-cent piece is 1/2 of a dollar; a quarter is 1/4 of a dollar; a dime is 1/10; and a nickel, 1/20. For addition, take two coins and ask your child to find the sum. For example, 2 nickels equals 1/20 + 1/20 = 2/20 or 1/10 of a dollar. For subtraction, have your child find the difference in values of two coins. For multiplication, take coins of the same value and ask your child to find the product. For example, six quarters equal $1.50; *1/4 × 6 = 6/4* or *1 1/2*.
Operation Concepts model problem situation	

operation sense order of operations permutations, combinations operation properties represent operations	**MODERATE MASTERY** ◒ **Create a Problem** Asking students to exercise logic in reverse can help the forward logic sit more solidly in their minds. Write two-step math sentences and have your child think up word problems that would fit the equation. For example, if you come up with the math sentence 3($96) + $82, your child would create a problem similar to the following: *Three young adults want to take their grandmother on a scuba-diving experience. The trip will cost each of them $96, but their grandmother will get a senior discount. Accordingly, her ticket will cost them only $82. How much will it cost for all four people?* Write other two-step math sentences on cards; have your child create word problems, then work to solve them together.
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Playground Map** Scale maps give students an idea of what can fit into a given space. Help your child make a scale map of his or her favorite place to play. Use a piece of grid paper. Make sure your child sets a scale (for example, one square on the paper equals one step). Measure the entire area of his or her place in steps. Encourage your child to measure twice. Have him or her measure the dimensions (sides) of the area first in order to make sure that it will fit on the graph paper. If the dimensions are too large, change the scale (for example, one square on the paper equals two steps) or map a smaller part of the play area. **MODERATE MASTERY** ◒ **Distance, Time, and Speed** Students should be able to use distance, time, and speed (or rate) to describe and understand real-world situations. Set up a simple experiment to clock the time that a toy car or ball requires to roll between two masking-tape lines. Have your child make a table with distance and time measurements for at least three experiments. Then have him or her calculate the rate of the object for each experiment. Make sure that your child keeps sensible units (such as feet per second) for each experiment. Your child should know that the unit for rate is distance over time. If your child forgets, he or she can use that unit to divide feet by seconds (or distance by time).
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives	**LOW MASTERY** ○ **Three-Dimensional Translation to Two-Dimensional** A skill that is often tested at school but sometimes tricky to grasp is the translation between a three-dimensional solid and its two-dimensional views. Practice this skill with your child using simple objects and sketches. Then advance to more complex figures. Build stacked shapes with standard blocks, then use grid paper to sketch the object from the top view, bottom, right, left, front, and back views. For example, a square pyramid has a square base. The view from the top of the pyramid is simply a square. The side view and sketch of the same pyramid will be a triangle. **MODERATE MASTERY** ◒ **Areas of Figures** Students need to use areas of figures to solve meaningful construction problems. Help your child practice finding the areas of two-dimensional figures and the surface areas of three-dimensional figures. Rectangular boxes and a standard ruler are great for this purpose. For example, measure a cereal box and have your child record the measurements. Next have him or her sketch a face of the figure—as well as a three-

geometric constructions Pythagorean theorem connect 2-D with 3-D figures	dimensional view—of the box (the key to making it look right is to keep the lines of each side parallel). Your child can then calculate the area of each face by multiplying the length by the width. Find all six sides (or three sets of two). Then add the area of the six sides of the box together for the total surface area.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Circle Graphs** Circle graphs or pie charts are useful tools for comparing parts of a whole. Help your child devise a survey for your family or for a group of friends. You could poll twelve family members about eye color. Assume three have blue eyes, two have green eyes, and seven have brown eyes. Since there are twelve people in total, each person's eye color will be a twelfth section of the pie. Given there are 360 degrees, each twelfth is the same as 30 degrees. So the blue-eyes section will be 90 degrees (or 1/4 of the circle), the green section will be 60 degrees (or 1/6 of the whole), and the brown section will be 210 degrees. Help your child understand that the circle graph is helpful in that it quickly and visually allows him or her to compare parts of the whole. **MODERATE MASTERY** ◒ **Poll Your Grocery Cart** Students need to be able to make clear, useful graphs to display information in an easily understood way. Help your child take a survey of your pantry at home or your grocery cart while shopping. Ask, *How many items have added sugar? How many do not? How many items contain more than one gram of protein per serving? How many items have more than one gram of fat per serving?* Summarize the results from each question. Then have your child make a bar graph of the information (one bar showing the count of one answer and another bar showing the count of the second answer). Help your child make the graph easy-to-read (use a ruler!), accurate, and colorful. All graphs should have a descriptive title as well.
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Equate Your Cans** Students should develop the ability to write a real-world problem in mathematical terms (like an equation) . Pretend that your child is looking for a softball league to join with his or her friends. There are two choices. The first league requires a $100 entry fee and charges $20 for each player on the team. The second league requires a $200 entry fee and charges $10 for each player. Help your child write the cost information as equations. The first league's cost can be written as *Total Cost* = 100 + 20 *(# of players*) or $C = 100 + 20P$. Let your child find the second league's cost equation on his or her own. (The second league's cost is $C = 200 + 10P$.) Plug in some numbers for players (P) starting with nine, and see how the costs change as the number of players goes up. **MODERATE MASTERY** ◒ **Profits and Costs** Analyzing data in charts can help students better interpret the meaning of the results. Search around your community for a simple profit and cost situation, for instance a snack shop, vending machine, or T-shirt shop. For example, explain that the profit a T-shirt seller makes relies on the total number of shirts that he or she sells each day. Have your child graph profit versus number of shirts sold. Of course, if there are overhead costs, there is a threshold number of shirts that must be sold to make the business profitable. Show this as a line across the line graph of profit versus shirts sold. Ask, *How does profit change when the number of shirts sold changes?* Help your child find the pattern.

Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Algebra Tiles** To develop beginning algebra skills, help your child represent problems with manipulatives. Visualizing and representing word and number problems will help your child identify and sort information, as well as get in the habit of translating abstract math into diagrams. Help your child solve this word problem: *A scientist has four red birds and three green birds. Each green bird costs $30 and each red bird costs $35. How much money did he spend on birds?* Have your child lay out four counters to show red birds and four markers that say $35 (one beside each red bird). Now have your child lay out the counters and squares for the green birds and use the counters to help solve the problem. (4 times $35 added to 3 times $30) **MODERATE MASTERY** ◒ **Using a Chart** Students can feel overwhelmed by all of the information in real-world math problems. Help your child develop the skills to organize information to solve math problems. For example, figure out this problem: *If twelve people go on a trip, the total cost is $700. If nineteen people go on the same trip, it costs $1,050.* There is a cost for each person, as well as a fixed initial group setup fee. If $350 is the difference in cost between the two groups (twelve travelers versus 19) divide the $350 by the difference in number of travelers (seven). The per-person cost then must be $50. ($950 – $600 = $350/7 = $50 per traveler with a fixed group cost of $100.) *How much would it cost for twenty-four people?* Using a chart (number of people versus amount) will be helpful. Make up similar problems with base costs and rates.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Neighborhood Business Math** When students see the practical relevance of their math activities, they identify better with the curriculum and are more eager to learn. In this activity, help your child better understand everyday math and problem-solving skills that a business owner—for example, a dry cleaner, a tutor, a bakery owner, or a coffee shop owner—has to use. Be sure to emphasize the need for business owners to speak and understand math terms. Ask your child questions such as, *What do you think the baker uses to figure out his or her profits each day? How does the coffee shop owner estimate how many muffins to buy from the baker each day? What costs does the tutor have to subtract from his or her income to find his or her total earnings?* Ask your child to think of situations in which you need both math and problem-solving skills. **MODERATE MASTERY** ◒ **Strategies Poster** Organizing useful information when problem solving gives students something to refer to when they are unsure how to proceed. In this activity, help your child make a problem-solving strategies poster. Repeatedly seeing strategies posted can help your child remember them better. Ask your child which strategies he or she thinks work best—looking for keywords that translate to math (for example, *sum, difference, decrease*, etc.) drawing a diagram, organizing information, rephrasing a question, circling needed information, and other strategies. Then have your child create a poster that shows examples of these strategies. Use colors and pictures to make the poster visually interesting, as well as to help make sure that the important information is easy to see. When you know that your child has had a test or is working on homework, ask what strategies he or she used and how successful those strategies were.

Return to Table of Contents

GRADE 6 READING

GRADE 6 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Sequence Sketches** When students read, they must be able to understand the sequence (order) of events in a story. To practice this skill, ask your child to draw a comic book version of a story he or she has read recently. Have your child list the six most important events in the story. Then ask him or her to draw six boxes on a piece of paper and label each box with sequencing words such as *First, Second, Then, Next,* and *Finally.* Next have your child draw a picture for each event in the correct box. Then tell him or her to write text (or words) for each drawing. Make sure your child includes details like characters (who the story is about), setting (where and when the story takes place), the characters' problem, the climax (the turning point where everything changes), and how the problem is resolved. **MODERATE MASTERY** ◒ **Let's Have a Word** Students must understand key vocabulary in order to figure out the meaning of what they read. When your child is reading, he or she may come across an unfamiliar vocabulary word. Help your child find context clues (words that give hints about the unknown word) within text that may help define unfamiliar words. Have him or her look at the words around the unknown word. *Did the author provide clues such as synonyms (words with the same meaning), antonyms (words with opposite meanings), examples, explanations, or restatements that help define the unfamiliar words?* If not, have your child look in the dictionary for the definition. Then have your child reread the sentence, substituting a familiar synonym for the new word. Reinforce the word's meaning by challenging your child to a contest to see who can use the word more often throughout the day.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Sequence Sketches** **Reading Below the Surface** When reading, students must be able to draw conclusions, or form an opinion about what is going to happen based on evidence in the writing. Readers predict (guess) outcomes by combining story clues with their own knowledge and experiences. For example, a story character may have an upcoming math test, but chooses to play instead of studying. Readers know that failing to study can lead to poor performance on a test. They may conclude that the character will do poorly on the test. Teach your child to draw conclusions by writing an addition sentence: *What the Story Says* + *What I Know* = *My Conclusion*. Have your child record story details and known facts in boxes underneath each category to reinforce the idea of drawing conclusions from text and real life. **MODERATE MASTERY** ◒ **Story Stages** Students need to be able to identify story elements such as character (who the story is about), setting (when and where the story takes place), plot (what happens in the story), and climax (the turning point, where everything changes) in order to understand the story. Usually the main characters and the setting are introduced in the opening paragraphs or chapter. After reading the beginning paragraphs, have your child draw a

	sketch of the setting and the main characters. Tell your child to include labels that describe the characters and setting. As you continue reading, ask your child to list major plot events by stating the main character's problem and what he or she does to solve the problem. Together determine the climax of the plot, which is typically the most exciting, intense, or suspenseful event.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Predict the Future** Students must be able to make predictions (guesses) about what will happen next in a story. Making predictions helps your child interact with the text. Read a story with your child. Stop reading every so often and ask questions such as, *What do you think will happen next? What will this character do or say next?* Have your child make a chart with three columns. Then ask him to record his or her prediction in the first column. In the second column, have your child write the story clues that led your child to make this prediction. Then continue reading. When you've read far enough to find out if your child's prediction is correct, have him or her write what actually happens in the third column. Repeat this process until you finish reading the story. **MODERATE MASTERY** ◒ **What Are You Reading?** Students must be able to identify a story's genre (type of story) in order to determine the author's purpose for writing, the theme (the idea that occurs over and over), and other literary elements. When reading with your child, help him or her determine the genre of the story by helping him or her tell the difference between reality and fantasy. Explain that the people and events in realistic stories could occur in real life (for example, a sixth-grade boy who loses his dog). The people and events in fantasy stories could not occur in real life (for example, a fairy who changes a forest into a city). Read aloud parts from several stories with your child. Discuss whether or not the events are realistic. Use sticky notes to label each story "reality" or "fantasy."
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **What Do You Know?** Students must be able to use what they already know about a subject to better understand what they are reading. Help your child identify what he or she already knows about the subject by creating an idea web. Draw a circle in the middle of a piece of paper. Draw lines coming out of the circle (like a child's drawing of a sun). Then draw a circle at the other end of each line. Skim the text with your child. Look at the titles, illustrations (pictures, graphs and charts), and picture descriptions. Write the subject of the text in the middle circle. In the other circles, have your child write what he or she already knows. This prior knowledge may include facts (things that are true), personal experiences, and drawings. **MODERATE MASTERY** ◒ **Summarize the Story** Students must be able to summarize the text's content in order to better understand what he or she reads. Remind your child that a summary includes the most important ideas and details from a text. A summary is shorter than the original writing and should also be told in your child's own words. Help your child use the *5Ws and an H* to prepare notes for a summary. On a piece of paper, write *WHO is the story about? WHERE does it happen? WHEN does it happen? WHAT happens in the story? WHY does this happen?* and *HOW does the story end?* Have your child answer these questions as he or she

	reads. When he or she has finished reading, have your child use his or her answers to write a summary of the text.

Return to Table of Contents

GRADE 6 WRITING / LANGUAGE

GRADE 6 OBJECTIVES	**MASTERY**
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **Building Sentences** Students need to learn to write complex sentences. This will help their writing flow more smoothly and build reader's interest. You might notice sentences such as these in your child's writing: *It is fall. The leaves are yellow. The leaves are orange. The leaves are red. The leaves fall from the trees.* Ask your child to rewrite these sentences into one complex sentence. When combining sentences, your child may add or delete words, but the meaning of the original sentences should not change. There are several correct ways to combine these sentences. For example, *In the fall, yellow, orange, and red leaves fall from the trees.* Or, *Falling from the trees, yellow, orange, and red leaves announce fall's arrival*. Ask your child to share some of his or her writing. Have him or her revise sentences into complex sentences. **MODERATE MASTERY** ◒ **Make Sense of Sentences** To be strong writers, students need to learn how to write correct sentences. Help your child learn to tell the difference between complete sentences, sentence fragments, and run-on sentences. A complete sentence contains a subject (who the sentence is about) and an action. A sentence fragment is an incomplete thought. A run-on sentence has two or more sentences that run together or are connected by a comma. Review these examples with your child: Complete Sentence: The girl jumps. Sentence Fragment: The boy who loves soccer. Correction: The boy who loves soccer runs. Run-on Sentence: The girl jumps, the boy runs. Corrections: The girl jumps; the boy runs. The girl jumps, and the boy runs. Find examples of sentence fragments and run-on sentences in your child's writing and discuss how to correct the fragments and run-ons.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Join the Information Age** Students need to be able to find good information for research topics. Help your child choose a topic of interest. Make sure that the topic is specific (not too large). For example, the subject of soccer is too large. However, "local soccer camps" is more specific. Draw a circle in the center of a piece of paper and tell your child to write the topic in the circle. Then create a research circle by drawing lines coming out of the circle (such as a child's picture of a sun). Put a circle at the end of each line. In the circles, record possible sources of information. Remind your child to consider a variety of sources such as the telephone book, interviews with experts, and observation. Use one circle to write possible search words and phrases for an Internet search. **MODERATE MASTERY** ◒ **State Your Topic** Students need to be able to organize their writing so that their messages are clear to readers. In nonfiction (writing that gives information or describes real events), the first sentence of a paragraph is often the topic sentence which states the subject so that readers know what to expect. The rest of the sentences, called supporting details, give more information about the topic. For example, *It is winter. The trees are bare. The*

	weather is cold. The first sentence gives the subject: winter. The second and third sentences state details about winter. Give your child these supporting sentences: *The tall girl played the piano. The boy wearing the hat did a magic trick. The girl with glasses danced.* Then have your child write several possible topic sentences for these details. For example, *There was a talent show at our school.*
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Captain Capitalization** Students must be able to clearly communicate their ideas in writing. Errors in capitalization distract the reader from the writer's message. Review the rules of capitalization with your child. Capital letters are used in the following instances: first word of sentences or quotations; greetings and closings; names and titles of people; names of places such as Africa, Pacific Ocean, Mount Everest; and proper nouns (people, places or things) and adjectives (describing words) such as, Brooklyn Bridge, Latino, Muslim . Have your child correct errors in the following sentences: —"please walk the dog to elm park," aunt celia begged over her cell phone. (Please, Elm Park, Aunt Celia) —dear mom, I am walking celia's poodle. love, tim (Dear, Mom, Celia's, Love, Tim) —tim's aunt works at the asian art museum on tuesdays. (Tim's, Asian Art Museum, Tuesdays) **MODERATE MASTERY** ◒ **Passport to Pronouns** Students need to avoid errors in word usage so that their ideas are clearly expressed. Help your child write clearly by making sure he or she understands how to use pronouns. A pronoun is a word that takes the place of a noun in a sentence. Some pronouns take the place of who the sentence is about (*I, we, she*); some take the place of the objects of the action (*yelled at me, will call you, ran to them*); and some show ownership (*my, mine, his*). Some pronouns are singular (*I, she, he*), and some are plural (*we, you, they*). Help your child write five sentences using a variety of pronouns. Identify the pronouns in each sentence. Use these models if necessary. —I (subject) gave you (object) her (possessive) notebook. —I (singular) gave the pencils to them (plural).

Return to Table of Contents

GRADE 6 SCIENCE

GRADE 6 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **The Incredible Submersible Egg** Experiments are a great way to encourage students to have fun with science. Try this experiment to make an egg float or sink. Encourage your child to state a hypothesis about what will happen when an egg is placed in water. Your child should record thorough observations as he or she follows the procedures. Put a raw egg (in the shell) in a glass with a half cup of water and record your observations. Remove the egg. Add 1/4 teaspoon (1 mL) salt to the water and stir to dissolve. Put the egg back into the water. Record your observations. Repeat these steps until you have added two teaspoons of salt. Once the egg floats, ask your child how he or she might cause the egg to sink again. Let your child test his or her hypothesis. **MODERATE MASTERY** ◒ **Electromagnet** Students can apply science skills by experimenting with a simple electromagnet. Together with your child, build an electromagnet: Wrap thin insulated copper wire eight to fifteen times around an iron core (e.g., a nail), leaving at least three inches at either end. Remove the insulation from ½ inch at each wire end and connect it to the terminals of a 9-volt battery. Confirm that current now flows through the wire and the device acts as a magnet, by using it to pick up paper clips. Ask your child to hypothesize how to make the magnet stronger (e. g., using stronger batteries, more wraps of wire, or a different iron core.) Alter the electromagnet and test its strength by determining the number of paper clips it can pick up. Record the results and help your child create a graph and draw a conclusion.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Speed Races** Calculating the speed of a toy car or ball can help students understand the concept of speed. With your child, make two tape lines on the floor, a whole number of feet (e.g., three, four, or six) apart. Position the car or ball on one side of the lines. One person will give it a push while the other records time with a stopwatch or a clock with a second hand. When the car passes the first mark, the person who rolled it should say “Now!” The timekeeper should start keeping time. When the car passes the second mark, the roller should say “Stop!” The timekeeper should stop the stopwatch or note the time that passed. Find the speed in feet per second by dividing the distance between the tape marks by the time in seconds. What is the fastest speed you can get? **MODERATE MASTERY** ◒ **Fruity Atoms and Molecules** Creating physical models helps students grasp the difference between atoms and molecules. Have your child make models of water (H2O) and oxygen (O2), carbon dioxide (CO2), and nitrogen (N2) gases, using fruit for the different elements. Elements (listed on the periodic table) are pure substances and atoms are their smallest unit. Your child should choose a type of fruit to represent atoms of each element. For example, use kiwis for carbon, apples for oxygen, and grapes for hydrogen. Molecules are made up of more than one atom. Join the atoms together with toothpicks to create molecules of water (H2O; join two hydrogen atoms to an oxygen atom to make “mouse ears”), oxygen

	gas (O2; join two oxygen atoms), carbon dioxide (CO2; attach an oxygen atom to either side of a carbon atom), and nitrogen gas (N2; join two nitrogen atoms).
Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Model Organ System** Building a model is helpful in reinforcing how something works. Help your child make a model of the digestive system using cardboard, clay, latex gloves, or any other material that makes sense. Make a mouth that can crush food, a tube for an esophagus, a bag for the stomach, and a long coiled tube for the small and large intestines. Ask your child which parts of the system are missing (such as the glands that provide enzymes and other chemicals that break the food down). Put a piece of food "through" your system. Will it get digested? (No.) Have your child explain how the food would get digested in a real digestive system. (For example, the food is broken down in the mouth, dissolved by chemicals in the stomach, and important parts are absorbed in the intestines). **MODERATE MASTERY** ◒ **Trees in Your Neighborhood** Students find science more interesting if they can apply it to their own surroundings. Trees are found throughout our country, and even urban areas have many trees and parks. While trees are beautiful they serve a far more important role than just to decorate our environment. Have your child write a "Job Description" for a tree, listing all its duties and functions. Your child should choose a tree and examine it to see what creatures live on or in it. Ask, *What do the tree's roots do? Its leaves? Its bark? Does the tree go through changes every season? Do humans or other animals benefit from what the tree does? What does it produce that is vital for life?* Post your child's writing on the refrigerator or another visible area.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Seasons and the Sun** Use a flashlight to represent the sun and a foam ball (or globe) to represent Earth. Stick a pencil or a wire through the ball to make an axis. Set the "sun" in the middle of a table. Hold the ball with its axis tilted slightly (similar to Earth's axis) as it travels around the sun. Point out how Earth's tilt changes in relation to the sun. To demonstrate how the tilt of the axis determines the seasons, turn the ball so the top end of the axis points toward the light. Notice how certain regions receive direct light and others receive light at an angle. Have your child find where your home is located on the "Earth." Ask, *What season is it here? Is it the same season all over the world?* (It is summer in the northern hemisphere and winter in the southern hemisphere.) **MODERATE MASTERY** ◒ **Phases of the Moon** This demonstration will help students understand the moon's phases. Gather a bright desk lamp (to represent the sun), a soccer ball or globe (Earth), and a smaller ball (the moon). Set the ball or globe at the same height as the lamp and aim the light on it. Hold the smaller ball on the other side of "Earth" but make sure it is not in shadow. Have your child identify the phases of the moon as you rotate it clockwise around Earth (full, third quarter, new, and first quarter). As the moon orbits Earth, half of it will always be lit. Encourage your child to imagine what the moon looks like at night from the perspective of an observer on Earth. A waxing ("growing") moon is shaped like the letter D; a waning ("shrinking") moon is shaped like a C.

Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Broadcasting Science** Students enjoy many modern communication devices, such as television, radio and cell phones. Help your child learn about the science and technology that led to radio and television broadcasting, both of which depend on electromagnetic waves. Ask, *Who discovered electromagnetic waves? Who first used them to improve on a previous invention, the telegraph? How do they travel over long distances in a short time?* Your child will see that the signals sent through the atmosphere that give us radio, television, and cell phone communications today have a history of basic science discoveries, and the invention and improvement of applied technology. **MODERATE MASTERY** ◒ **Electricity** Students should understand how technology has changed our lives. How has electricity affected how we live? Have your child research the history of electrical circuits and the powering of residential areas. Ask, *How many attempts did Thomas Edison make to come up with a practical and affordable light bulb? How were the first electrical appliances different from modern appliances? Which parts of the world were wired for electricity first and which areas still lack electricity?* Your child should interview grandparents or older friends who remember living without electricity. It seems easy to imagine the disadvantages of not having electricity. What are some advantages to living without electricity?
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **A Whole New World of Immunity** Students should be familiar with the ways advances in science and technology affect life experiences. For example, before vaccines for childhood diseases became common, most children experienced one or more serious infectious diseases. Help your child review the vaccinations that almost all children receive. Ask, *What diseases do they prevent?* Your child should learn about one or more infectious diseases that are now uncommon because of vaccination, such as polio, mumps, measles, diphtheria, and whooping cough. Encourage your child to interview someone who grew up before child vaccines became common. Help him or her prepare a list of interview questions. **MODERATE MASTERY** ◒ **Ecological Footprint** Students can apply science to personal and social issues with the concept of an ecological footprint, the amount of Earth's resources needed for a person to do day-to-day things. Find a quiz from the Internet or library that your child can take to calculate his or her footprint. Ask, *How many planet Earths would we need if everyone did the same things? How does the average footprint vary for people in other parts of the world?* Have your child research things that contribute to footprint size. Ask, *Where does your food come from?* Shipping food from far away requires natural resources. Ask, *How much land is needed to grow the things your family eats (including the land needed to grow animal feed)?* Some foods take a lot more land to produce than others. Ask your child to suggest ways your family can reduce their ecological footprint.

Return to Table of Contents

GRADE 7 SOCIAL STUDIES

GRADE 7 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Draw Me a Map** Ask your child to verbalize directions from your home to a nearby park, school, or library. To begin, encourage your student to visualize the path in his or her mind. Suggest that your child notes directions (left or right; north or south), distances (five feet or twenty steps), and landmarks (a large tree or a stop sign) as he or she gives you the instructions. As your child dictates the directions, record what he or she says in the form of a map. Then review the directions exactly as you recorded them. Did you successfully arrive at the destination? If so, discuss which details are the most useful and which details may have been confusing or unnecessary. If you did not arrive successfully, discuss which details need revision. Ask your child to change the information regarding direction, distance, and landmarks to improve the directions. **MODERATE MASTERY** ◒ **Hot Enough for You?** Students should understand the connection between climate and latitude and longitude. Look at a world map or globe with your child. Point out the lines of longitude (north-to-south), latitude (east-to-west), and the equator. Explain that the equator is the part of Earth that stays hot year-round. Explain that the closer a place is to the equator, the warmer its climate will be. Have your child find where you live and ask some prompting questions, such as, *How far is your home from the equator? What places in your longitude are closer to the equator? What can you presume about the climate of those places? How may the climate differ from where you live?* Look at the lines of latitude and identify other places that share your area's latitude. Ask your child similar latitudinal-based questions about climate in those areas.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Who Am I?** When students learn about significant people from the past, they can better appreciate their contributions to history and the modern world. Have your child research a historical figure. Ask your child to find facts about the person's life and accomplishments, the important events in which he or she played a role, and what world events took place during his or her lifetime. Once your child has finished the research, ask a series of "yes or no" questions to reveal the person's identity such as: *Are you a woman?*, *Did you help fight a war? Did you live in the 1800s?* Try to ask questions that will draw on the research topics stated above. Continue asking questions until you correctly identify the person. Have your child share with you other information he or she gained while doing the research. **MODERATE MASTERY** ◒ **Technological Advancements** When students learn about technological advancements—in both ancient and modern times—they begin to understand how civilizations use these innovations to progress. Help your child research how people have used metal over time. Compare tools from the Iron and Bronze Ages. Then look at tools that are used today by engineers in the steel-making industry. Discuss the importance of all of these tools and how they helped people advance as a civilization. Ask, *How were the tools in the Iron and Bronze Ages used? How did this help the people perform daily tasks easier? How are the tools of today*

	similar and different from the tools of this long-ago era? After you have discussed the material with your child, have him or her design a poster that shows the technological advancements that was studied.
Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **It's Our Policy** By studying current events, students learn more about the domestic and foreign policies of the United States. Have your child read a newspaper or watch a news broadcast to find an issue that involves the U.S. and a foreign country. Ask, *What caused the situation? What is happening now? What does the United States want? What does the other country want? Are the countries working together? How do their actions affect people in each place?* When it is clear that your child understands the issue, compare and contrast it with a recent U.S. domestic policy decision that received media attention. Ask, *How did the decision's outcome affect people? Do these people live in the U.S. or in other countries?* Encourage your child to continue to follow media coverage of the foreign and domestic issues you discussed. **MODERATE MASTERY** ◒ **What Can Kids Do?** It is important for students to understand their rights and responsibilities as citizens of the United States. While people under the age of eighteen cannot vote or hold office, they should not overlook their role as citizens. Help your child brainstorm a list of things young people can do to be active in the democratic process. These might include obeying the law, understanding their constitutional rights, volunteering for community service, and staying informed about issues affecting the world around them. Take one of the ideas from your brainstorming session and complete it. This might include writing to a public official with a concern; volunteering at a community event; or researching a current event of interest.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **You Can Bank on It!** When students learn about banks they gain an appreciation for both saving and lending practices. Prior to visiting a bank, find out what your child already knows about banking. Review with him or her that money in savings accounts earns a small amount of money called interest. This is the additional money that the bank is paying you to hold your money for awhile. Now explain that interest can also be paid by you. If the bank loans you money (so you can buy a car or house), you will have to pay the bank interest on the money until you pay it back. Now take a trip to your local bank. Look at signs in the bank showing various interest rates. If possible, speak with a loan officer about how interest works. **MODERATE MASTERY** ◒ **Educational Shopping** When students use their own experiences as consumers, they can better understand the economic rule of supply and demand. Talk with your child about a certain cell phone model, computer, or style of clothing that is no longer in high demand. Ask, *How do you think the prices of these items has changed since they originally were sold? Why?* Help your child understand that the reason for the price reduction is that the demand for the product went down when no one wanted it anymore. Now visit your child's favorite stores together. Point out items with reduced prices. Ask your child, *How much did this item used to cost? Why do you think the price has been lowered?* Encourage your child to explain the price reduction in terms of supply and demand.

Return to Table of Contents

GRADE 7 MATH

GRADE 7 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Fun Factors** Help your child understand factors by playing with fun objects like candies, pennies, or small toys (factors are numbers that divide into other numbers—two divides into six, so two is a factor of six). Arrange the objects in groups of items called arrays to show different factors. For example, twenty-four may appear as *1 × 24* (one array of twenty-four), *2 × 12* (two arrays of twelve), *3 × 8* (three arrays of eight), *4 × 6* (four arrays of six), *6 x 4* (six arrays of four), and so on. Have your child write some factorable numbers (for example, 30, 18, 12) on slips of paper. Put the numbers in a bag or hat. Take turns pulling numbers and writing the correct arrays for all the factors of each number. Score one point for each correct answer. **MODERATE MASTERY** ◒ **Financial Proportions** Students often calculate proportions much quicker with money than with abstract math. Gather $20 in small bills and change. Start with $10. Ask your child, *How much money do each of us get if we divide the $10 so you get three shares and I get seven shares?* The key to answering this question is to understand that, in this proportion, your child's share is 3/10 of the total, your share is 7/10, and that there are 10 parts (3 + 7) in total. Change the proportions to be shared as well as the total amount of money according to your child's ability. For example, change the total to $32, your proportion to 1/4 and your child's proportion to 3/4. (You will receive $8 and your child $24.)
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Spinning Computations and Estimations** Make computations and estimations interesting! Draw lines on two paper plates to divide each one into at least eight sections (like a pizza). In each section, write a variety of numbers, including decimals, fractions, and negative and positive whole numbers. Your child will toss a coin on each plate to select a number from each plate. Next borrow a pair of dice from a board game. On one die, have your child tape the operation symbols +, –, ×, /, +, and –. On the other, tape 3 *E*s (for estimation) and 3 *C*s (for computation). For each turn, spin both spinners and roll both dice. If your child rolls a *C*, compute the operation between the numbers. If he or she rolls an *E*, estimate the answer before calculating it. **MODERATE MASTERY** ◒ **Computation Game** Help your child practice calculator and pencil-and-paper computation by playing a game. Cut a few dozen index cards into thirds. Write each operation symbol (×, /, +, and –) twice, once on two cards. Write a random number on each of the other cards, including negative and positive whole numbers (integers), decimals, and fractions. Make two stacks of number cards and one stack of operation cards. Place the stacks face-down on the table. After turning over the top card of each stack, players race to calculate the answer. For example, if *4/5 × 9.8* is turned over, players use the fraction button on their calculators and compute the problem. On paper, players compute *0.8 × 9.8* or *4/5 × 49/5*. Alternate between calculator and pencil-and-paper rounds. Players get one point for each correct answer. The quickest player gets an additional point.

Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Train Problems** Understanding distance, rate, and time problems can be difficult for some students, but is an important math skill. Here is a typical train problem: *Train A leaves at 6:00 p.m. traveling 80 mph. Train B leaves at the same time from a station 300 miles away and travels toward Train A at 60 mph. When will the trains meet?* Draw a picture and mark 80 miles traveled for train A at 7:00 P.M. and 160 miles at 8:00 P.M. Mark 60 miles traveled for train B at 7:00 P.M. and 120 miles at 8:00 P.M. Explain that the trains will meet when the distances traveled by both is 280 miles, which happens at 8:00 P.M. (refer back to the drawing). Think of other problems like this that can be diagrammed. Your child will eventually need to use equations, but, with your help, being able to diagram and visualize the problem will make that an easier transition. **MODERATE MASTERY** ◒ **Kitchen Designer** Students should be able to create a scale drawing. Help your child sketch a top-view map of your family kitchen. Then help your child use a measuring tape to take and record measurements on the map. Finally, help your child use a ruler to make a reasonable scale for the map. If your kitchen is smaller than eight feet by ten feet, the scale of one inch per foot may work on a regular piece of notepaper. If your kitchen is larger than eight by ten, consider 1/2 inch per foot. To help with conversions, you can make a conversion chart that your child can check against (1 inch = 2 feet, 2 1/2 inches = 5 feet, and so on).
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Circle in the Square** Clarify your child's understanding of the properties of circles and squares by drawing inscribed figures (one shape inside another) and comparing measurements. This activity will help students with reasoning, visualizing, and problem solving. Start by drawing a square inside a circle and comparing the circle's radius to the square's diagonal measure. Then draw a square outside the circle and compare the square's side length with the circle's diameter. Continue similar exercises with other figures. Extend the activity by calculating and comparing the area of the figures. For example, help your child inscribe a circle in a square and find the area of each shape if the side of the square is four. (The area of the square is 16, that is 4 × 4. The area of the circle is 12.6, that is *pi* times radius squared). **MODERATE MASTERY** ◒ **A Nifty Theorem** The Pythagorean Theorem is a key concept in mathematics. On grid paper, have your child draw a right triangle with one side length three grid marks, another side length four grid marks, and the longest side length five grid marks. Now have your child create squares off each side of the triangle. He or she will end up with a three by three square, a four by four square, and a five by five square. Ask, *What's true about the sum of the areas of the two smaller squares and the area of the largest square?* (They are equal, that is 9 + 16 = 25.) Try this same exercise with a right triangle having sides four, five, and six. The Pythagorean Theorem holds true for any right triangle!

Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Change Over Time** Data collection and data analysis skills help students make more informed decisions. Help make data analysis real for your child by recording data, creating a graph, and analyzing the results. Have your child keep a record of something that changes over time. Some data may take a week's or a month's time to record. Examples include heights of plants, amount of TV time, temperature, money account, etc. After the data is collected and recorded, have your child create a line graph. Discuss the change in data and have your child make predictions. For example, your child might observe, "The plant grew about one inch each week, so next week it will be five inches tall." You can also discuss with your child confidence in his or her prediction. For example, ask, *Would you be more confident in predicting growth with a graph that showed the average growth of one hundred plants?* **MODERATE MASTERY** ◒ **Would You Like to Complete This Survey?** Students need to be able to display and interpret numerical information accurately and clearly. Help your child pick an interesting topic for a survey. The topic should have a limited range of data—no more than four or five categories. For example, your child might ask his or her friends how many cell phones there are in their family. Help your child write out a clear survey question and write a prediction about what results he or she expects to find, then collect and tabulate the data. Have him or her create a bar graph (histogram), box-and-whisker plot, or line graph to show the data. Encourage your child to use a ruler to make the presentation neat and clear. If necessary, help your child figure out a good scale for each axis. *How does your child interpret the data? What does it mean? Is it what your child expected?*
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Modeling an Expression** Modeling mathematical expressions helps students manipulate and understand them more easily. Write an expression (for example, $3x + 2$). Have your child lay out items such as candies and pretzel sticks to demonstrate this expression. Then have your child show groups of pretzels for various values of x in order. For the example $3x + 2$, the first grouping would show three candies and two pretzels. For different x values show different groupings to evaluate the expression: two pretzels when $x = 0$, five pretzels when $x = 1$, eight pretzels when $x = 2$, and eleven pretzels when $x = 3$. Draw a chart in a table so that the groupings are clear as your child lays them out. Manipulating the candies and pretzels helps your child practice algebra and pattern solving. **MODERATE MASTERY** ◒ **All Things Being Equal** Some students struggle to make the mental leap into algebraic thinking. This activity will help your child improve his or her ability to write and solve equations. You may have noticed that highways have dirt filled in on either side of the road to create a smooth slope. Ask, *If the slope of the "fill" dirt must rise one foot for every three horizontal feet, how could you write this as an equation?* (The equation would be $y = 1/3x$ where y is the height and x is the horizontal distance.) Now ask, *Using your equation, how far will a "fill" go out from the highway if its highest point is thirty feet?* Help your child plug this information into the formula and solve for x. (After multiplying both sides of the equation by three, x is equal to ninety feet. The "fill" will end ninety feet from the highway.)

Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Algebra Tiles** Manipulatives (items used to help model math problems) can give students a more hands-on way to understand algebra. Use toothpicks to represent ones and squares (game tiles or cutout squares) to represent the variable *x*. Write and model an equation, then solve it step by step until your child sees that one square (the variable) is equal to a certain number of sticks (ones). For the example $3x + 2 = 6 + x$, lay three squares and two sticks next to six sticks and one square. Now regroup the manipulatives as you would to solve an algebra equation. Remove one square from each side (that is, subtract one *x* from each side). Now you have $2x + 2 = 6$. Next remove two sticks from each side, leaving $2x = 4$. Group the four sticks into two groups so your child can see that four sticks equals two squares, or $x = 2$. **MODERATE MASTERY** ◒ **Picture the Problem** Many problems can be solved by visualizing proportions. Help your child make diagrams to solve proportion problems. Take, for example, the following problem. *Jimmy did two hours of work and Barry did three hours. They were paid $50 for the whole job. How much should each person get?* Have your child draw a five-inch wide rectangle and label it "Five Hours." Divide the rectangle into five parts (one part is an hour) and shade two parts for Jimmy and three parts for Barry. Next draw another five-inch-wide rectangle below the first rectangle and label it "$50." Each inch equals $10. Jimmy should get $20 (two parts of the five hours for $10 per hour), and Barry should get $30.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Matt the Stat** Graphs and statistics are all around us. Students should be familiar with them and feel comfortable communicating the information they provide. Take time to discuss the graphs and statistics you see with your child. For example, ask your child to explain and find a good example of things, such as gasoline prices, that show an *increasing* or *decreasing trend*. Study multiyear trends and ask your child if they see any *seasonal patterns*. Ask your child, *Is the average statistic being graphed a* mean *or* median*?* Discuss the value of each type of average. (The *mean* works well with large samples. The *median* is better for small samples as it is less affected by *outliers*.) Once you get the discussion moving, try to get your child to lead the discussion covering as many math concepts as possible. **MODERATE MASTERY** ◒ **Vocabulary Brainstorm** Help your child relate math to everyday life with this "operations brainstorm." As you are walking, taking public transit, or driving together, talk about how math words get used in everyday language. Some examples to start you off are as follows: "things really added up" (detective novels), "our problems seem to be multiplying" (management), "does it add up?" (budgeting), "that's trouble times three!"(storytelling), "take off the labor costs, and it still adds up!" (contracting), "divide the dough" (cooking), and "let rise until double" (cooking). See how many examples your child can come up with on his or her own, and turn it into a trivia contest by taking turns thinking of new ones.

Return to Table of Contents

GRADE 7 READING

GRADE 7 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Chain of Events** Students must be able to follow more complex plot lines (events in a story). As your child reads more difficult books, events may be presented out of order. Help your child keep events in the correct order by making a sequence chain—a series of circles connected by arrows. In the first circle, write the word *first* and the word *finally* in the last circle. Write words such as *then* and *next* in the middle circles. As your child reads, have him or her write the main events of a story on sticky notes. Then have your child place the notes in the correct circle. As other events unfold, your child may need to move the sticky notes around to make room for events that are presented out of order **MODERATE MASTERY** ◒ **Theme Chart** In order to have a deeper understanding of what they read, students must be able to understand a story's theme (an idea that occurs over and over again). Make a theme chart to help your child determine a story's theme. Divide a piece of paper into four spaces. In each space, write one of the following labels: *Main Character's Feelings, Thoughts and Conversations, Actions and Events,* and *What the Main Character Learns.* As you and your child read, write notes in each square. Ask, *What is the main character (the person the story is about) feeling? What are the characters thinking and talking about? What ideas do the actions and events express? What does the main character learn that makes him or her change?* Look for a pattern in your notes. *What point is the author trying to make?*
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Cause and Effect in Real Life** Students must be able to understand cause-and-effect relationships (an event and its outcome) in order to more deeply understand what they are reading. Make sure that your child understands the nature of cause and effect. Give an example such as: After walking his dog, Bob forgot to close the gate to the yard. The dog escaped and was lost for several days. Ask, *What caused the dog to escape?* (Bob forgot to close the gate.) *What is the effect of Bob leaving the gate open?* (The dog is lost.) Then have your child use this form to restate the cause-and-effect relationship: Because (the cause), this happened (the effect). For example, *Because Bob forgot to close the gate, his dog got lost*. Have your child give a personal example of something he or she did (the cause) and its effect. **MODERATE MASTERY** ◒ **Motivational Reading** Understanding why characters (people in the story) act the way they do helps students understand what they read. Like real people, characters act in certain ways for a reason. These reasons are called motivations. For example, you might eat a snack because you are hungry; the hunger causes you to act. When readers identify what a character wants, it's easier to understand why a character acts as he or she does. When reading a story with your child, create a character chart, assigning a column to each of the main characters. Ask your child, *What does this character want?* Keep a running list of what each character wants and what he or she does to get it. These lists will help your child identify and understand the characters' motivations.

Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Just the Facts, Please** Students must be able to tell the difference between facts (things that are true) and opinions (the author's thoughts and feelings) to understand what they are reading. When reading a newspaper article with your child, discuss whether each statement is a fact or an opinion. Remind your child that facts can be proven through trustworthy sources. Facts include dates or information. For example, your child's birth date is a fact. This date can be looked up in a legal document—a birth certificate. An opinion cannot be proven. Clue words such as *think, believe, feel,* or *always* often signal an opinion (for example: *Most people think that spring is the best season*). Have your child list sources (books or other documents) that could help prove the facts in the above article and discuss whether he or she agrees with the opinions stated in the article. **MODERATE MASTERY** ◒ **Make Text Connections** Students who make connections between different texts (writing) have a better understanding of what they read. Help improve your child's reading and thinking skills by helping him or her make these connections. Choose two short texts that share a common theme (an idea that occurs over and over again) subject, or idea to read with your child. Then draw a Venn diagram—two overlapping circles—on a sheet of paper. Label each circle with the title of one of the texts. Then discuss similarities and differences between the two texts. Have your child write similarities where the circles overlap and differences in the outer areas of the correct circle. Have him or her consider organizational (how the writing is organized) and stylistic (the style the author uses) elements in addition to content (what the text is about).
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Text Structure Search** Students must be able to use the organizational features (what authors use when organizing writing) of a text to help them understand what they read. Writers of nonfiction (writing that gives information or describes real events) use elements like headings and subheadings (titles and subtitles) and bold or italicized words. Usually, headings and subheadings state the main ideas. Bold or italicized words signal new vocabulary and indicate that readers should look for context clues (words that provide hints to the meaning of a new word). Look at a nonfiction article or a chapter from a science or social studies textbook with your child and identify the text elements. Read each section that follows a heading or subheading and review it to check whether it states the main idea of the text. When you encounter bold or italicized words, identify context clues. **MODERATE MASTERY** ◒ **Grasp Text Graphics** Students must be able to use graphic features (photographs, charts, graphs, diagrams) to help them understand what they write. Graphics support the text (writing), presenting information in visual ways. Good readers preview the text by looking at the graphics and reading the captions (titles underneath a picture that tell what the picture is about). Then whenever the graphics are mentioned in the text, they look at the graphics to expand on what they are reading. Choose a chapter from your child's social studies or science textbook to read with your child. For each graphic, discuss the writer's purpose for including it. Does the graphic support the writing? Does the graphic add other information to the text? Ask your child how he or she could use graphics to support his or her writing.

Return to Table of Contents

GRADE 7 WRITING / LANGUAGE

GRADE 7 OBJECTIVES	MASTERY
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **What Are You Modifying?** Students need to write clearly so that they are understood. Good writers want readers to understand their intended meanings. Misplaced modifiers (words that are not placed near the word or phrase they explain) can keep writers from being understood. Help your child identify and correct the problems in these two examples: Misplaced Modifier: A cat sat in the window that Maria had petted. Problem: Did Maria pet the window or the cat? Correction: A cat that Maria had petted sat in the window. Misplaced Modifier: A ball lay in the grass that Pete had kicked. Problem: Did Pete kick the ball or the grass? Correction: _____ (*The ball that Pete had kicked lay in the grass.*) **MODERATE MASTERY** ◒ **Is What You're Modifying Clear?** Students should write clearly so that they are understood. Clarity is affected by dangling modifiers, a word or phrase that explains the wrong word in the sentence. Have your child identify and correct the problems in the following examples: Dangling Modifier: After reading the assignment, the homework remains confusing. Problem: The subject of this sentence is the homework. The subject does the action (reading the assignment). This sentence means that the homework read the assignment. Correction: After reading the assignment, I still think the homework is confusing. Dangling Modifier: Building the snowman, the ice froze my fingers. Problem: Who is building the snowman—the ice or the author? Correction: _____ (The ice froze my hands as I built the snowman).
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **State Your Topic** To write clearly, students need to understand topic sentences (sentences that introduce the subject of a paragraph or essay). Copy a paragraph from your child's science or social studies textbook. Cut the paragraph into individual sentence strips. Have your child read all the sentences to identify the topic. Remind your child that most nonfiction paragraphs begin with a topic sentence. The rest of the sentences in the paragraph support or explain the idea stated in this topic sentence. Ask your child to reassemble the strips into a paragraph. He or she should put the sentence that best identifies this topic in first place; supporting sentences should follow. Help your child include transition words such as *first*, *next*, and *finally* to show the connection between the ideas. When he or she finishes, discuss which version is clearest for readers and why. **MODERATE MASTERY** ◒ **Making the Transition to Good Writing** Students need to use transitional words and phrases (words that show how ideas are connected). For example, *The boy wants to go to the party. However, he has homework to do. However* is a transition word that shows the connection between the boy's wants and his responsibilities. Write the following words and phrases on note cards: *also, as a*

	result, for example, finally, generally, however, in conclusion, in other words, next, on the other hand, similarly, such as, then, to the right/left, and *usually.* For each note card, ask your child to use the word or phrase to make a transition between two sentences. Then have your child use these cards as a word bank while writing. Encourage your child to add more transition words and phrases to this bank.
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Pronoun-Antecedent Agreement** Students must avoid errors in how words are used so that their writing is clear. Help your child use pronouns (words such as he, she, or them) correctly. Pronouns replace nouns (people, places, or things). They usually refer to an antecedent (a subject mentioned in an earlier sentence). The pronoun must match this subject in number. For example, review the following sentence: *Give each student a sheet of paper so that he or she can write his or her spelling words. Student* is the subject of this sentence and is singular. The pronouns need to be singular—he or she is singular. Help your child correct the pronoun problems in this sentence: Each girl got a summer job so they could have spending money. (*Each girl got a summer job so she could have spending money).* **MODERATE MASTERY** ◒ **Frequently Confused Verbs** Though some verbs (action words) are frequently confused, students need to use them correctly to write clearly. Explain to your child the differences between *lay* and *lie.* —lay means "place or put": *Lay the book on the table*. —lie means "recline": *Lie on the bed.* Help your child correct the following sentences. —Lie the clothes on the dresser, and lay down for a nap. (*Lay the clothes on the dresser, and lie down for a nap).* —Lay the baby in her crib, and lie your sweater on the couch. (*Lie the baby in her crib, and lay your sweater on the couch*). When your child masters these verbs in the present tense (happening right now), explain that the past tense form of *lie* is *lay: The dog lay on the bed all day yesterday*.

Return to Table of Contents

GRADE 7 SCIENCE

GRADE 7 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Theories and Evidence** Students will see how the location of fossils supports the theory of plate tectonics. Help your child cover a small ball (Earth) with a layer of modeling clay (the continents). Explain that some regions, separated by oceans, have similar fossil records and rock types. Before the continents separated, animals lived, died, and left fossils. Have your child use a pencil tip or the flat end of a pen to make impressions (fossils) in one area on the ball. Explain that after the continents separated, that evidence remained. Slowly move the clay layer apart, leaving a gap in the "fossil" area. Explain that the gap is an ocean, but that the same fossils and rock type appear on either side, many miles apart, just like what scientists find on the Atlantic Ocean edges of Africa and South America. **MODERATE MASTERY** ◒ **Health in the News** Students should apply their understanding of basic science skills to science news. Encourage your child to read the science or health news section in a major newspaper. Help him or her find a story about a study on a food, drug, or lifestyle. Was the study a true experiment or an investigation? (In a true experiment, scientists determine what people experience, e.g., whether they take a vitamin supplement or not. An investigation looks at relationships, e.g., do people who take vitamin supplements have better health?) What were the variables? In other words, what did scientists measure and what did they vary? Does the news report say that the study "controlled for" certain factors, like age and income? This means that those factors may have affected the results, but they were accounted for in some way.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **A Warm Vacation** Students can better understand the concept of specific heat by doing practical information-gathering. Tell your child that you want to take a vacation to a place above 35 degrees latitude where you can swim, and that you want to go on the vacation either in early or late summer. Where should you go? Help your child research locations that meet these requirements on the Internet. Ask, *Why is the water in so many places too cold to swim in until late in the summer, even though the weather is warm?* Guide your child to conclude that water heats up more slowly than land, so it will not be warm enough to swim in until later in the summer. Water has a higher specific heat than air or land. **MODERATE MASTERY** ◒ **A Cooling Phase** Investigating how sweating serves as a cooling mechanism will help students understand the relationship between phase changes and heat. Ask your child, *How does sweating helps us cool down when we are too hot?* It's not because liquids are generally cooler. Help your child investigate by soaking one cotton ball with room-temperature water and another with rubbing alcohol. Confirm that the temperatures of the liquids are the same with a thermometer. Squeeze out the cotton balls and rub each one gently on your child's arm. (Do not try this on children with sensitive skin.) Ask, *Which feels cooler?* The alcohol should feel cooler because it evaporates more quickly. Explain that

	evaporation—a liquid changing to gas—makes the skin feel cool because it uses up heat to undergo the phase change.
Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Plant Transpiration** Students can demonstrate plant transpiration with a small potted plant, a plastic bag, and a glass jar. Plants release water through tiny pores in their leaves. Help your child prove this: After watering the plant, cover the soil with the plastic. Tape the plastic around the plant's stem and tape closed any gaps. Cover the plant with the glass jar and place it in sunlight. After a few hours, water vapor should condense into droplets on the inside of the glass. Ask, *Where did this water come from?* Help your child conclude that it probably did not come from the soil, which was covered, so it must have come from the plant. **MODERATE MASTERY** ◒ **Organ Systems** Students should understand how different organs systems in our bodies perform different important functions to keep us alive. The symptoms of some diseases or disorders can point to something wrong in one of the body's systems. Ask your child what organ systems are most likely involved in patients with the following symptoms: rapid heart rate and sweating (nervous); water retention, swollen hands and feet (excretory); pain in the abdomen, vomiting (digestive); coughing, trouble breathing (pulmonary). The next time your child is mildly sick, ask him or her to guess which organs and systems are involved, and then confirm the answers with a health professional or by referring to a reliable source.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Weathering Model** Making a model can help students show how forces of nature affect the landscape. Mix clay or play dough with sand and rocks to make mountains, plains, hills, and rivers in a plastic tray, and allow them to dry. Grass or leaves may be used for vegetation. Then together take the model outdoors and attack it with simulated weather. For rain, use a watering can (gentle) or a hose nozzle (forceful). To make wind, use a fan or blow with your mouth. To create sandstorms, blow a handful of sand. If possible, make sun with a heat lamp. Ask your child to describe what occurs and explain how this simulation is similar to what happens in deserts, rain forests, prairies, and other climate zones of the globe. **MODERATE MASTERY** ◒ **Weather Journal** Students can gain a better understanding of the causes of weather by following weather reports. Encourage your child to keep track of a local weather page on the Internet or reports in newspapers or on television. Have your child create a weather journal, recording the temperature, precipitation, humidity, and barometric pressure each day, and also noting information about the movement of fronts in the area. After several weeks, review the journal with your child. Ask, *Are weather changes associated with anything?* You and your child should see that changes in weather are related to changes in air pressure. Ask, *What kind of weather tends to happen when the air pressure is high? Low?*

Science and Technology Careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Seawater Survival** This challenge will encourage your child to integrate science and technology. Tell your child to imagine being stranded on a lifeboat. The only objects available are aluminum foil, wooden ice cream sticks, a cup, and plastic wrap…and there is no fresh water. Challenge your child to design a solar-powered water distiller. Aluminum foil on the bottom of the cup can help heat seawater. As the water evaporates, it separates itself from the salt. The plastic wrap can catch the evaporated water and funnel it into the cup. Arrange the lid so the evaporated water runs out of the pot and down into another pot. This is a real-life survival technique. Collect enough water for your child to taste and to see that it's salt-free! **MODERATE MASTERY** ◒ **Save the Food!** This activity will help your child understand how technology is used in preserving food. Ask your child to list the ways we preserve food (freezing, canning, adding preservatives). Have your child research why these things keep food from spoiling. (They all have to do with slowing or preventing the growth of microorganisms.) Point out that some foods—like honey, maple syrup, sugar, and flour—can be kept for long periods at room temperature. Challenge him or her to explain why. (Honey and syrup are too concentrated to allow microbes to grow. Similarly, flour and granulated sugar lack moisture.) Encourage your child to ask older friends or relatives about food preservation common in the past, such as pickling, canning (storing foods in jars that are boiled), and salting.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Natural Disaster Science** Students can use science to better understand the dangers that may happen after a natural catastrophe such as an earthquake or tsunami. Often a disaster that leaves many dead is followed by an epidemic of infectious diseases (such as cholera or typhoid) that kills many more. Many people wrongly believe that the bodies left by the disaster are the cause of the epidemic. Point out to your child that this is a myth, and ask, *What are the real threats of a contagious disease epidemic after a natural disaster?* Help your child do online or library research to answer this question. The major risks of infectious disease are contaminated water, lack of sanitation (including lack of toilets), and poor nutrition. **MODERATE MASTERY** ◒ **Warming Oceans** Students should understand how the warming of Earth's atmosphere affects the temperature of ocean waters and ocean life. Ask your child, *How is cold ocean water different from warm ocean water?* Help your child research this question using online or library resources. Find out about seasonal upwellings and the movement of the fish population to different ocean areas. Help your child list the ways that ocean water warming is affecting ocean life and humans' ability to get food from the oceans.

Return to Table of Contents

GRADE 8 SOCIAL STUDIES

GRADE 8 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Regional Geography Notes** When students identify geographical features of their region, they gain a greater appreciation for their surroundings. Look at a map of the United States that shows physical features such as mountains and bodies of water. First, have your child find your location on the map. Second, ask your child to choose four or five destinations that are 500 miles or less from your home. Give your child an index card for each destination and ask him or her to write the destination and route, and to note geographical features such as rivers, lakes, and mountains that can be seen along the way. Keep the index cards and refer to them the next time your family plans a trip. **MODERATE MASTERY** ◒ **Protecting Our Waterways** When students understand the importance of protecting natural resources in their community, they are inclined to be more responsible with those resources. Ask your child to name nearby bodies of water such as rivers, lakes, and reservoirs. For each, ask, *Approximately how far from home is that? What is the safest and easiest way to get there?* Next do some investigating to locate the water source that is treated for use and consumption in your community. Then find the location of the water treatment plant. Locate both of these on a map. Together research ways your family can help to protect waterways. Ask your child to create a list of do's and don'ts for protecting this important natural resource. Display the list as a reminder of how your family can help protect your local natural resources.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **A Nation of Immigrants** When students learn about trends in United States immigration, they can better understand the origins of the nation's population. Visit your local library with your child to look for information about the history of U.S. immigration. Find charts and graphs that show the countries of origin and numbers of immigrants that came to the U.S. over a certain period of time, such as from 1840 to the present. Ask, *From which countries did most people emigrate? Did this trend change over time? Did more people or fewer people immigrate to America as time passed?* Then help your child look for books or other materials that contain primary sources such as immigration records or accounts of immigrants' journeys. Read the materials together and ask your child to make inferences about the reasons why people came to America during these times. **MODERATE MASTERY** ◒ **The World War II Home Front** As your child researches specific historical time periods, they will learn the value of using primary sources. With your child, visit your local library or research the Internet to find American posters and advertisements that were popular during World War II. Search for posters that encouraged Americans to plant "victory gardens," to donate scrap metal for the war effort, to be on guard against spying and other enemy activities, or to keep morale high during this difficult time. View the images with your child, asking him or her to describe what life might have been like then. Read articles written by historians about the U.S. home front during this era. Ask, *How do the posters support what the articles state? Do the posters give information not found in the articles?*

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Bill of Rights** When students study the first ten amendments to the United States Constitution—known as the Bill of Rights—they understand some of their rights as citizens. Find a list of these amendments and read it with your child. Beginning with the First Amendment, ask, *Why do we have this right? What does it enable us to do? Does this amendment include limits? What are the responsibilities that go along with having this right? Do you think it was a good decision to give us this right? Why or why not?* Continue your conversation with your child until you have discussed each amendment in the Bill of Rights. **MODERATE MASTERY** ◒ 08_Soc_28_02P **Our Government** Students who research the United States Constitution can learn about the powers and duties of each of our government's branches. With your child, review the three branches of government (legislative, executive, judicial) using a copy of the U.S. Constitution or secondary sources that explain the Constitution Remind your child that these branches are found at the national and state levels. From the materials you have gathered, ask your child to make a three-columned chart that lists and explains the functions of each branch. At the bottom of each column, have your child write the names of the people who hold power at the national and state levels for each of the branches. Keep the chart for reference during the next election season.
	LOW MASTERY ○ **Charting the Economy** It is easier for students to understand economic concepts when they apply them to their own lives. To practice this with your child, look through a current issue of a business magazine or the business section of a reputable news website. Find articles that have statistical graphics of such things as unemployment figures, rising oil prices, or average consumer debt. Ask, *What can this graphic tell us about the economy?* Read the accompanying article. Have your child apply this to his or her own life by figuring out how one or more of the statistics currently affects your family. For example, with rising oil prices, your family may have to spend more money on heating your home and filling your cars' gas tanks, leaving your family with less money to go to the movies. **MODERATE MASTERY** ◒ 08_Soc_29_02P **Credit Cards: Friends or Foes?** Students who learn how credit cards work can better understand the service that credit card companies provide and the risk credit cards can pose for some users. With your child, study a credit card offer received in the mail or locate one online. Have your child evaluate the advertising message in the offer. Have him or her focus on the introductory interest rate. Next have your child examine the fine print that gives the higher, post-introductory interest rate and the default rate. Explain to your child that when credit card users don't pay their balance in full each month, they are charged interest which is calculated at these rates. Then discuss the advantages and disadvantages of using credit cards, and how individuals can use them more responsibly.

Return to Table of Contents

GRADE 8 MATH

GRADE 8 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Common Multiples and Venn Diagrams** Venn diagrams have two or more circles that intersect to show items having common attributes. Use a Venn diagram to explore common multiples with your child. Make sure that there is overlap between each of the three circles and the other two circles. Label the circles *2*, *3*, and *4* to represent factors. Fill in the circles with multiples of these numbers: *12* belongs in the intersection of all three circles because $2 \times 6 = 12$, $3 \times 4 = 12$, and $4 \times 3 = 12$; *6* would go in the intersection of the *2* and *3* circles; *7* would go outside the diagram because it is not a multiple of any of these numbers. Write all of the multiples from two to twelve in their appropriate places inside or outside the diagram. **MODERATE MASTERY** ◒ **Hip Hop Integers** An important math skill is using the number line to add and subtract integers (integers are the following … -3, -2, -1, 0, 1, 2, 3 …) Have your child make a number line labeled from –20 to +20 (the integers should be about 1/2 inch apart), and gather a numbered die, a coin, and a game piece for each player. Place all game pieces on zero. Take turns rolling the die and flipping the coin. If the coin lands on heads, move in a positive direction the number of spaces on the die. If the coin is tails, move in a negative direction the number of spaces on the die. If a player lands on an integer where another player already is, the player that was there gets "bounced" back to zero. The winner is the player who reaches +20 first.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Fraction Line** Working with fractions can be a challenge for some students. The Fraction Line game will help your child practice addition and subtraction with fractions. Together create a twelve-inch number line starting at 0 and ending at 3. On the number line, show wholes, halves, quarters, and eighths. Create flash cards with these wholes and fractions (halves, quarters, and eighths) ranging from 0 to 2. Make nine other cards labeled + and –. Players take turns drawing two fraction cards and an operation card. Both players play with the set of selected cards for each round. Use a pencil and the number line to mark the numbers found on the cards, as well as the number you arrive at after the operation. The first player to come up with the correct answer gets one point. The winner is the first player to score nine points. **MODERATE MASTERY** ◒ **Measuring-tape Addition and Estimation** Your child can use a measuring tape to add and subtract fractions, as well as estimate with fractions. Have him or her use a measuring tape marked into halves, quarters, eighths, and perhaps even sixteenths and thirty-seconds of an inch. To add 3/4 and 1/2, for example, your child should mark the 3/4-inch mark and then move ahead two more quarters (or 1/2). He or she arrives at 1 1/4, which is the answer. To subtract, your child should move back—rather than ahead—on the tape. Once he or she becomes used to the space that each fraction takes up on the tape, your child can use the measuring tape to make quick estimations. For example, 7/8 is close to 1; so, 7/8 minus 1/4 would be about 1 minus 1/4 or about 3/4.

Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Polygons** Students should understand the basic properties of polygons. Use craft sticks to help your child make a square, a pentagon (five sides), a hexagon (six sides), and an octagon (eight sides). Set the shapes flat on the table. If your child wishes, he or she can use modeling clay to stick the shapes together at the ends. Then study these figures with your child. Measure or calculate the shapes' perimeter and area. Make a table to compare your results. How does the perimeter-to-area ratio change as the number of sides increases? **MODERATE MASTERY** ◒ **Farmer's Fence** Students need to understand how to use measurements and formulas to make things. Have your child pretend to be a farmer who has to build a fence for a section of field that has dimensions of 1/4 mile by 1/8 mile. Figure out how much fencing is needed for the perimeter in miles, yards, feet, meters, and kilometers. You might want to make it more interesting by adding a cross-fence or two in the middle of the field. Or you might have your child figure out how many fence posts would be needed if he or she were to space them twelve feet apart from one another. Then figure out the area of the fenced-in field (as well as cross-fenced areas, if applicable) in the various units (square feet, square miles, square yards, square meters, and square kilometers).
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Polygon Transformation** An important math concept is transformation. Help your child with the following activity. Have him or her plot the following points on a coordinate grid: (2, 2), (5, 3), (2, -2), and (5, -3). Make a trapezoid (a type of polygon) by connecting the points. Now have your child plot these points: (-2, 2), (-5, 3), (-2, -2), and (-5, -3). Again, help your child connect the points to make a trapezoid. Ask, *Do you see symmetry?* (Yes. If a line were drawn on the y-axis, this would clearly be a line of symmetry. Remember that symmetry exists when one side of an object or drawing is a mirror reflection of the other side.) Ask, *Reflect the trapezoid on the left around the y-axis. What do you get?* (They should get a perfect match to the trapezoid on the right.) Help your child see how this transformation can confirm symmetry. **MODERATE MASTERY** ◒ **Dr. Polygon** Polygons are shapes with three or more straight sides. Help your child increase his or her understanding of polygons. Create a two-columned table. Mark the first column *Number of* and the second column *Sum of Angles*. Start with a triangle. Ask, *How many sides does a triangle have? (Three.)* Ask, *What is the sum of the angles in a triangle?* (180 degrees.) Now ask, *What is the sum of angles in a rectangle?* Have your child pick a point on a corner of a rectangle and then extend a line to the opposite point. This will split the rectangle into two triangles. The sum of angles in two triangles is 360 degrees (or 2 × 180 degrees). Continue this process with a pentagon and hexagon, breaking each polygon into triangles and recording the results in the table. Identify the pattern between the number of sides and the sum of angles.

Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Peer Survey** Surveys are a great way to gather information about what people think. Working with real data can help make statistical analysis come alive for students. Help your child decide on a survey question and then poll family, friends, or peers. Choose a topic that has yes or no options (for example, *Do you eat breakfast?*). Your child might divide respondent data by age category, as well as make a double bar graph with a bar for *yes* and *no* responses. As you help your child write the question, discuss the need to avoid biased wording. An example of a biased question would be the following: *Do you take care of your body by eating breakfast?* Extend this discussion to real-life surveys you may see. **MODERATE MASTERY** ◒ **What Did You Do Today?** Graphs and statistics are all around us—it is important that students be good "consumers" of statistics. In this activity, help your child make a circle graph to represent his or her own daily activities. For one week, have your child keep a journal of his or her daily activities. Classify each activity (for example, *transportation*, *school-related*, *leisure*, *family time*, or *sleep*). Calculate the percentage of the week that each activity takes up. Then produce a circle graph that displays the appropriate proportion of time spent in each activity. Help your child evaluate his or her habits—is he or she happy with this analysis of how his or her time is spent? Did any of the results surprise them?
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Pattern Table** Pattern information is often easier to understand when it is in a table. Students can use tables to help make clearer sense of problems they have to solve. In this activity, you will help your child develop a handy information-processing strategy. Develop tables based on the questions in your child's book. For example, if the problem asks students to find the cost of twelve CDs if four CDs are $84 and six CDs are $126, you can make a table that shows four CDs = $84 and six CDs = $126, as well as make a row for twelve. The twelve CDs could be found by multiplying either the price for four CDs by three or the price for six CDs by two. Look for real-life problems as well. **MODERATE MASTERY** ◒ **Two-Step Graph** Students should be able to create the equation $y = mx + b$ from a set of ordered pairs (or from a data table). This activity will help your child see the connection between ordered pairs and equations. Make up several equations. For example, one equation might be $y = 3x + 2$. Ask your child to substitute a -1 and 1 for x in the first equation. Ask, *What two ordered pairs do you get from these substitutions?* (The ordered pairs would be (-1,-1) and (1, 5).) Have your child plot these points to make the line. Ask, *What happens if the equation is changed to* y = -3x + 2*?* (The line switches from increasing—having a positive slope—to decreasing—having a negative slope.) Experiment with other equations and ordered pairs.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem	**LOW MASTERY** ○ **Problem Strategy Practice** Being able to clearly identify what steps are needed in solving problems helps students stay on track when solving difficult problems. Create some problems based on real-life situations, or pick four or five interesting problems from your child's textbook. Ask your child to describe how he or she would solve each problem. What strategies would he or

evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	she use—drawing a diagram, regrouping information, working backward, following a formula or procedure, or something else? After your child explains how he or she chose to solve the problem as well as why he or she chose to do it that way—ask him or her to solve the problem, using a full sheet of paper for each step. Ask your child, *What is the problem? What information do I need?* Solve and check. **MODERATE MASTERY** ◒ **Proportional Problems** Students need to understand proportions to solve problems. Choose some problems that involve proportions and rates. For example, Gillian's grandmother gave her $60 to do a job one weekend. Gillian did four hours of work on Saturday, and she worked with a friend for four hours on Sunday. Gillian wants to pay her friend according to the proportion of the work that she did. Ask, *How much should each be paid?* This problem can be simplified by drawing a box for Saturday and another box for Sunday. Have your child write "4*h*" in the Saturday box and "4*h*" two times in the Sunday box. Then it's easy to see that there are "12*h*" all together. Each person will be paid $5 per hour (12*h* = $60 or *h* = $5). Gillian will receive $40 (eight hours multiplied by $5) and her friend will be paid $20. Note that drawing the boxes was a big help.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Math Talk** One of the most challenging skills in math is solving word problems. You can help your child improve his or her skills by taking time to communicate in mathematical terms. Here's a good example of how you can do this. Watch the evening news with your child and note the different math terms that are communicated. For example: stocks *increased* 150 points; the unemployment rate *decreased* by 0.5%; interest rates *increased* by two *percentage points*; the *median* household income increased by 1.5%; a certain statistic has *increased exponentially*. Have your child note these comments and then explain what they mean. If they aren't able to explain, help them or spend some time doing research together. For example, if your child doesn't know already, help him or her figure out what a median average is and how it is different from a mean average. **MODERATE MASTERY** ◒ **Error Analysis** Help your child reduce his or her common math errors by reviewing old tests and assignments. What kind of errors did he or she make for each question that he or she got wrong? Was the problem due to an arithmetic error, misreading the question, drawing a diagram incorrectly, or due to some other factor? If it was an arithmetic error, what operation (or order of operations) caused the problem? If it was an error caused by sloppy work, could your child use colors, unlined paper, or a different method to organize the page to avoid the error in the future? Repeated, intelligent analysis and discussion of problem areas can be very helpful for students—discussing math will help improve your child's ability to understand key concepts and important terms.

Return to Table of Contents

GRADE 8 READING

GRADE 8 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Seek and Find** Students need to locate information in what they are reading in order to answer questions. Students are often given questions when they begin reading or are asked to review questions after they read. Stating the main idea of each paragraph can improve his or her ability to find information in the text. Choose a chapter from your child's social studies or science textbook. As you read together, pause after each paragraph and discuss what its main idea is. Write the main idea on a small sticky note and place it next to the paragraph. At the end of the chapter, ask your child to read the review questions. Then have him or her use the main ideas on the sticky notes to help locate the answers. This strategy can also be used with a fiction (story from the imagination) text. **MODERATE MASTERY** ◒ **It's Story Time** Students need to be able to follow the events of a story, even if they are not presented in the order in which they occurred. Sometimes, texts contain flashbacks, when the text begins in the present, moves to the past, and then returns to the present. Writers use transition words (words that signal a change in ideas) and phrases to signal these shifts in time, such as, *Sheila remembered the first time she rode a bike.* When reading a story that contains flashbacks, your child can create a timeline to reorganize the events into time order. Have your child write major events on self-sticking notes and place them in the order in which they happen. As flashbacks happen, have him or her move the sticky notes around to put the event described in the flashback in the correct place.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Poetry Connection** Poets use few words to express their ideas. Students need to be able to understand what ideas a poem expresses. Because poets use few words readers must make inferences (guesses) to figure out what the poem means. To make inferences, readers combine text clues with their own knowledge and experiences. For example, read this short poem with your child: *The yellow leaves bounce on a breeze, Free and happy, no one to please.* Ask, *How is the speaker feeling?* Discuss with your child what is directly in the text. (The speaker imagines that the leaves are free and happy. She thinks that leaves don't have to please anyone). Have your child think about what having to please someone feels like. Then ask, *How do you think the speaker feels about the leaves?* (She envies that they are free and have no one to please.) **MODERATE MASTERY** ◒ **Persuasive Practices** Students need to be able to identify persuasive techniques (ways to convince someone to do something). Help your child think critically about text so that he or she is not easily manipulated or influenced by persuasive techniques. Explain that there are three persuasive techniques: appeals (pleas) to reason (using facts and statistics); appeals to emotion (using love, fear, or other emotions); and appeals to morals (using right versus wrong). Gather several magazine advertisements to study with your child. Have him or her use a black marker to circle and label appeals to logic, emotion, and morals. Consider the pictures and the words. Discuss how effective each appeal is. Ask, *Do you*

	find yourself persuaded to do what the advertisement is trying to get you to do? Why or why not? Then try this same activity with television commercials.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Extend Meaning to Other Contexts** Improve your child's reading and thinking skills by helping him or her connect reading to new situations. Read a nonfiction article (writing that gives information or describes real events) or story that could happen in real life aloud with your child. Then create an experience that goes along with the text. For example, if you read about animals, visit a zoo, animal shelter, or veterinarian's office. If you read about sports, attend a local game or practice, or watch a sporting event on television. Help your child make connections between what they read and this new situation. Ask, *What skills helped the animal in the story survive? How might this animal use these same skills in another situation? How did the game bring the community in the story together? How might this game do the same thing in your community?* **MODERATE MASTERY** ◒ **Pinpoint Point of View** When writing, authors choose a point of view from which to tell their stories. This point of view affects content (what the writer includes) and tone (attitude or feeling of the writing). Students need to be able to identify points of view in order to more deeply understand stories. Narrators (who tell the story) who are characters in the story (called first-person perspective) use pronouns such as *I, me,* and *our* and report what he or she thinks and experiences. Narrators outside of the story use pronouns such as *he, she,* and *they*. Some focus on the thoughts and feelings of one character (third-person limited) and some report all events, thoughts, and feelings (third-person omniscient). Read excerpts from several books with your child. Challenge your child to find at least one example of each point of view.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Self-Questioning** Students have to answer questions about what they read to show that they understand the writing. One of the best ways to help your child understand a text is to teach him or her to formulate, or think up, his or her own questions. This kind of self-questioning deepens understanding and builds thinking skills. To help your child with this skill, first read a text (writing) together. Then have your child ask four different types of questions: *Is the answer clearly stated in the text?*; *If the answer is in the text, does the reader have to look for it and put together several pieces of information?*; *Is the answer found using the reader's own knowledge?*; and *Does the reader have to use a combination of information in the text and his or her own knowledge?* **MODERATE MASTERY** ◒ **Writing as a Process** Students should use all steps of the writing process: brainstorming (thinking of ideas), drafting (writing), conferencing (having someone read your writing), revising (including conference suggestions), editing (correcting mistakes), and publishing (finalizing). Skipping any one of these stages produces a document that is incomplete or unclear. Help your child develop a writing checklist that he or she can use whenever a writing task is assigned. Include the following elements in the checklist: names of the stages; explanations of the stages; and ideas or strategies for completing the stages. For example, your child might write the following entry: ***Brainstorming:*** *the stage in the writing process when I think of ideas or topics for writing. To complete this stage, I might*

	create lists, idea webs, or other graphic organizers. I might also discuss my ideas with a partner.

Return to Table of Contents

GRADE 8 WRITING / LANGUAGE

GRADE 8 OBJECTIVES	**MASTERY**
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **"You Complete Me"** Students need to be able to write complete sentences. Help your child identify sentences, sentence fragments, and run-on sentences. A sentence contains a subject (who the sentence is about) and an action. A sentence fragment contains only parts of a sentence, perhaps a subject or an action and can be corrected by adding the missing sentence parts. A run-on sentence contains two or more sentences that run together or are connected by a comma and can be corrected by adding a semicolon (;) or a conjunction (a linking word such as but, and, or). Work with your child to correct these fragments and run-ons: *The pattering rain. The grass is long, the grass is tall. The blue birds. Grow near the road. The pond bubbles it is full of life.* Apply this to your child's writing. **MODERATE MASTERY** ◒ **Parallel Productions** Students should use parallel structure to make their writing flow. Parallel structure means using similar sentence structures and word forms. For example, compare these two sentences: *I like swimming, running, and to play baseball. I like swimming, running, and playing baseball.* Notice that the second sentence uses the same form for each object (swimming, running and playing). This sentence has parallel structure and is easier to read. Using parallel structure, work with your child to revise the following sentences. *A student's job is to listen, learn, and make use of questioning.* (…listen, learn, and question). *A teacher's job is to observe, model, and coaching.* (…observe, model, and coach). *A parent's job is to support and guide. Setting boundaries is also a parent's job.* (…support and guide. They also have to set boundaries.)
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Is It Relevant?** Students need to choose between relevant (details that support the topic) and irrelevant (details that don't support the topic) details. Remember that all the details in a paragraph should center on a single topic. Any detail that introduces a new topic or idea does not belong in the paragraph. Read the following paragraph with your child. Discuss which details do not belong and why. *Many communities have increased their recycling programs. In most towns, people recycle bottles, cans, and newspapers. Some places have begun to collect all paper—food boxes, catalogs, mail. Yard waste like lawn clippings get picked up in some towns. We put our raked leaves in our garden. Some cities have even started to collect food scraps. These recycling programs mean less trash ends up in our landfills. (We put our raked leaves in our garden.)* **MODERATE MASTERY** ◒ **Let's Get Organized** Students need to make a plan before beginning to write. A plan helps the writer organize the presentation of ideas and identify problems and solutions ahead of time. A good plan leads to a good first draft. There are different types of writing plans: outlines, idea webs, and other graphic organizers such as charts. Outlines are good for informative or persuasive essays (writing that tries to convince you to do something). Idea webs (a circle with ideas branching out of it) are good for narratives (writing that tells a story).

	Problem/solution or cause-and-effect essays need graphic organizers. With your child, identify a good writing plan format for the following prompts: *The causes and effects of the American Revolution.* (graphic organizer) *A story about a traveling theater group*. (web) *Instructions for building a paper airplane.* (outline).
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Subject-Verb Agreement** Students need to be able to write sentences and use words correctly. Help your child avoid some common writing problems by using correct subject-verb agreement. Singular subjects (who the sentence is about) take singular verbs (the action of the subject), and plural subjects take plural verbs. Go over the following examples together: *The players* (plural) *on the team are* (plural) *working hard*. *There are* (plural) *five games* (plural) *left in the season*. *Each of the players* (singular—*each* is the subject) *is* (singular) *anxious to do well*. Now work with your child to correct the subject-verb agreement problems in the following sentences: *The three players on the court is running.* (The three players…are running.) *Here come the referee*. *(*Here comes the referee.) *Each of the teams are warming up*. (Each…is warming up.) **MODERATE MASTERY** ◒ **It's Time for Action** Students must be able to use the correct verb tense (when in time an action occurs). Explain to your child that a verb has three tenses: past, present, and future. For clarity, a writer needs to keep the verb tense the same. Together compare the following examples: *Carla is improving in soccer because her coach was a good teacher. Carla is improving in soccer because her coach is a good teacher.* The first sentence mixes the present and past tenses. The second sentence maintains the present tense so it is clear for readers. Help your child correct the verb tense problems in the following passage: *As the team prepared for the tournament, Carla's excitement is growing. This is the first game that Carla started as a forward*. (…prepared… grew. This was… will be starting…)

Return to Table of Contents

GRADE 8 SCIENCE

GRADE 8 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Science and Disease** Students should be aware of how scientific discoveries and theories led to modern practices. For example, doctors once had a completely different understanding of what caused contagious diseases. Ask your child, *How are contagious diseases spread?* He or she will likely say that microbes (germs) cause diseases, and these can travel from person to person. Explain that doctors once thought that they could not point to a single cause for an illness, or that it was caused by "bad air." Have your child find out what experiments and technological advances led to what we call the germ theory of disease. The invention of the microscope was one important advance, as were experiments by Redi, Koch, Semmelweis, and Pasteur. **MODERATE MASTERY** ◒ **Correlation and Causation** Distinguishing correlation and causation is an important part of science inquiry. *Causation* is a noun meaning that one thing causes another. For example, the rhinovirus causes the common cold. *Correlation* refers to the relationship between two things. People who are taller tend to have bigger feet, but one thing does not cause the other. Both are a result of how much a person grows. Encourage your child to pay attention to health and science news reports. Are they distinguishing between correlation and causation? To clarify the difference, it can be helpful to discuss things that are obviously correlations as if they were causations. For example, ice cream trucks cause thunderstorms, because both are more common in summer. Try to think of other nonsense examples.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Bolt Isotopes** This activity helps students understand how isotopes determine average atomic mass. An isotope is an atom of an element with a particular number of neutrons. Gather a handful of metal bolts in two slightly different sizes. The bolts represent isotopes of the element "bolt," and your child must find its average atomic mass. Have your child weigh one larger bolt and one sma2ller bolt and record their masses. Your child will then count the number of large and small bolts in the "bolt" sample. Multiply the mass of the large bolt by the number of large bolts, and the mass of the small bolt by the number of small bolts. Add these together and divide the result by the total number of "bolt" atoms in the sample. This is the average atomic mass of the element. **MODERATE MASTERY** ◒ **Lever and Fulcrum** Students can better understand a simple machine, the lever, through this activity. A lever can be a seesaw, a nutcracker, a pry bar for moving a rock. The mathematical relationship to explain a seesaw style lever is *dr* = *dr*, or *distance times resistance* = *distance times resistance*. For example, a 60-pound person sitting two yards away from the fulcrum, or balance point, of the seesaw would be able to balance a 120-pound person sitting half as far away; so, 1 yd × 120 lbs = 2 yd × 60 lbs. Ask your child to figure out where he or she would have to sit in a seesaw to balance you on the other side. Together take a yardstick or measuring tape to a playground to confirm this relationship.

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Friendly Bacteria** Bacteria are usually thought of as an enemy that makes us sick and spoils our food. This activity will help students understand that bacteria can also be helpful. For example, some bacteria allow us to preserve food longer, produce medicines that heal us when we are ill, and clean potentially dangerous messes. Bacteria in our gut help us digest food; we could not live without them. Bacteria are used to produce pickles, yogurt, and black tea. Have your child do research online or at a library to learn more about helpful bacteria. How do they help us? How are they harmful? Your child can make a poster to show the beneficial actions of bacteria in everyday things. **MODERATE MASTERY** ◒ **Fungi in our Lives** Students can learn about the metabolism of single-celled eukaryotes by exploring the use of yeast in making food. Yeast has been used to make bread rise since ancient times. Yeast cells are mixed into the dough, and as they eat nutrients in the dough and release gas, the dough rises. Help your child use online or library resources to find answers to the following questions: *What process do yeast cells carry out that makes dough rise? Do they need oxygen to do this? What do they eat? How many different types of bread yeast are there? How was yeast originally discovered?* Together try baking bread with yeast, or try capturing wild yeast by setting out a bowl of flour mixed with water.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Tides** This activity helps students understand how gravity produces tides. Help your child create “tides” with a magnet and iron filings (free from machine shops; or use the iron “hair” from an inexpensive magnetic drawing toy). Draw a circle on a sheet of paper and put the filings in it. Cover the paper with a piece of plastic wrap, taping down the edges so the filings don’t escape. The filings represent all the water on Earth and the magnet represents the moon. Hold the “moon” above the filings, and then rotate it slowly around the circle. Keep the magnet far enough away that the filings move outside the circle only slightly. A slight bulge at one side of the circle represents a high tide. In reality, Earth’s water bulges on the side nearest the Moon as well as the opposite side. **MODERATE MASTERY** ◒ **Convection Currents** In this activity, students will demonstrate convection currents, which play a role in the movements of Earth’s crust, weather, and oceans. Your child will fill a tempered glass or clear plastic food storage container with cold water. Together gather two large same-sized mugs and fill one with just-boiled water. Use the mugs as stands for the cold-water-filled container. Place the hot-water-filled mug at one end and the empty mug at the other (add additional mugs if needed for stability). Add a few drops of food coloring to the end of the cold-water container that sits over the hot-water mug. You will be able to see the food coloring rise, cycle toward the cold end, fall, cycle back to the warm end, and rise again. These are convection currents.
Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Power Sources and Generators** Students can better understand how science is used to power our daily lives by exploring power plants and generators. Discuss how the electricity in your home comes from a

	local power plant, which must generate it from another source (e.g., coal, nuclear energy, wind, moving water, etc.). Generators are used to convert power from one form to another. Help your child research how power generators function using textbooks, encyclopedias, the Internet, or the library. Have him or her draw a diagram of the type of generator likely to be used at a local power plant. Encourage your child to explain how the generator works. **MODERATE MASTERY** ◒ **A Mobile Invention** Researching commonly used transportation can help students understand the importance of the invention and development of engines. Most of the vehicles used today (cars, boats, buses, trucks) are powered by an internal combustion engine. Help your child use textbook, encyclopedia, Internet, or library resources to find out more about one engine type. He or she should be able to answer the following questions: *What engines were used before this invention, and what was their power source? Where was this new engine developed? What discoveries in basic science led to its invention? What are the advantages and disadvantages of the internal combustion engine? What fuels does it use?* Have your child draw a diagram describing how the internal combustion engine works and explain its function.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Recycling Report Card** In this activity, students assess their household's reducing, reusing, and recycling habits. You can help your child determine why your family might be very good at some recycling tasks but not others. For example, you might want to recycle plastic milk jugs, but the plastics recycling bin is far from the kitchen. Or your town may not collect the paper you want to recycle. Help your child create a "recycling report card" for your household. Ask him or her what could be changed in the household to encourage more recycling, and what changes need to be made on the town, city, or county level. Encourage your child to write to your town council or city hall representative about why certain facilities don't exist and whether such facilities could possibly be built. **MODERATE MASTERY** ◒ **Then and Now** Students should be familiar with scientific problems that have come up in different situations in history. One example is drug or pesticide resistance, which has now occurred with staph bacteria to produce MRSA (Methicillin-resistant *Staphylococcus aureus*). Resistance also occurred in mosquitoes to the pesticide DDT. In the last century, DDT was sprayed in areas were mosquitoes were common to prevent malaria from spreading. (Malaria is carried in mosquito saliva.) However, it eventually stopped being effective. Have your child research where mosquitoes first developed resistance to DDT, and where it is still being used today. Ask, *When do you think spraying with DDT is a good idea? When should it be avoided?* **Red Planet…Green Planet?** Students should think about the potential for science and technology to change other worlds beyond our Earth. For example, the "terraforming" (or making Earth-like) and colonization of Mars is an idea often found in science fiction, but also proposed as a real possibility. Find out more about Mars using library or Internet resources. What characteristics make it unable to support life as we know it? What differences can never be changed by transforming its surface? What are some ideas for terraforming Mars? Do you think it would be ethical to do so, even if we could? Write an essay detailing your

	opinion on this issue, supported with facts. Discuss your ideas with a friend or family member.
History and Nature of Science contributor and contribution historical concepts nature of science science in ancient cultures time lines	**MODERATE MASTERY** ◒ **What is a theory?** In science, the term *theory* means something very different from a hunch or a guess. Find the definition of *theory* in dictionaries, encyclopedia, textbooks, or other information resources in your home, library, or online. How do the definitions differ? How are they the same? State the scientific definition of *theory* in your own words and discuss it with a friend or family member. You may have also seen the term *law* used in your science textbooks. What is a law, and how does it differ from a theory? Try to come up with as many scientific laws as you can.

Return to Table of Contents

GRADE 9 SOCIAL STUDIES

GRADE 9 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Elevate Your Knowledge** When you study elevation maps, you get to learn about various geographical features and practice your math skills at the same time. An elevation map shows a specific location's height above sea level. It displays variations in places such as mountains, valleys, and prairies. Find an elevation map of your region in an atlas or on the Internet. Study the map key and note important features on the map. Then find your city's elevation. Compare this elevation to the highest and lowest elevations shown on the map. How many feet lower is your area than the highest elevation in the state? How many feet higher is your area than the lowest elevation in the state? Record these amounts in a notebook for future reference. **MODERATE MASTERY** ◒ **Polar Problems** It is important for students to understand the impact that humans have on the environment. To help your child understand the impact of global warming, discuss the disappearance of the polar ice caps. First, explain that the Earth's polar regions—which have always been covered in ice—are now melting at a faster rate than ever before. Ask, *What is likely causing this situation?* Have your child research the polar ice caps on the Internet. Look for newspaper and magazine articles to find out what is happening in this region. Once the research is completed, discuss the most important information about the threats to the polar ice regions on Earth. Ask your child, *How will this affect the entire world? What are some possible solutions to this problem?*
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **A History of the People** It is important to understand the contributions of important historical figures in American history and know when these individuals made their contributions. Make a list of people you have learned about in social studies who have made significant contributions to our country's history. For each figure answer these questions: *What is the period, or era, to which each person belongs? What did he or she do that was so important?* Check your answers at the library or on the Internet. Also, find the years of each historical figure's birth and death, if applicable. Construct a timeline that shows all dates. **MODERATE MASTERY** ◒ **Straight to the Source** Students can learn the importance of historical documents by studying primary sources. To do this, have your child brainstorm a list of technological advances that caused a sensation when they first appeared. These might include automobiles, airplanes, cellular phones, home computers, and the Internet. Then have your child choose one ant research the date of its introduction to the public. At the library or on the Internet, help your child find newspaper and magazine articles from that era that contain the first reviews, advertisements and testimonials about that technology. Ask, *Were the writers correct about how the new technology would be used? Why or why not? What do you think life was like before the technology was introduced? In the past, how did people complete the task(s) that the technology was invented to make easier?*

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Take a Meeting** To better understand how local governments operate, attend a city council meeting with a parent or guardian. Listen as the leaders give reports on the different government agencies in your community such as the fire, police, and sanitation departments. Listen to the concerns of community members who speak during the meeting. Afterward, discuss with a parent or other adult how the leaders addressed the citizens' concerns. Did people appear satisfied with the leaders' responses? If not, what else could be done? Think about things that you might like to question local leaders about. Finally, discuss how well the meeting demonstrated the principles of participatory democracy. **MODERATE MASTERY** ◒ **Government Quiz Show** It is important for students to understand the differences between various types of governmental systems. Have your child research the following types of government: democracy, monarchy, oligarchy, and dictatorship. On a sheet of paper, have him or her answer the following questions about each type: *Who holds the power in this form of government? What role do the people play? Are leaders elected or do they assume power? What nations currently have or have had this form of government?* Test your child on the researched material. Have your child provide you with the answers, then quiz him or her on each form of government.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Advertising Is Everywhere** Studying print and television advertising will help you better understand how goods are marketed and sold. While you are out in your community, tally the number of logos, brand names, and other marketing messages you see. Note any unusual locations for logos, such as on garbage cans and automobiles. Consider the following: *Were you surprised by the number of messages? Did the same logos pop up repeatedly? What are the benefits of knowing how companies advertise?* Repeat this activity with television commercials. Note the time that certain advertisements are shown. What does this tell you about the audience they are marketing to? Compare and contrast your findings for both types of advertising. **MODERATE MASTERY** ◒ **Trading Places** It is important for students to learn about trade agreements between the United States and other countries. To do so, have your child look at the product tags of items found in your home and choose a foreign country of origin marked on a product. Research the following economic aspects of that nation with your child: *What are the country's main exports? What goods are imported? Do companies use the country's natural resources to make their products? Is there a minimum wage for workers in this country?* The two of you should research the country's largest exporting companies and investigate how much profit is made by each company. Have your child discuss his or her findings with you. Keep track of new information about the country presented on news broadcasts and in newspapers.

Return to Table of Contents

GRADE 9 MATH

GRADE 9 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Exponent War** *Exponent War* is a fun, fast-paced study game to practice using exponents. Make thirty-six cards numbered from 1 to the first power to 6 to the sixth power, including all bases 1 through 6 and all exponents 1 through 6. Deal the cards evenly between two or more players. Just like in the card game, *War*, each player turns over the top card of his or her face-down deck. Whoever's card has the exponent representing the largest value wins both cards. When two cards have equivalent value (for example, 2 to the second power and 4 to the first power), each player turns the next card off his or her pile. Whoever now has the larger card face-up wins all four cards. If the cards are again equivalent, continue turning cards until one player wins the hand. The game is over when one player has all the cards. **MODERATE MASTERY** ◒ **Numbers Venn** Venn diagrams help students view information—especially classification information—in a different and organized way. This activity asks your child to design a Venn diagram, or series of circles that hold information, to show *whole numbers*, *integers*, *rational numbers*, and *irrational numbers*. You can help your child make this diagram by asking him or her to think about which groups would *not* overlap, or have nothing in common, which might *sometimes* overlap, and which might be nested inside another group. Your child should then write down random numbers on slips of paper and place each one on the Venn diagram in the correct category. Encourage your child to examine and analyze the diagram after the game is played. Ask your child whether the diagram could be better designed.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **That's Radical** Square root (a type of radical) is an important concept to understand. Create a number line starting with 0 and ending with 100. Use an entire sheet of paper so you have plenty of room. Can you mark the perfect squares on the number line? (These numbers are: 4, 9, 16, 25, 36, 49, 84, 81, and 100. The pattern for perfect squares is $2 \times 2 = 4$, $3 \times 3 = 9$, $4 \times 4 = 16$, …) Using the number line what would you estimate the square root of 30 to be? (Given that 25 and 36 are perfect squares, and the square root of 25 = 5 and the square root of 36 = 6, estimate the square root of 30 to be between 5 and 6.) Use the number line to estimate the square root of other numbers between 0 and 100. **MODERATE MASTERY** ◒ **Grad Guesstimate** When students are able to estimate, they can quickly check the reasonableness of calculations they make. If you have an upcoming party, have your child help you estimate costs. For example, assume the party will have anywhere from 60 to 300 people. Help your child write a detailed list of all the things you will need to buy or rent. You may need to make some phone calls to figure out the cost of hall rental, chair rental (if the hall does not have enough seating), entertainment, food, and security. Help your child create reasonable estimates for unit costs (for example, a chair rents for $2) and then give a low, medium, and high estimate for each item based on the possible range of people.

	Ask, *What items are expected to cost the most? What is the estimated range of the total cost?*
Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Calculating Costs** Students should be able to calculate surface areas for different shapes. This activity is a practical way for you to explore this skill. Consider a painting project for your room that will incorporate pictures of many different geometric shapes on the walls. Sketch several ideas for each wall. Be sure to include rectangular, triangular, and circular shapes in the drawing. Once you have a plan you like, estimate the dimensions (for example, one square will have sides two feet in length and a circle will have a diameter of three feet). Find the price of paint per square foot and then use the area measure for each shape to estimate the price for the paint. If you know someone who has a painting project in mind, offer to help out in the planning. **MODERATE MASTERY** ◒ **Angle Measures** Help your child practice estimating angle measures on figures you have drawn on paper. Students should know that an acute angle is less than a right (90 degrees) angle, a 45 degrees angle is half of a right angle, and a straight line is 180 degrees. After your child becomes proficient in estimating angles on paper, sketch a large protractor on posterboard and play a game of estimating visual angles. You may use landmarks in a yard or park or go to a public building (for example, a municipal building or a shopping mall). Have your child hold his or her arms out to simulate two sides of an angle, estimate the angle, and then hold your arms up in front of the protractor to verify the angle's measure.
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Tile Patterns** Many beautiful tile patterns throughout history have been based on symmetrical figures. Of particular interest are some of M. C. Escher's drawings and tiling patterns. Ask a friend or parent to help you research M. C. Escher's work on the Internet or at the library. Then, use grid paper, creativity, and color to design your own symmetrical, repeating-tile patterns. You might not be able to make lizards and fish right away (a popular Escher pattern), but remember that M. C. Escher was a world-renowned genius. Even if you add a partial triangle or semicircle to a repeating two-tone rectangular grid, you will develop a beautiful tiling pattern. Use a lot of paper and come up with some creative, thought-provoking designs. Look for patterns, large and small, in your design. **MODERATE MASTERY** ◒ **Shapes on the Grid** Parallelograms are a common shape encountered in math and in shapes all around us. This activity gives you and your child a fun way to explore the properties of parallograms. Use graph paper or make a 12-by-12 coordinate grid. Plot the following points on the grid: (1, 6), (10, 6), (−4, −7), (5, −7). Before connecting the points, have your child guess what shape the coordinates will plot. HINT: Have your child consider the *x*-coordinates and *y*-coordinates. Do any points share the same *x*-coordinate or *y*-coordinate? Next, have your student connect the points and see if his or her guess is correct. Remind your child that in order for a shape to be a parallelogram, it needs to have two pairs of parallel sides and opposite sides that are equal in length.

Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Numbers Don't Lie** Statistics are something most of us are exposed to every day. Practice using statistics by tracking and recording a repeatable and interesting event. For example, if you enjoy basketball, keep track of a player's points per game. Then create a line graph to plot the data. Do you see a trend? (Perhaps the player's points per game are steadily increasing.) Calculate the mean, median, mode, and range of the data. Why are these different statistics important? (A range that is small would indicate the player is very consistent in what he or she scores. The mean and median will likely be different if the player has scores that were much higher or lower than what he or she normally gets—the median is less affected by such extremes.) **MODERATE MASTERY** ◒ **Survey Sampling** Discuss reliable survey sampling and the various ways of taking a sample of a population with your child. Random samples are the least biased type of sample (for example, picking every tenth person in a phone book). Convenience samples (asking everyone who stops by a certain place) may be the most biased sampling method. Ask your child why convenience samples often fail to give reliable results. Point out how the surveyed sample of individuals may be very different from the population you're trying to understand. For example, if your survey is all about people's awareness of political events, only those individuals who are interested in politics are likely to take the survey—this won't give you an accurate picture of the population at large. Discuss the merits and disadvantages of each type of sampling with your child and ask him or her to create a sampling plan for a made-up survey that will yield accurate results.
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Tipping Point** Systems of equations can be very useful in the real world. Try the following problem to see how this concept can be helpful in decision making. Pretend you are opening a children's play center that can be reserved for special events and need to choose a pricing plan. Plan 1: Charge a $200 flat fee and $10 for every party guest. Plan 2: Charge a $150 flat fee and $20 for each party guest. The profitability of each plan will vary depending on the number of guests. To choose which plan is more profitable, first write the plans as mathematical equations. (Plan 1: Price = $10(# of guests) + $200. Plan 2: Price = $20(# of guests) + $150.) After graphing the equations, you'll see that the price of both plans will be the same when there are five guests. Do you think parties will have more or less than five guests? Which plan is more profitable when there are more than five guests? **MODERATE MASTERY** ◒ **String Graph** Some students process information better when the lesson is hands-on. Have your child use thumb tacks and string to set data points and graphs on a cardboard grid. First, have your child draw *x* and *y* axes on cardboard. Next have your child create a data table of a function equation (such as $3x + 4 = y$). The equation can be linear or quadratic (*x* squared). Have your child locate each data point with a tack on the grid. Then have him or her use a piece of string to connect the points to make a graph. Ask your child to extend the string to about where the graph would continue and then check against the equation (that is, pick a point further out on the line, plug its *x* value into the equation and check to see if you get the expected *y* value).

Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Step by Step** Having a good strategy for solving problems is very important. Solve a few math problems in an extremely thorough, step-by-step way. It may seem like an over-analysis of the problem, however, analyzing problems in detail can help you with reasoning patterns, as well as make you a faster problem solver. Use a ruler to divide a page into five sections and fill the sections in with answers to the following questions: (1) What is the problem asking me to do? (2) What information do I have? (3) What information do I need? (4) How do I solve the problem (write equations, formulas, or operations)? (5) After solving it ask yourself: Is the answer correct? Then, check back. **MODERATE MASTERY** ◒ **Inductive and Deductive Reasoning** *Deductive reasoning* applies general principles to reach specific conclusions. *Inductive reasoning* examines specific information—perhaps many pieces of specific information—to derive a general principle. Discuss examples of each kind of problem solving, both those that your child sees in math class and those he or she might see in real life. In the case of Algebra, an example of deductive reasoning would be using an equation like $y = 9n - 7$ to find values for y, when $n = 1, 2, 3$, and so on to make coordinates to produce a graph. Inductive reasoning would use a table of values or set of coordinates—for example, (1, 7), (2, 9), (3, 11)—to come up with the equation $y = 2x + 5$. Which does your child use more and why?
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Analyze Yourself** As painful as it might be, it is important that you study and learn from your mistakes. In this exercise, you will analyze mistakes made on quizzes and assignments. Were your errors due to calculating incorrectly, misreading questions, interpreting questions incorrectly, or drawing diagrams incorrectly? Often, errors are made from crowding work on a page, perhaps to save space on the paper. If this is the case, try using unlined paper and writing more clearly. Using different colors for different steps of a problem can also help make Math equations—especially long ones—clearer. If possible, keep a journal of Math errors over time. Are you able to use strategies to reduce mistakes? Do you typically make the same type of mistake when you start new material? How can you prevent this? **MODERATE MASTERY** ◒ **Media Math** When students take the time to observe the world around them, they find that math is part of many things. In this activity, help your child analyze math he or she sees in newspapers, on the Internet, on television, and in other places relevant to his or her life. Have your child make clippings of articles or write small summary paragraphs about items he or she has seen on TV or on the Internet. How is math used in the clipping? Is it used correctly, or are there errors? Are the errors true mistakes, or has an advertiser cleverly tried to trick readers or watchers by bending true math a little? What operations are used, and are they used correctly? Is the math explained in a clearly understandable way?

Return to Table of Contents

GRADE 9 READING

GRADE 9 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Reconstructing Sequence** When reading, make sure that you understand the text well enough to remember the sequence (order) of events. This skill helps you understand what you read. On note cards, write the main events of the text you are reading, one event per card. Mix the cards up and then put the events in time order by arranging the cards on a tabletop. If you have difficulty, consult the text for help. The note card format makes it easy to arrange and rearrange the events. When the sequence is correct, use the cards to ask yourself questions about when events occurred. For example, select two cards, and then ask questions like: *Does John fall down before or after Mary finds the cat?* **MODERATE MASTERY** ◒ **Word Detective** Students must be able to define unfamiliar words they come across in order to understand the meaning of a text. Remind your child that authors often include context clues (words that provide hints to the meaning of a new word) to help readers decipher unfamiliar vocabulary. The author may have provided a synonym (a word with the same meaning), antonym (a word with the opposite meaning), example, explanation, or restatement that helps clarify the unfamiliar word. Help your student identify and use the context clues in the following sentences to determine the meanings of the italicized words: 1) The movie and the book were not exactly the same. The movie was an *adaptation* of the book. 2) The *belligerent* driver became angry when a car pulled in front of him. 3) The party was *festive;* it was not dull.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Questioning the Text** When reading, it's important to move beyond the literal meaning (the actual meaning of what is stated in the text) in order to draw conclusions (form judgments based on evidence) and make inferences (guesses about things that are not in the text). You can draw conclusions and make inferences when you combine story clues with your own knowledge and experiences to evaluate facts (conclusion), or to fill in missing information (inference). Learn to draw conclusions and make inferences by asking questions about the text. For example, *Why does the main character act in a particular way?* Then fill in the blanks with information from the story to answer the question: *I know from the story that _____. I know from my own knowledge or experience that _____. I can conclude (or infer) that _____.* **MODERATE MASTERY** ◒ **Story Diagram** Students need to be able to identify story elements like character (who the story is about), setting (where and when the story takes place), plot (story events), and climax (the turning point, where everything changes). Have your child use a plot diagram—a horizontal line with a triangular spike in the middle—to record these elements. Write character and setting details at the beginning of the line. Record the events (the main character's problem and how he or she tries to solve it) on the left side of the triangle. Write the most exciting or intense event at the top of the triangle and events that lead to

	the problem's solution on the right side of the triangle. Write the resolution to the problem at the end of the line. Point out that many stories follow this narrative structure.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **In Pursuit of Purpose** Identifying an author's purpose for writing is an essential part of understanding a text's message. Authors write for varying purposes: to give information, to persuade or convince, and to entertain or amuse. Skim a variety of fiction (stories from the imagination) and nonfiction (writing that gives information or describes real events) texts. Using a three-columned chart, list the titles and genres (the category a story falls into, such as science fiction or historical fiction) in the first column. In the second column, list the authors' primary purpose for writing. In the third column, list text clues that help you determine the purpose. For example, you might list persuasive language, facts, or humorous language. Finally, examine your chart. What conclusions can you draw about the relationship between genre and purpose? **MODERATE MASTERY** ◒ **Evaluate Effectiveness** Students must be able to identify the author's purpose for writing in order to understand the writer's message. Once the purpose is identified, the next step in the reading process is to evaluate how effectively the writer achieves his or her purpose. For example, if the writer's purpose is to persuade (convince the reader to act or think a certain way), readers must consider whether or not they find themselves persuaded and why. Read a persuasive text with your child. Then use these sentence frames to help your child evaluate the author's effectiveness. *The writer's purpose is to persuade me to _____. The writer uses these techniques to persuade me: _____. I am persuaded (or not persuaded) by the author's argument because _____.*
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **An Exercise in Evaluation** It is important to carefully consider varying points of view. You must decide whether you agree or disagree with an author's viewpoint and why. The ability to evaluate (examine and judge carefully) and to explain one's reasoning is an important part of critical thinking. Discuss these two contrasting statements with a partner: —Being a teenager is the hardest part of a person's life. There is so much pressure to fit in socially, and parents are too overprotective of their teenage children. —The teenage years are the best! That's when you can start going out more and meeting new groups of people. You start getting treated like an independent adult without having to deal with serious responsibilities. Then evaluate each statement by agreeing or disagreeing with it and explaining your reasoning. **MODERATE MASTERY** ◒ **Functional Forms** Students must be able to read functional texts such as forms and applications. You can help your child practice this important skill by gathering a variety of forms and applications from various businesses or downloading them from websites. College websites are a great resource! With your child, read each form and discuss its purpose. Why is this company or organization asking applicants to complete this form? Consider the kind of information requested. What will the agency do with this information? What will they learn about the applicant? Does any of the information raise concerns regarding privacy?

Return to Table of Contents

GRADE 9 WRITING / LANGUAGE

GRADE 9 OBJECTIVES	MASTERY
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **Subordinate Shifts** Good writers use a variety of sentences to keep their writing interesting. One easy way to eliminate too many short sentences from your writing is to combine sentences. Using a subordinate clause (an incomplete thought that contains a subject and action), to combine short sentences into one sentence. For example*, Jenny yawned. She fell asleep.* Combined: *After Jenny yawned, she fell right to sleep*. Now combine the following sentences into a single sentence: The boy walked home. He came from the bus stop. He paused to watch a bird. It was a red bird. The bird was in an oak tree. The tree was tall. The bird seemed to be hiding. *(As the boy walked home from the bus stop, he paused to watch a red bird that seemed to be hiding in a tall oak tree.)* **MODERATE MASTERY** ◒ **Conjunctive Connections** Students need to be able to write pieces that flow smoothly. Too many short sentences cause writing to be choppy. Teach your child to combine sentences by using coordinating conjunctions or conjunctive adverbs. Coordinating conjunctions connect equally important ideas, and include words such as *and, but, for,* and *or.* Conjunctive adverbs show relationships between ideas and include words such as *also, besides, however, then,* and *therefore.* Have your child use one coordinating conjunction and conjunctive adverb to combine the following sentences in two different ways: I have a soccer game. I want to go to my friend's costume party. (*I have a soccer game, but I want to go to my friend's costume party.)* (*I have a soccer game; however, I want to go to my friend's costume party.)* Come up with several more examples for your child to combine. **Run-on Ramble** It is important to avoid run-on sentences (more than one sentence connected without proper punctuation or a linking word) because they can be confusing. Study these common run-on mistakes: 1) *I mailed the letter I went to the market.* 2) *I mailed the letter, I went to the market.* 3) *I mailed the letter and I went to the market.* There are several ways to correct run-ons: 1) Using a period to separate sentences: rather than simply being told about the information. 2) Using correct punctuation to connect sentences: *I mailed the letter; I went to the market or I mailed the letter, and I went to the market.* 3) Combining sentences*: I mailed the letter and went to the market.* Find a run-on in your own writing, and use these examples to correct run-on sentences.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Narrow Your Focus** One of the most important steps in the research process is choosing a topic that is manageable. If your topic is too broad, the research process can be time-consuming, frustrating, and difficult to organize. Learn to narrow a research topic by using an upside-down triangle. Divide the triangle with two horizontal lines. Write a subject you are interested in researching in the first section. For example, *endangered species.* In the second section, ask yourself, *What specifically do I want to know about this topic*? *For example, what animals are endangered species and why?.* In the third section, as you move to the point, ask yourself the same question to narrow the topic even more. For example, *Why are polar bears on the endangered species list?*

	MODERATE MASTERY ◒ **Audience Approval** When students write, they need to keep their audience in mind when making decisions about organization and vocabulary. A writer must consider a number of important questions: 1) Who is the audience? Peers, friends, teachers, or others? 2) What does the audience know about the subject? 3) What is the purpose of the writing—to persuade (convince someone to do something), entertain (amuse), or inform (give information)? Answering these questions will help your child choose the right organizational structure and vocabulary. Have your child read the following sentences: 1) *I am qualified to work at your music store because I am good at math and I love music.* 2) *Are you fed up with the crowds in the hallways between classes?* Ask, *who is the intended audience? How do you know? What is the purpose of the writing?*
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Computers: Can't Live With Them, Can't Live Without Them** Many writers believe that computer spell-check programs will save them the trouble of having to learn spelling and grammar rules. While these programs are helpful when editing, they are unable to read for meaning. They cannot tell when the incorrect form of a homophone (words that sound the same but have different meanings) is used. The spell checker would miss this error: *Their will be a test tomorrow.* While spelled correctly, the word *their* is the wrong form—it should be *there.* Review and edit the following sentences: 1) Your the best speller in you're class. . (You're…your class); 2) There are to many words for me too learn two spell. (too many…to learn). Discuss with a partner why a computer spell-check program would not catch the errors. **MODERATE MASTERY** ◒ **Adverb Assistance** Students need to be able to use language and sentences correctly to write clearly. To improve your child's writing, help him or her understand and use adverbs correctly. Adverbs tell the *when, where,* and *how* of a sentence by giving more information about verbs (action words), adjectives (describing words), and other adverbs. Many adverbs end with the letters *-ly.* When describing a verb, the adverb may be placed in different locations within a sentence: *The boat dipped dangerously in the water. Dangerously, the boat dipped in the water.* When describing an adjective or another adverb, the adverb is placed in front of the adjective or adverb: *The captain raised the sail quite vigorously.* Help your child add the adverbs in parentheses to these sentences: 1) The cat stretched on the couch. (lazily). 2) The falling snow blanketed the countryside. (softly).

Return to Table of Contents

GRADE 9 SCIENCE

GRADE 9 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Acid-Base Cabbage Indicators** This hands-on activity is a safe and fun way to do science at home. Make acid-base indicators using a red cabbage. Chop a red cabbage and boil it until the water turns blue-purple. Filter out the solid cabbage and divide the cabbage juice into several small cups or glasses. Now you can add various household substances to the juice, which will turn a different color depending on the pH (acidity) of the substance you add. Try lemon juice, baking soda, milk, vinegar, antacid tablets, window cleaner, or other safe substances. The indicator juice will turn red at very low pH, purplish at neutral pH (7), and green at high pH values. Line up the juice indicators from lowest to highest pH. Which substances are most acidic (low pH)? Which are most basic (high pH)? Were you surprised by any results? **MODERATE MASTERY** ◒ **Consumer Reporting** Your child can practice basic science inquiry skills by comparing different household cleaners. How do "natural" cleaners compare to commercial equivalents? Are they equally effective at removing stains or polishing furniture? Help your child come up with a hypothesis about different household cleaners and design an experiment to test them. Supervise or help your child carry it out. Have him or her write a one-page report and present the collected data in a chart or graph. In the conclusion, your child should try to convince you to either switch cleaners or keep using your regular type. (CAUTION: Do not inhale or ingest any cleaning product. Do NOT mix bleach with ammonia, as this can produce a harmful gas.)
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Levers All Around Us** Students can better understand the physics of simple machines by examining their use in everyday objects. The lever is the most versatile simple machine. A lever can have its fulcrum, or pivot point, in the center like a see-saw; or at one end, like a crowbar. Learn about the three classes of lever from Internet or library references, and try to find examples of levers all around you. Can you locate the effort, load, and resistance? Doors, scissors, hammers, brooms, and tweezers are all levers. Examine how they work, and draw diagrams to describe how they make work easier. **MODERATE MASTERY** ◒ **Inertia in Action** Real-world observation can make physics clear for students. Inertia is the tendency of an object traveling in a straight line to keep traveling the same speed and direction unless an outside force acts on it. The next time your child rides in a car, bus, or train, point out what happens when the driver speeds up, slows down, or turns a corner. Ask, *How does your body move?* When the vehicle slows, a rider feels the upper body pulled forward. Inertia keeps a body moving at the original, faster speed while the rest of the vehicle is slowing. When the vehicle makes a left turn, a rider may feel pushed to the right. Ask, *How does inertia explain why wearing a seat belt keeps you safe?*

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Gelatin Cell** Make a model of a cell using edible or creative, three-dimensional components. For example, you might choose to form your cell using a pan of gelatin (to represent the cytoplasm). What will you use for the cell wall? What would be appropriate to use for the nucleus? You may also want to use symbolic items to represent organelles. For example, you might use a plastic lion figure for the nucleus because the lion rules the jungle and the nucleus rules the cell. Or you might use a jelly bean for a mitochondrion because they're both full of energy. Write captions for each of the components you chose and display or present your model. **MODERATE MASTERY** ◒ **Mendelian Family Tree** Students apply genetics in this activity. Some human traits are called simple Mendelian traits because they are determined by just one pair of gene alleles, just like Mendel's famous pea plants. These traits include whether earlobes are attached or unattached; whether dimples are present; whether the hairline forms a widow's peak; which thumb is placed over the other when hands are clasped; and whether a person can roll the tongue into an "o" shape. Do your family members differ in any of these traits? If so, help your child create a pedigree showing the members of each generation and which version of the trait they have. (See a textbook or other reference for an example of a traits chart.) Ask, *Based on the pedigree, which condition do you think is recessive and which is dominant?* Research your child's answer to see if you're correct.
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Moon Cycles** Observing actual patterns in nature can help you better understand textbook concepts. Observe the Moon each clear night for 28 days. Make a four-by-seven chart of boxes in your notebook, and sketch what the Moon looks like each night you observe it. A "waxing" Moon is one that is becoming more full, while a "waning" Moon is in the process of becoming a New Moon. Note whether the Moon is waxing or waning. Which side is lit when it is waxing? When it is waning? Based on your observations, figure out what the positions of the Moon, Earth, and Sun must be during each Moon phase. Does the Moon orbit clockwise or counterclockwise around Earth's northern hemisphere? How much of the Moon's surface is lit by the Sun at any one time? (Hint: The lit portion stays constant.) **MODERATE MASTERY** ◒ **Stovetop Plate Tectonics** This activity will help your child understand plate tectonics. Your child should know how both convection currents and plate tectonics work, but may not realize that the convection currents under Earth's crust are partly responsible for making the plates move. Together, fill a cooking pot (preferably clear) halfway with water, and break one or two disposable, polystyrene-foam cups into several small pieces that are more or less flat. Have your child place the foam pieces on top of the water; they should float. Then heat the pot on the stovetop, being careful to not let the water boil; simply heat it. Convection currents form in a heating fluid. Ask, *How do convection currents affect the foam "crust" on top of the water? How is this model similar to and different from actual tectonic activity?*

Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **Genetic Engineering** Advances in genetics have led to new ways of manufacturing drugs to cure illness and disease. When the hormone insulin was discovered in 1921, it was a life-saving find for people with type 1 diabetes mellitus. Type 1 diabetics who received insulin injections could lead nearly normal lives. However, the hormone was not produced in a laboratory. Pig pancreases were the source for the drug. Scientific advances in the 1980s allowed scientists to use recombinant DNA technology to create bacteria that produced insulin. How did the scientists create the bacteria? What other drugs or substances are produced in this way today? What other applications did this technology lead to? **MODERATE MASTERY** ◒ **Food Science** This activity will help students understand how science and technology are applied to food. When something dissolves in a liquid, the liquid remains clear. Adding salt to water produces a clear liquid. Add too much salt, and it no longer dissolves, the water turns cloudy and the undissolved salt settles to the bottom. It is a mixture. Discuss with your child whether they believe milk is a mixture or a solution? It is not clear, so it must be a mixture. But if so, why don't the different substances separate out, settling to the bottom or floating to the top? Help your child research the process of homogenization. Which of the following terms apply to milk: *mixture*; *solution*; *emulsion*; *colloid*; *suspension*; *aerosol*? Do any of the boxed foods in your home list an "emulsifier" as an ingredient? What does an emulsifier do?
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ 09_S_24_01S **Cool Science** Exploring the science behind cooling appliances (refrigerators and air conditioners) will help you appreciate how this technology affects our lives. Using Internet or library resources, find out how compressor coils work, then draw a diagram illustrating their function. When were compressor coils invented? How was this technology later improved? Have there been any negative consequences of using this technology (such as the use of ozone-depleting gases in refrigerators of the past)? Which regions of the U.S. developed after air conditioning became common? Do you think this was a cause or an effect of the technology? Discuss your findings with a family member or friend. **MODERATE MASTERY** ◒ **Ethics and Science** The history of science shows that it has sometimes been harmful to society. For example, in 1932, scientists at the United States Public Health Service performed a now-notorious study on human beings to find out the long-term effects of syphilis, a curable disease. Scientists recruited poor, uneducated African-American men from rural Alabama and prevented them from receiving treatment for their illness. The scientists' goal was to autopsy the men's bodies when they died to learn the effects of the disease. Help your child find out more about the Tuskegee Syphilis Experiment and pose the following questions: *Was the information the scientists wanted useful to doctors and public health workers? Should the study have been done? Could it have been done ethically? What practices do we have today to prevent something like this from happening again?*

History and Nature of Science contributor and contribution historical concepts nature of science science in ancient cultures time lines	**LOW MASTERY** ○ **Pasteurization** Scientific discoveries often lead to new technologies that improve our quality of life. One important discovery was made by Louis Pasteur, and the practice named after him—pasteurization—is applied to almost all of the milk sold in the United States. Using Internet or library resources, learn about pasteurization and its lasting impact on the food and medical industries. Then answer the following questions: What did Pasteur discover, and what was the experiment that convinced the world that he was right? What was the *doctrine of spontaneous generation*? What other practices do we apply Pasteur's ideas to today? (For example, how do we treat surgical instruments after they are used? **MODERATE MASTERY** ◒ **Old Theories, New Theories** Students can learn about how theories come to be accepted in science by investigating the history of *plate tectonic theory*. Use your textbook, an encyclopedia, library books, or the Internet to learn more about the history of this theory. You should be able to answer the following questions: Who proposed the theory of continental drift and how is it different from plate tectonics? What was the evidence for continental drift? Why was this theory not accepted by scientists? What was the evidence for plate tectonics, and why did scientists eventually come to accept it? What is the relationship between theories and evidence in science? Explain to a family member or friend what you have learned.

Return to Table of Contents

GRADE 10 SOCIAL STUDIES

GRADE 10 OBJECTIVES	MASTERY
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **Planning Your Dream Destination** Comparing and contrasting two different places helps you learn more about each place. Think of a distant place you would like to visit or move to permanently. Using an atlas or the Internet, find this place and the place you currently live on a world map. Answer these questions: *How far from home is your desired destination? How would you get there? What direction would you need to travel in order to get to your destination? What should you pack?* Find out the answers to these questions by researching both places. Make a chart showing the differences in these two places in elevation, climate, geography, and so forth. **MODERATE MASTERY** ◒ **Getting There from Here** When you plan a route from one place to another, it helps you practice estimating distance and giving directions. Think of a place that is in a different state, country, or on a different continent. Suppose you met a lost traveler in that place who needs directions to a specific place in the U.S. Think through each step of the route, the directions he will travel, and the modes of transportation he should use. Be specific in your directions, telling him the states or countries he will pass through on his way home, the highways or airports he will use, etc. Write down these directions and then check them on a map. Make any necessary corrections.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **Population Clues** United States population statistics can give you clues about what may have been going on at a particular time, both domestically and internationally. Research an almanac or the Internet to find the U.S. population over a period of 100 or more years. Realize that while populations often steadily increase, spikes can indicate times of domestic stability and prosperity, which often lead to an increase in immigration. Examine and evaluate the various population figures and dates you find. What events could have contributed to the changes from one date to another? Then choose one specific year to research. Look for primary source documents, cartoons, and posters from that time period. Do these confirm or contradict your inferences about population and important events of the time? **MODERATE MASTERY** ◒ **Your Town** You can gain a better perspective of local history and national trends by working with primary and secondary sources. Do some research on advancements made in transportation such as affordable automobiles and highway construction. See what impact these advancements may have had on massive suburban development. To conduct your research, visit your local historical society. Examine specific documents such as automobile dealership advertisements, images of highway construction blueprints, promotional materials from new housing and/or suburban developments, and so on. Do the primary materials support the secondary sources you read? Do they offer insight not found in your research? Create a Venn diagram to compare and contrast the primary and secondary sources.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **What If?** The first 10 Amendments to the Constitution guarantee specific rights to people in our nation. Locate a copy of the Constitution in a social studies textbook or on the Internet and carefully read through these Amendments. After you have examined each, ask yourself: *How would life in the United States be different if this Amendment did not exist? Would life be as fair? Would some people be treated differently? What would change in daily life?* When you have finished, make a list of the top five Amendments that would affect people's lives the most if they didn't exist. For each one, write a few notes to explain why you chose these particular amendments. You may also refer to others besides the Bill of Rights. **MODERATE MASTERY** ◒ **Let's Take a Vote** Voting is an important part of the democratic process. Since you will be old enough to vote soon, it is a good idea for you to understand voter-related issues, such as voter fraud and voter turnout. The former refers to improper or deceptive counting of votes in an election, and the latter refers to the number of people who show up at the polls on election day. Both have a significant impact on elections. Research these issues on the local and national level: *What percentage of registered voters showed up to vote in the last few elections? Why don't more people vote? Have there been incidents of voter fraud in the last few elections?* Take a poll of adults you know. Ask whether they are registered voters, if they voted in the last election, and what their reasons are for voting or not voting.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **Community Boosters** How does your region prosper? Companies based in your area bring money into the local economy by providing jobs for area residents and generating tax revenues for the community. But how do such companies find out about your area? Research the economic statistics of your region. Learn about the regional alliances for your area. *How do these alliances make sure prospective businesses learn about your area? What selling points are included in presentations made to these prospective businesses? Who are the members of the alliance?* Create a fact sheet based on your findings that tells about the alliance. Also, include some of the information it provides to businesses looking to set up operations in a new place. **MODERATE MASTERY** ◒ **Economic Conditions** Words such as *recession, depression, and inflation* are often used to describe the economy, but what do these terms really mean? Look up the meaning of each term in a dictionary. Then answer these questions: *What often happens to the unemployment rate during an economic recession or depression? What is inflation and how does it factor in?* Write down your answers to these questions. Then look at ways our government has tried to help the economy in times of economic recession and depression. *Do banks raise or lower their interest rates? How have government programs helped "correct" the situation? How do economists predict a recession or depression? How do they determine that it has ended?*

Return to Table of Contents

GRADE 10 MATH

GRADE 10 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Factor Venn Diagrams** This is a good activity to do with a friend to practice factoring and reducing radicals. First, make up a "pool" of large radicals, such as the square root of 125, the square root of 124, the square root of 24, and the square root of 48. Write at least 12 radicals on index cards. Each person should draw 5 cards from the pile and create a 3-circle Venn diagram. Labels to use for your circles include: Has a factor of 5, has a factor of 2, and has a factor of 3. Remember that the number has to be squared under the root sign to be considered a whole factor. Write the numbers in the appropriate areas of your Venn diagram and if the numbers don't have 2, 3, or 5 as a factor, they should be written outside your Venn diagram. Then check each other's work. **MODERATE MASTERY** ◒ **Scientific Notation** Mathematicians and scientists often have to work with numbers that are extremely large or small. Scientific notation is a simpler, easier to use format for writing numbers at either extreme. Use the Internet to find reliable articles that talk about examples of scientific notation. Write down each example, as well as the source and what the number describes (for measurements, write out the units; for counting numbers, write out what's being counted). Compare results with fellow students. Did you find more examples of very large numbers than very small numbers? In which applications did you find large numbers and small numbers? Do you think that in articles intended for the general public—such as newspaper articles—it is better to use scientific notation, standard format (to write out all the zeros to show the number), or to use words when possible? Why do you think so?
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Exponent Table** This simple exercise can help you remember and understand exponents. On paper, create a table that has 14 rows and 10 columns. Number the columns across the top with the exponent numbers 1 through 10. Number the rows down the side with base numbers 2 through 15. Calculate the value of the exponents in each box in the grid (for example, the top left box is *2* because *2 to the first power =2*). Isolate and compare certain rows (such as rows *3*, *6*, and *9* or rows *4*, *8*, and *12*). Now compare the numbers in the grid. Are there patterns? Are there any places where the pattern is not what you expected? **MODERATE MASTERY** ◒ **Not Just Any Flash Cards** Use this game to challenge yourself and your friends to practice math calculation skills with radicals. You can play this game with or without a calculator. Cut index cards into halves to make playing cards. Make a few dozen cards for each stack. Write the perfect squares with a square root from 4 to 100 (the square root of 4, the square root of 9, …, the square root of 100). Now write square roots for several other numbers, both large and small. In round 1, flip the first card and estimate the answer. In round 2, give exact answers. Players get one point for each correct answer. The first person to answer gets an additional point. The first player to reach 21 points wins.

Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Volume Rate Problems** When calculating flow-rate problems, it's important to carefully keep track of units to get the correct answer. To practice, calculate how quickly a 10-foot tall, cylindrical tank with a radius of four feet will empty if it's three-quarters full and empties at a rate of two cubic feet per minute. Start by writing out the units you know. You know you need to find a time period. You have a rate in cubic feet per minute (ft cubed/min). You can find the volume (ft cubed) by using the height (three-quarters of 10 feet) and radius (four feet) to find the volume of the tank. Divide this volume by two ft cubed/min to find the time it would take to empty the tank. As is the case with many types of math problems, drawing a picture can frequently help keep the units you are using straight! **MODERATE MASTERY** ◒ **Public Building** Learning to estimate materials required to construct something is an important skill because it helps students understand how to use resources efficiently. Locate an interesting public building that contains nonrectangular shapes (if possible). Estimate the area of the outside of the structure, categorizing areas according to the materials they are made of (for example, estimate area of glass surfaces separately from brick). Find the cost of the materials, then calculate how much the "skin" of the building would cost to assemble. Do you think the look of the building is worth the cost? Does this particular "skin" provide good insulation, plenty of light, or some other benefit? If you were to change the exterior materials, would your change increase or decrease the cost?
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **Stained Glass Pattern** There are countless ways to use geometry concepts. Try your hand at using geometry to create something cool. For example, create a stained glass pattern for a 3 ft x 3 ft square window with smaller panes (or sections), using triangles and arcs. Stained glass windows use lead strips for the dark lines of the pattern. The amount of lead determines how costly a window pane will be. Figure out what length of lead strips you will need to use for your pattern. Use the Pythagorean Theorem, a squared + b squared = c squared, as well as the formula for arc length of a circle, $d = 2(pi)r \times$ theta/360 degrees.. Which shapes create a more expensive design? Which shapes produce a more economical design? Explain your answer. **MODERATE MASTERY** ◒ **Dream Castle** Have you ever visited an old castle or seen a picture of one? Using cones, cubes, triangular prisms, and other regular three-dimensional objects, design your own castle. Make a drawing of the castle, including actual dimensions of each shape. Finally, shade your drawing to show which parts are stone walls, which parts are windows, and which parts are the roof. How many square feet of roofing are there? How many square feet of glass are there for windows? How many cubic feet of stone are needed if all walls are one foot thick? Conduct some research to find the cost of building materials, then calculate the cost of the castle exterior you've created.
Data Analysis, Statistics, and Probability read pictograph select data display read bar graph	**LOW MASTERY** ○ **Data Analysis** Statistics are reported on many things—from sports to weather to economics. What are you interested in? If there are numbers involved, using statistics may help you better

read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	understand your area of interest, such as tracking monthly snowfall at a local ski resort. First, collect data for a set period, then find the mean, median, range, and mode of the data. Which measure or graph do you think is the most useful to illustrate your data set? (All of the statistics, with the exception of the median, would be helpful, and a line graph would be a great way to display the data.) Describe and interpret your data set. Is it clustered together? Is it widely spread? What are the reasons for the pattern? How is the median average different than the mean average? Consider what caused the difference. **MODERATE MASTERY** ◒ **Polling Statistics** Pretend that you work with a marketing company. You have been assigned to find information for a new product marketed to teens. Choose a product to research, such as an MP3 player, hiking boots, or a brand of jeans. Then poll your friends or other students to find important information the marketing company can use to promote the product. Decide what data to gather. Do you need to know the teens' ages, sizes, or hair color? Should you ask how much people spend on music, games, and entertainment each month? Collect the data from a group of peers at the mall or over the Internet. Now analyze the data. Determine the mean, median, mode, and range of the data? What does this mean from the marketing company's point of view?
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Write Business Solutions** Business owners need to do a good deal of math, and there are numerous software packages available to help with business calculations, such as taxes, profits, and expenditures. However, just as you should understand the math you use when using your calculator, so too must business owners understand why they put each number into a spreadsheet or calculation program. Write an equation you could use to solve some aspect of business math, such as the total profit on a quantity of wholesale items. Now write an instructional guide that explains the data the business owner should enter, and what the equation will calculate. Try to automate the equation by putting it into a spreadsheet. Double check your answers to be sure the spreadsheet is calculating correctly. **MODERATE MASTERY** ◒ **Solve Quadratic Equations** In this activity you can make up many different quadratic equations and note whether there is a pattern to their solutions. Use dice to roll coefficients *a*, *b*, and *c* in the equation *a(x* squared*)* + *bx* + *c.* Roll three dice—either all at once or one die three times in a row—for each equation. Then use the quadratic formula to find solutions (assuming there are any). Create a table of solutions with the headings *Quadratic Equation*, *Coefficients*, and *Solutions* (if any). What patterns in the solutions do you notice? Can you make generalizations about the relationship of *b* to *ac*, as well as the relationship of the number of solutions to an equation? Practice making your own equations with no solutions, one solution, and two solutions.
Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution	**LOW MASTERY** ○ **Logic and Reasoning** How do you think your way through a problem? Do you start by laying out the information that you know in an organized format? Do you act on a hunch? Do you visualize a solution and then figure out the steps needed to get to that solution? Do you estimate to check your answer? Do you use diagrams, information chunking, or written step-by-step procedures? Do you pay attention to your units? Jot down your usual reasoning

deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	methods, and identify the methods you have used with old problems. Evaluate the methods that work best for you in terms of getting the right answer (for example, students who routinely "act a hunch" and ignore the problem details often get many answers wrong). Explain how you plan to improve your methods. Because everyone thinks differently, what works well for you, may not work as well for someone else. **MODERATE MASTERY** ◒ **But What Do I Know?** Some students find it difficult to accurately complete problems requiring multiple steps. It can be helpful to break a problem into parts in a systematic way. Consider the following problem: *You decide to paint the walls in your room. How many cans of paint should you buy and how much will the paint cost?* You complete several steps to find the answer. First, be sure you understand what you already know, and what you need to calculate. You need to find the square footage to be painted, how many cans of paint to buy, and the cost per can. First, measure the room. Then determine what formulas you'll need to find area. Using the area, determine how many cans of paint you will need, then multiply by cost per can. Carefully work through the problem, step-by-step, and you are likely to succeed.
Communication model math situations relate models to ideas make conjectures evaluate ideas math notation explain thinking explain solution process	**LOW MASTERY** ○ **Sine Waves** There are many models in science and social studies that rely on sine waves. Models of human behavior, studies of electromagnetic radiation, computing and electrical technologies, space exploration, and color research all include sine waves. Research some of these models and create a poster that explains their similarities and differences. When do scientists add or subtract sine waves? What other transformations of the standard sine equation did you find during your research? Look up the difference between analog and digital signals. How do these signals use or modify a standard sine wave to transmit information? Be sure you are able to define key characteristics like wavelength and amplitude. How does adjusting coefficients in the sine wave function affect these characteristics? **MODERATE MASTERY** ◒ **Exponential Graphs** An exponential graph can be calculated with the equation $y = n$ squared. What situations can be represented by exponential graphs? Which situations can be closely approximated with exponential graphs? Think of and then research different situations in biology, physics, and chemistry, then, make some exponential graphs, and write a paragraph to explain what each graph means. Topics you might consider for research include the following: growth of bacteria, population explosions (animal populations, as well as the human population on Earth), nuclear reactions, and successful word-of-mouth marketing. What other topics did you come across?

Return to Table of Contents

GRADE 10 READING

GRADE 10 OBJECTIVES	MASTERY
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Sequence Tree** When reading, make sure that you can retell the sequence (order) of events. This skill helps you understand how different events affect the characters (who the story is about) and plot (what happens during the story). Write several main events from a story in chronological (time) order on a vertical line. To the left and right of each event, draw a horizontal line. The finished diagram should resemble a tree trunk with extending branches. Use the horizontal lines to record what happens before and after each event on the vertical line. Use sequence words to record these event trios such as, First, _____. Next, _____. Finally, _____. Pay attention to how each event leads directly to the next event. In a well-constructed plot, there are no unnecessary events. Each event lays the groundwork for the next event. **MODERATE MASTERY** ◒ **Reading/Writing Partnership** Authors use words to convey their ideas to their readers. Readers have the responsibility of using the clues authors provide to help construct this meaning. When reading, you are likely to find an unfamiliar vocabulary word or two. Understanding key vocabulary is essential to understanding the meaning of words. Often authors provide context clues such as synonyms (words with the same meaning), antonyms (words with the opposite meaning), examples, explanations, or restatements to help clarify unfamiliar words. Rewrite the following sentences to include context clues for the italicized grade-level vocabulary words. Look up any words with which you are unfamiliar. Uncle Jeff is *eccentric.* She *radiates* happiness. Please *tabulate* the results. Maia is *proficient* in math. The pond water is *stagnant.*
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Poetry Primer** Poets use figures of speech such as similes (comparing two things using the words *like* or *as*), metaphors (directly comparing two things), and personification (giving a nonhuman item human characteristics), to help readers think about familiar subjects in new ways. They also use sound devices such as alliteration (repeated beginning consonant sound), assonance (repeated middle vowel sound), and onomatopoeia (words that sound like what they mean) which influence the reader's thoughts and emotions. Now analyze the poetic techniques in this example: *The white-capped waves splashed the sand like an overfull glass of root beer.* **MODERATE MASTERY** ◒ **Smart Consumerism** The purpose of advertising is to get consumers to change their behavior or thinking so that they will buy a new product, believe a certain idea, or vote for a particular candidate. To achieve these purposes, advertisers use several persuasive techniques. They may appeal to the consumer's emotions by promising perfection, popularity, or safety in exchange for their dollars. They may use an endorsement, or an "expert," to convince consumers to think or act a certain way. They may suggest that their candidate is the most moral (decent and ethical) and so consumers should believe what the candidate believes. Study a series of print or video advertisements to identify examples where the

	advertisers make promises, use endorsements, or ask consumers to think morally or ethically. Talk to a partner about what you observe.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **Experiment with Point of View** As a reader, you need to be able to recognize an author's point of view. There are three common narrators (person who tells the story). A first-person narrator (recognized by pronouns *I, me, we*) is a character in the story who reports events that he or she witnesses and tells only his or her own thoughts and feelings. A limited third-person narrator (characterized by pronouns *he, she, they*), who is not a character in the story, focuses on the thoughts and feelings of one character and reports all action and dialogue. An omniscient third-person narrator (uses pronouns *he, she, they)*, who is not a character in the story, reports all thoughts, feelings, actions, and dialogue. Using a short passage of text, identify the point of view. Then rewrite the passage using the other two points of view. **MODERATE MASTERY** ◒ **Author's Perspective** Author's point of view includes the author's feelings toward the subject. The writer's words help create the tone (attitude) of the piece. The author may reveal certain biases for or against his or her subject. Thinking about why an author has a certain viewpoint will help you better understand that viewpoint. Read this sentence: *The innovative family painted their house an intriguing shade of purple.* Now read another author's perspective: *The family embarrassed the neighbors by painting their house a revolting shade of purple.* How does the perspective toward the family's paint job change in the second sentence? Why do you think the author of the second sentence has this attitude? Is it possible he or she lives next door to the purple house or simply hates the color purple? In each sentence, which words reveal the author's perspective?
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Savvy Synthesis** Synthesizing is the ability to bring together separate parts to form a whole. Good readers are able to synthesize information from various sources. This skill enables readers to expand their knowledge of a given subject. To practice this skill, gather different sources on a common subject such as the college application process. Try to locate sources like advertisements, applications, graphs or diagrams, interviews or testimonials, websites, and written texts. Study or read all of the sources you find. Then synthesize this information to write a list of five schools you would like to apply to or that you would recommend to others. For each school, include at least three reasons why you chose this school. **MODERATE MASTERY** ◒ **Dissecting Diagrams** When writers work to communicate complex information, they sometimes include diagrams or drawings that illustrate the ideas or a process. The ability to interpret complex diagrams will help you understand and visualize complex information. Skim your science or social studies textbook to find diagrams. Examine the diagrams and read all the labels or captions. What does each diagram show? Why do you think the author chose to include a diagram of this information? What does the diagram help you understand about the subject that words could not express? Using these diagrams as models, draw your own diagram of a complex item or process with which you are

	familiar. For example, you may draw a diagram that shows how to pass a football or play a guitar.

Return to Table of Contents

GRADE 10 WRITING / LANGUAGE

GRADE 10 OBJECTIVES	**MASTERY**
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **You Don't Need to Repeat Yourself** Wordiness (too many words) and unnecessary repetition distract from a writer's message. They occur when a writer states an idea and then restates the same idea in another way. For example, *I was happy and joyful*. Or *We offer complimentary gift-wrapping free of charge*. Good writers eliminate these common writing errors during the drafting process. Compare these examples: 1: I would make a good cash register attendant because of my math and social skills. 2: I would make an excellent, outstanding cash register attendant because I have math skills, and I'm good with numbers. Which example would be a more effective statement on a job application and why? Now how would you revise this statement? *I was a reliable and dependable cash register attendant at a restaurant. I used a cash register to enter people's bill totals and provide change.* **MODERATE MASTERY** ◒ **Run-on Ramble** It is important to avoid run-on sentences (more than one sentence connected without proper punctuation or a linking word) because they can be confusing. Study these common run-on mistakes: 1) *I mailed the letter I went to the market.* 2) *I mailed the letter, I went to the market.* 3) *I mailed the letter and I went to the market.* There are several ways to correct run-ons: 1) Using a period to separate sentences: rather than simply being told about the information. 2) Using correct punctuation to connect sentences: *I mailed the letter; I went to the market or I mailed the letter, and I went to the market.* 3) Combining sentences: *I mailed the letter and went to the market.* Find a run-on in your own writing, and use these examples to correct run-on sentences.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **It's a Formal Affair** When writing, it's important that you choose language appropriate for your audience. Failure to do so may cost you attention or respect. Formal language follows the rules of standard grammar and usage. Formal language is appropriate when writing for teachers, employers, or other adults. Informal language includes contractions (such as *can't)* and slang. Informal language is appropriate when writing some fiction, personal letters, or e-mails. Read the following passage. How would you rewrite this passage so that it was acceptable for a class assignment? In Shakespeare's *Romeo and Juliet,* the dudes in the play use the feud to show everyone that they are real men. Lords Montague and Capulet are posers though—when they're not with their peeps, they let the feud slide. Mercutio and Tybalt have something to prove. Those brothers wave their swords around to get their props. **MODERATE MASTERY** ◒ **What Did You Say?** Good writers make their writing interesting by showing rather than telling. Instead of simply stating what your characters are feeling (such as *Juan was sad),* you want your readers to understand and feel the emotions as they happen. Adding dialogue (talking between characters) is one way to accomplish this. Rather than telling readers about

	conversations, allow your readers to hear the actual conversations. Compare and contrast these examples: Mai looked worried as she and her mother talked about the upcoming prom. "I'm worried no one will ask me to the prom," Mai confided to her mother. Now convert this sentence to dialogue. Remember to punctuate the dialogue correctly. Use the above model as a guide. *Juan's father smiled while he and Juan talked about school.*
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **Be an Authority on Adverbs** Good writers follow the rules of grammar and word usage. Using adverbs correctly will make your writing clearer and more interesting. Adverbs describe verbs, adjectives, and other adverbs by explaining *when, where,* and *how.* Some less familiar adverbs that are commonly used are: negative adverbs *(no, not,* and words such as *rarely* and *seldom)* and comparative adverbs *(calmly, more calmly, most calmly).* While adverbs that tell about verbs (action words) may occur in various places in a sentence, adverbs that tell about adjectives or other adverbs occur before the words they describe. Study these examples: *Seldom* could I hear the actress. (*seldom* tells about the verb *hear*). The leading actor was *extremely loud*. (*extremely* tells about the adjective *loud).* Now use negative or comparative adverbs to write five original sentences. Be sure to check placement. **MODERATE MASTERY** ◒ **Be Alert About Adjectives** Use adjectives (describing words) to communicate your ideas and make your writing more descriptive. Adjectives give more information about nouns (people, places, things, and ideas) and pronouns (words that take the place of nouns such as *she, he,* and *they*). They tell *what, which,* and *how.* Some adjectives make comparisons *(tall, taller, tallest).* Some adjectives are formed from proper nouns *(French language).* Some possessive (shows ownership) nouns and pronouns act as adjectives *(teacher's class; my class).* A pronoun sometimes acts like an adjective, too *(his dog).* Study these examples: The *biggest* cave in the park housed many bats. Julia loves to eat *Mexican* food. The *coach's* team met on the playing field. Kaley adopted *that* cat. Now take five sentences from your writing and revise them, adding different types of adjectives.

Return to Table of Contents

GRADE 10 SCIENCE

GRADE 10 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Studying People** This investigation you can do at home will show you what scientists need to think about when doing research on human behavior. You will investigate whether the food advertisements on television encourage people to eat more. How would you measure and record how much a viewer eats? Counting the number of snacks or trips to the kitchen is easier but less accurate than counting the number of calories consumed. Choose a subject to observe. Will you tell him or her you will be observing his or her snacking habits, or might that change the way they behave? What will be your control or baseline measure? In other words, how will you know it was the commercials and not simply the act of watching a show that led to snacking? Carry out your study and share the results with family members and friends. **MODERATE MASTERY** ◒ **Kernel of Truth** Doing hands-on experiments at home can help you develop basic science inquiry skills. How would you test the hypothesis that popcorn pops because there is a little bit of water inside the kernel? Think of ways to change the water content inside popcorn kernels (heating kernels in a 200° oven, soaking them in water, scratching their shells, freezing them, etc.). What factors will you control in your experiment (what will you keep the same)? Will you need a control group of popcorn kernels? Write down your procedures and pop the kernels using the same method for each group then compare the results. What are some possible explanations for the differences between the popped batches? Share your results (and your popcorn!) with a family member or friend.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Matter Matters** Doing this hands-on experiment at home can demonstrate the basic laws of matter. Soak a piece of soap-free steel iron or wool (from a supermarket or paint or hardware store) in vinegar for about fifteen minutes. Then rinse it and place it in a jar with a small amount of water. Seal the jar by placing a balloon or latex glove over the top and holding it in place securely with a rubber band. Observe what happens over the next few hours. Did the steel wool change? What happened to the jar's cover? (Hint: The chemical formula for the product of this reaction is Fe_2O_3.) Did this experiment show you that matter is conserved in a chemical reaction? How do you know? **MODERATE MASTERY** ◒ **Falling for Gravity** You may have heard the force of gravity described as an acceleration. What does this mean? An acceleration is any force that changes the speed or direction of motion of an object. If an object falls out of a small plane toward the ground, it is pulled by the force of gravity. Does it move at a constant speed? How does gravity affect its speed? Check your answer using textbook or Internet resources. On a planet with an atmosphere, like Earth, an additional force acts on a falling object. Research the concept of *terminal velocity*. What does this mean? How does it work? Draw a diagram explaining what you have learned.

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Hybrids and Genes** Among dog breeders, purebred dogs are considered the finest, so detailed records are kept on the parents and ancestors of a purebred dog. The dogs of a single breed look very similar and share many of the same gene alleles. Recently, however, hybrid dogs have become all the rage, with names like Labradoodles and puggles. A Labradoodle is a cross between two purebreds, a Labrador retriever and a poodle. While a hybrid is valuable to people interested in dog breeds, the offspring of two hybrids is not. Why would the puppy of two Labradoodle parents not be a true Labradoodle? To help find the answer, draw a diagram of Labradoodle chromosomes and how they combine to make a fertilized egg. (Hint: Recombination is important.) What can you say about a hybrid's DNA that is not true of its offspring? **MODERATE MASTERY** ◒ **Cancer: Good Cells Gone Bad** Understanding the functions of genes in multicellular organisms is key to understanding cancer. You may have heard of different types of cancers—from those affecting brain tissue, to those of the lung, skin, blood, or just about any organ. To learn the causes and nature of cancer, find the answers to the following questions from Internet or library resources: What common characteristic do all cancers share? What makes a malignant tumor malignant? Why do chemicals that change DNA (mutagens) also contribute to cancers, and why is cancer called a "disease of age." What are the normal cell functions of oncogenes and of tumor suppressor genes? What happens when they stop working?
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Air and Climate** You may already know that the climate in Earth's different regions varies with the distance from the North and South poles. But did you know that pockets of air that wrap around Earth like a belt also affect climate? Using Internet or library resources, find the answers to the following questions: In which latitudes are most of Earth's deserts located? (Hint: They're not along the equator.) Which latitudes contain tropical rain forests? What kind of air causes dry climates? What kind of air is associated with humid climates? The "belts" in Earth's atmosphere are named after climate scientists. Who are they? **MODERATE MASTERY** ◒ **Danger Zones** To better understand earth science concepts, using Internet or library resources, research the answer to the following question: Why do earthquakes occur more often in some parts of the world than in others? Answering this question will help you understand the causes of earthquakes. Find illustrations that show where earthquakes have occurred over the past several hundred years. Then find a map showing Earth's tectonic plates. Do you see any relationship? How do the North American and the Nazca plates move, relative to each other? Where do they meet? What precautions should people in these areas take to protect them from earthquake damage? Draw a diagram explaining what you've learned.
Science and Technology careers design of technology science and technology	**LOW MASTERY** ○ **Roof Trusses**

use of technology	How do the laws of physics apply to roof trusses? Architects use trusses—beams of wood or steel assembled into one or more triangles—to create strong, rigid roofs. Find at least three different diagrams of roof trusses (try looking either on the Internet or in building magazines and books). What forces act throughout the structures, and where? Remember that the gravitational force is described by $F = mg$. Draw diagrams depicting the kind and direction of forces for each different kind of truss. What kind of truss would you use if you were building a house? Is one kind of truss more economical than the others? What other advantages and disadvantages are discussed in the resources where you found the diagrams? **MODERATE MASTERY** ◒ **Genetic Counseling** Science is not usually something people often think about, but it can be very important to couples who have had a child with a genetic condition, or who have ancestors with such a condition. Genetic counselors help these couples make decisions about future children by explaining the genetic causes and probabilities. Many genetic disorders are inherited in a simple way: they are caused by an allele at a single gene (locus). Suppose a couple has a baby with Tay-Sachs disease. They are both healthy, and have no history of the disease in their family. They want to have more children, but want to know the risk of another child being born with Tay-Sachs. As a genetic counselor, what do you tell them? Are there tests they can do to find out whether an embryo has the disease-causing genes?
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **GMO** Genetically modified organisms (GMO) have been useful in science and medicine, and corporations involved in agriculture have also gotten in on the act by making and selling GMO crops. How—and why—do scientists create these organisms? Why do large agricultural corporations do so? What are the benefits of genetically modifying, for example, a tomato plant? Farmers used to improve breeding and reproduction by selecting the best plants and animals of each generation. How does this method differ from genetically modifying an organism? What are the fears surrounding genetic modification of our food sources? Have any of these fears yet been validated? Explain why or why not. As you research the answers to these questions, be certain that your sources are verifiable and credible. Make sure to list all your sources, including specific web-links to specific articles. **MODERATE MASTERY** ◒ **A Matter of Extinction** Some scientists believe that more endangered animals have become extinct in recent years because of deforestation and land development by people. Others say that species have always gone through a constant process of change—including extinction—and that Earth's current situation is stable and normal. What do you think? Should we be concerned about animals becoming extinct? Is it just a natural process, or is it something governments and individuals should work to prevent? Using your local library or the Internet, research what scientists have learned about the roles endangered species play in the environment. Make a poster to present your findings.
History and Nature of Science contributor and contribution historical concepts nature of science science in ancient cultures	**LOW MASTERY** ○ **Modern Controversy** ◒ To understand the nature of science, it is helpful to examine disputes that arise between scientists over new findings. How are these disputes settled? The fossils of a hominid

time lines	(human-like creature) found on the island of Flores caused a debate among scientists over how it should be classified—as a distinct human lineage or a subtype of modern human. Find out more about this find from the library or Internet. What did the two groups of scientists provide as evidence for their claims? Were their claims reasonable and logical? Did one side have more compelling evidence than the other? What do most scientists believe now? Explain what you have learned to a friend or family member. **MODERATE MASTERY** **All in a Name** Scientific theories change over time, even though facts and observations do not. For example, chemistry underwent a major change in the late 1700s. Before then, scientists did not know that air is a mixture of gases. One of the first scientists to guess this was Joseph Priestley, who isolated several pure gases. He thought that air contained "phlogiston," a substance that made candles go out when placed in a closed jar, and animals die. Priestley isolated one gas that amazingly kept candles burning and small animals alive, even in an airtight container. He called it "dephlogisticated air"—air without phlogiston. At the same time, a French scientist named Lavoisier isolated the same gas, but he thought the idea of phlogiston in air was not useful anymore. What did he call this gas, and what change in chemistry did he bring about?

Return to Table of Contents

GRADE 11 SOCIAL STUDIES

GRADE 11 OBJECTIVES	**MASTERY**
Geographic Perspectives the world in spatial terms places and regions human systems environment and society	**LOW MASTERY** ○ **A Closer Look at an Environmental Problem** Humans have positively and negatively impacted the environment from the beginning of time. Today, issues such as industrial pollution, soil erosion, and fossil-fuel emissions are all contributing to drastic changes on the earth. Choose one of these problems to research in science magazines or on the Internet. Then answer these questions: *How did the problem start? How has it grown over time? How has the environment changed because of the problem? What has been done to help the environment? Are these problems more significant in one part of the world than another? If so, why?* Organize your findings in report format using charts and graphs to illustrate your data. **MODERATE MASTERY** ◒ **Mapping the World** To test your mental-mapping skills, draw a world map, without any globes or maps to guide you, on a large sheet of paper. Draw a large circle in the center, flattening the top and bottom of it slightly. This is your world map. Start by drawing the United States. Sketch the borders of as many states as you can, and label them with their names and capitals. Add the other countries of North America. Draw the world's five other continents, try to be accurate in shape, size, and location. Sketch the borders of countries and label them. Label bodies of water. When you have finished, use a globe or map to check your accuracy. Erase and redraw areas as necessary. Add any borders that you did not include on your map.
Historical and Cultural Perspectives cultures, cultural diversity people, places, events time, continuity, change historical research	**LOW MASTERY** ○ **History Makers** History is made every day. Think about the people and events that are currently making history. These observations make you aware of the historical and cultural impact of people's actions. For a week, read a series of newspapers and news magazines and watch the national evening news. As you do so, answer the following questions: *Which people are important? What events are making headlines? What domestic and foreign policies are being addressed and carried out? What technological advances are making news?* Use what you find to prepare a Table of Contents for a future social studies textbook. Then guess at which people, cultures, events, policies, and advances from this time period you think students will study fifty years from now. For each entry, write a note explaining why you think this entry will have lasting historical or cultural significance. **MODERATE MASTERY** ◒ **The Year's Top Ten** History is ongoing—today's current events become tomorrow's history. Look back at the past year's important events: technological advancements, governmental decisions, personal achievements of people in important positions. You can obtain a lot of this information by researching newspapers and magazines from the past year. As you research these events, ask yourself the following questions: *Why are these people and events important? How are people in the United States and around the world affected by the United States' governmental decisions?* Compile the year's Top 10 most important events so far. Keep the list until the end of the year. Compare your list to those that are broadcast on year-end news specials in television and newspapers.

Civics and Government Perspectives purposes of government democratic values and principles government processes and structures the role of the citizen world affairs	**LOW MASTERY** ○ **Government and the Economy** The Federal Reserve has the ability to raise and lower the interest rate that people pay on things. But how does it work? Do research on the Federal Reserve's official website. Keep the following questions in mind while doing your research: *Who gives this agency its power? Who is in charge of it? What is the economy like when it lowers interest rates? What does paying less interest help people do? What happens to the economy when the Federal Reserve raises interest rates? In what other ways does the Federal Reserve affect the economy? What is the history of the agency?* Make a brochure about this agency that explains the information you have just learned. **MODERATE MASTERY** ◒ **What the Departments Have in Store** It is important to understand the functions and responsibilities of various government departments and agencies. Make a list of all the government departments with which you are already familiar such as the Department of Homeland Security, the Department of Defense, and the Department of Education. Next research these departments using their official websites. Answer such questions as: *Which branch of government do the departments report to? How is a new department formed? How do these departments help people? What do people who work for these departments do? What are their annual budgets?* Study these answers and ask a friend or family member to quiz you about them.
Economic Perspectives production, distribution, consumption economic institutions and systems global connections, interdependence	**LOW MASTERY** ○ **How's Business?** It is important to recognize that the local economy where you live is part of the larger national economy. Issues affecting local businesses—such as rising fuel costs—are likely to affect the economy as a whole. If possible, schedule a time to speak with the owner or manager of a local business. Ask these or similar questions: *How is business this year? Why do you think sales are up (or down)? Have you raised or lowered the prices of the goods you sell lately? If so, why? What other businesses compete with yours? How do you set your business apart from them?* Then read national news stories about the economy. Compare what you learned about local business to what is happening nationally. **MODERATE MASTERY** ◒ **International Trade** You may know that many of the goods sold in stores in the United States are made in other countries. Research one foreign-made product to explore why it was imported. Ask yourself these questions: *Are the raw materials used in making the products unavailable here? How much might it cost to make the product? How is it transported to the United States? What does the product typically cost in the United States? Is the company whose name is on the product based in the country where the product is made? What are some incentives for companies to make products outside the United States?* Now find a U.S. product that is exported to other countries. Ask the same questions as above. Then compare and contrast the imported and exported goods.

Return to Table of Contents

GRADE 11 MATH

GRADE 11 OBJECTIVES	MASTERY
Number and Number Relations counting read, recognize numbers compare, order ordinal numbers money fractional part place value equivalent forms ratio, proportion percent roots, radicals absolute value expanded notation exponents, scientific notation number line identify use in real world rounding, estimation number sense number systems number properties factors, multiples, divisibility odd, even numbers prime, composite numbers sets, models	**LOW MASTERY** ○ **Decisions, Decisions** How quickly are you able to convert prices to find the true cost of a product? Often, grocery stores will display package price as well as unit price on the shelf sticker. Sometimes larger, bulk packages of items are a better deal; other times, they are not. Do your research. Go to a grocery store and locate an item that is sold both individually and in multi-packs or cases. Calculate the amount per item for each package. Carefully record the brand, package size, total price, and individual price in a table. What did you find out? Was the item significantly more expensive as a single item? Or was the savings minimal in the multi-pack? Explain your answer by justifying your findings. **MODERATE MASTERY** ◒ **Common Multiples** In some jobs, a working knowledge of common multiples is essential. For example, if you worked in a stock room or a grocery store, you would need to be familiar with common packaging sizes. You would probably become quite good at skip counting by 24s because you'd know that 4 cases of 24 items, for example, equals 96 units. If possible, find a store manager who will give you a tour of his stock room, or you may have a friend who does this kind of work. Look for common multiples in the packaging of items. For example, two packs of sixteen will give the same number of items as four packs of eight. Practice skip counting the items. When you see items on the shelf, note whether they are laid out in the same multiples.
Computation and Numerical Estimation computation computation in context estimation computation with money recognize when to estimate determine reasonableness estimation with money	**LOW MASTERY** ○ **Decimals as Change** When calculating numbers with decimals in your head, it is often easier to estimate wholes and their decimal parts separately. This approach is similar to counting paper money and coins. For example, instead of adding $11.32 and $12.65 to find the price of groceries in your cart, estimate .32 and .65 as about $1. Then add $11 + $12 + $1 to get $24. Your grocery bill is about $24. When multiplying $11.20 by 6, multiply $11 × 6 to get $66. Then, multiply 6 × 0.20 to get $1.20. Add $66 to $1.20 to get $67.20. Do you compute faster with decimals or fractions? You may prefer to think of 6 × 0.20 as 6 × 1/5 or 6 ÷ 5 = 1.2. Practice these strategies while shopping. Are you able to come within a few dollars of the total by doing the computations in your head? **MODERATE MASTERY** ◒ **Is It Really a Bargain?** To estimate sale prices, use your knowledge of fractions and percents to make it easier. For example, if an item is 20% off, deduct one fifth of the price. Divide the total price by five, then subtract that fifth from the total. If an item is 25% off, divide the total by four (or multiply by one-quarter or 25%) and subtract that quarter from the total. If an item is 30% off, divide the total by ten, then subtract three tenths of the price. For 15%, estimate by dividing by 7. You can use the same strategy—changing a percent to a fraction and then using division—to add sales tax. For 8%, divide the total by about 12. For 5%, divide by 20. Next time you're out to dinner and need to leave a tip, try to calculate 15% or 20% using this approach.

Measurement appropriate tool appropriate unit non-standard units estimate accuracy, precision time calendar temperature length, distance perimeter area mass, weight volume, capacity circumference angle measure rate scale drawing, map, model convert measurement units indirect measurement use ruler measurement concepts	**LOW MASTERY** ○ **Construction Estimation** Designers and construction contractors frequently estimate the area of rooms, walls, and windows to estimate costs of a project before they do an accurate measure to calculate. The perimeters of any windows and cabinets can also be useful estimates to designers. This activity will help develop your estimation skills. Choose a place, such as your home, a public building, or any place you're familiar with. Practice with one room at a time. Estimate the area of the walls, the windows, the ceiling and the floor. After you record your estimates, measure the room. How close were you? Go to another room and try again. By how much did your improved technique increase the accuracy of your estimate? **MODERATE MASTERY** ◒ **Polygon Experiment** Math problems that ask which figure among several has the greatest perimeter-to-area ratio have real-world relevance in fields like engineering, design, and biomedicine. Use a ruler and a protractor to draw accurate polygons of 3, 4, 5, 6, 8, 10, and 12 sides. Each polygon should have an apothem (distance from center to side) of two inches. Visually compare your drawings. Write a hypothesis of which floor plan you think would be easiest to insulate if it were the design for a one-room house. Keep in mind that it is easier to heat a room if the wall space is limited (less room for heat to escape). Then create a table with columns for the following: area of one of the inner triangles, perimeter, total area, and perimeter-to-area ratio. Using your table, determine which polygon is the best choice for a house plan and explain why you think so.
Geometry and Spatial Sense plane figure solid figure angles triangles parts of circle point, ray, line, plane coordinate geometry parallel, perpendicular congruence, similarity sort/group symmetry transformations visualization, spatial reasoning combine/subdivide shapes use geometric models to solve problems apply geometric properties geometric proofs geometric formulas use manipulatives geometric constructions Pythagorean theorem connect 2-D with 3-D figures	**LOW MASTERY** ○ **How Tall is That Tree?** Did you know that you can use similar triangles to find the height of tall objects? On the next sunny day, find a tall tree in your yard, neighborhood, or park. All you'll need to measure the height of the tree is a tape measure and 12-inch ruler. Stand the ruler straight up, on end on a flat surface near the tree. How far does the shadow of the ruler extend? Next, quickly measure the shadow the tree. Timing is important, given that the angle of the sun must be the same for both shadows (this creates similar triangles). If your ruler casts a 1.5-ft shadow and the tree's shadow is seventy feet, solve the following equation created by the proportions in similar triangles: 1 ft/1.5 ft = ? ft/70 ft. (The height of the tree is about 46.7 ft.) Can you think of other interesting and useful applications of similar triangles? **MODERATE MASTERY** ◒ **Stake Out** Surveyors, as well as builders laying foundations, use the Pythagorean theorem to determine whether the dimensions they have laid out are at right angles. As you know, the two opposite sides of a parallelogram can be the same length even if the corner angles are not 90 degrees. However, if the parallelogram is a rectangle, then the two diagonals will also be the same length. Stake out a rectangle in your yard or in a park. Measure the diagonals of your rectangle. When they are the same, your rectangle's corner angles are 90 degrees. How many tries does it take you to stake out the rectangle precisely so that your diagonal lengths match?

Data Analysis, Statistics, and Probability read pictograph select data display read bar graph read line graph read circle graph read table, chart, diagram interpret data display restructure data display complete/construct data display make inferences from data draw conclusions from data evaluate conclusions drawn from data sampling statistics probability use data to solve problems compare data describe, evaluate data	**LOW MASTERY** ○ **Mean, Median, and Mode** The statistical measures of central tendency—mean, median, and mode are each appropriate in different situations. Which would be the best to use for the following example: Ten students take a final exam. Their scores are distributed as follows: one student scored 20%, two students scored 82%, one student scored 85%, two students scored 90%, one student scored 92%, and three students scored 100%. Which measure of central tendency would most accurately reflect the groups' performance? (The mean is 84%. The median is 90%. The mode is 100%.) Why is the mean lower than the median? (The one very low score, 20%, an outlier, affected the mean more than it affected the median.) Why might the mode be misleading? (While the most frequent score on the test was 100%, only three of ten students actually received this score.) **MODERATE MASTERY** ◒ **Games and Probability** You may have heard the phrase, "In Las Vegas, the house always wins." This means the business people who run the casinos know that statistics are on their side. In other words, the casino or "house" will, statistically speaking, win far more money than it will lose. This same principle can apply to many games. Analyze the probability of winning a lottery in which a person must pick six numbers in order (numbers can repeat). What is the probability of picking the winning numbers? How many choices do you have for each number? (Each number can be 0 to 9—ten choices for each of six numbers.) The probability of picking one correct number is one in ten or 1/10. Now solve this (1/10) to the sixth power. The answer is 1/1,000,000. The odds are one in a million. Understanding probability certainly keeps the chances of winning in perspective!
Patterns, Functions, Algebra missing element number pattern geometric pattern function variable expression rules inequality solve linear equation graph linear equation solve quadratic equation graph quadratic equation model problem situation system of equations use algebra to solve problems equation	**LOW MASTERY** ○ **Pattern Recognition** Developing pattern recognition skills is one of the key benefits of studying math. Study the following pattern: (1, 1, 2, 3, 5, 8, 13, 21,…). Describe in your own words what you think the pattern is for extending the sequence. Extend the pattern to the first number that is greater than 100. Now use the same rule to extend the sequences started below, whose first two terms are: (2, 3); (5, 8); and (4, 7). Do you see any similarities between the sequence you created and the original sequence given at the beginning of the problem? What is the only difference between them? Why doesn't the last sequence, the one that starts with 4 and 7, turn into the original sequence as well? If you can think of other patterns, challenge a parent or friend to figure them out. For example, try: (1, 4, 9, 16, 25, 36,…). **MODERATE MASTERY** ◒ **Quadratic Equation Modeling** Using a quadratic equation to model the motion of a ball can help you to understand quadratic equations graphically and as functions. The height (h) of a certain baseball in motion is given by h(t) = 30t – (5)(t squared). The ball reaches its maximum height after 3 seconds. Use the equation to find the maximum height of the ball, and times at which the ball is on the ground (height = 0 meters). Use these values to sketch the graph of the equation, and consider what the vertex and x-intercepts mean in this context. (The vertex provides the maximum height and the time at which it is reached. The x-intercepts represent the start and end of the ball's flight.) Can you use the equation to determine how far the ball traveled? (Hint: What is the second x-intercept?)

Problem Solving and Reasoning identify missing/extra information formulate problem develop, explain strategy solve non-routine problem evaluate solution generalize solution deductive/inductive reasoning spatial reasoning proportional reasoning evaluate conjectures model problem situation, solution	**LOW MASTERY** ○ **Problem-Solving Strategies** What are your favorite or most effective problem-solving strategies? Create a poster or Web page to show strategies that have worked for you. Include examples of at least five strategies. You might consider showing different diagrams or information layouts that have worked for you, colors that you use to keep your pages organized, or ways in which you have modeled problems. Do you write the information in a different way from the way it was originally presented? Do you have handy tricks for memorizing formulas or procedures for certain math operations? Explain your methods in an understandable way and share with other students who will be able to apply to their own math practices. Review your strategies with a teacher or classmate and see if they have ideas you hadn't considered. **MODERATE MASTERY** ◒ **Direct and Inverse Proportionality** Proportionality is an important concept in math as well as in many other subjects. It's important to remember that two variables can be either directly or inversely proportional. Can you give examples for each type of proportionality? An example of direct proportionality could be the effect of rate on distance traveled. As rate increases, so does the distance (You will travel farther if you travel faster). What is the proportionality of rate to time? (As rate increases, the time to travel the same distance decreases.) This is an example of inverse proportionality. If rate increases by two times, what will be the effect on time? (It will be cut in half.)

Return to Table of Contents

GRADE 11 READING

GRADE 11 OBJECTIVES	**MASTERY**
Basic Understanding sentence meaning word recognition graphics initial understanding stated information stated information graphics sequence vocabulary	**LOW MASTERY** ○ **Personalize Words** When reading, you are likely to encounter unfamiliar vocabulary words. Increasing the words in your working vocabulary enables you to express your ideas more effectively and communicate with different audiences in different situations. A helpful way to learn new vocabulary words is by using them in personal examples. Find the words in your textbook that are listed at the beginning of the passage or chapter. Learn the definitions by locating them in the text or looking them up in the glossary. Then, use the vocabulary to describe personal events. For example, *Tell about a time when* arbitration *helped you settle a dispute. How will you feel when you are* emancipated *from your parents? Describe the* hereditary traits *you inherited from your mother or father.* **MODERATE MASTERY** ◒ **Flash-forward to the Future** Writers may not present their texts in chronological (time) order. Sometimes texts contain flash-forwards. A flash-forward occurs when the text begins in the present, moves to the future, and then returns to the present. This allows the writer to provide insight into the consequences (costs) of the character's actions or choices. Writers often represent the scene as fantasy, dreams, or premonitions. They create anticipation for the reader by only hinting at the future. When reading a story that has flash-forwards, you must be able to keep track of the events in order for the story to make sense. Create a timeline to show when events occurred in the past, present, and future. At the end of the story, consider how the story and your experience reading it would change if it were written in chronological order.
Analyze Text main idea/theme cause/effect conclusions compare/contrast story elements/character story elements/plot story elements/setting supporting evidence literary techniques persuasive techniques nonfiction elements	**LOW MASTERY** ○ **Tell Me a Story** Take notes on a story elements diagram while you read to improve your understanding. Draw a large upside-down V on a piece of paper. To the left of it, draw and label two boxes, *characters* and *setting*. To the right of the V, draw and label a box, *resolution.* The main characters and the setting (where and when the story take place) will be introduced in the opening paragraphs. Along the left side of the V, record the rising action, events that occur as the main character faces a problem. At the tip of the V, record the climax—when the main character's problem reaches its highest point of intensity. Along the right side of the V, record the falling action, when the main character begins to find a solution. Record the resolution—the problem is finally solved. **MODERATE MASTERY** ◒ **It's a Sensory Subject** To introduce the setting in a story, authors often use sensory language or imagery. Writers use words that appeal to readers' five senses: sight, sound, touch, taste, and smell. This language helps readers picture and experience the setting details. Compare these examples: —The red house stood at the end of a wooded lane. —The rough, brick red house stood at the end of a densely wooded lane that smelled of rotting leaves.

	Which sentence best helps you visualize the setting and why? Now use sensory details to convert one of the following sentences about setting into a full paragraph that enables the reader to picture the setting. *The trees stood tall in the forest. The city was busy. The road was deserted*. Make sure you use all of the senses.
Evaluate/Extend Meaning reality/fantasy fact/opinion generalize author/purpose author/pov/bias author/tone critical assessment predict/hypothesize extend/apply meaning	**LOW MASTERY** ○ **A Foundation in Facts and Opinions** When reading persuasive texts (writing that tries to convince the reader to act or think a certain way), pay attention to the evidence that the author presents. The ability to identify facts and opinions will prevent you from being easily persuaded by false arguments. Remember that a fact can be proven true through a reliable source. An opinion cannot be proven true and reflects a person's beliefs, feelings, and values. A good argument contains opinions that are supported by logical facts and evidence. Cut a passage from a persuasive text and separate it into individual sentences. Glue the facts in one column of a two-columned chart. Glue the opinions in the second column. Now evaluate the writer's arguments. Are there more facts or opinions? Are you persuaded by the arguments? Why or why not? **MODERATE MASTERY** ◒ **Connect the Dots** When you want to learn about a subject, the best approach is to read multiple sources. This strategy will expose you to varying perspectives (points of view) on the subject. Choose a subject that interests you. Then read several documents on the same subject. If possible, read both nonfiction (writing that gives information or describes real events) and fiction (writing from the imagination, including poetry). For example, if you chose a Civil War battle, you could read soldiers' diaries, biographies of Civil War generals, Civil War song lyrics and a historical novel that takes place during the battle. Make a two-columned chart and in the first column, list information that is common to all the documents. In the second column, list information that is unique to each document. Write a paragraph about what you have learned about this subject.
Reading and Writing Strategies summarize apply genre criteria vocabulary strategies graphic strategies self-monitor formulate questions make connections synthesize across texts utilize structure reading strategies research resources writing process writing development	**LOW MASTERY** ○ **Independent Thinking** Some of the most difficult material to read addresses abstract ideas such as love, fear, or independence. Unlike physical objects, these concepts cannot be touched. As a result, it is difficult for people to agree on what they are. Ultimately, each person must consider the thoughts of others and then develop his or her own ideas. Read the following statements about wealth and happiness: —Having money is the only way to be happy. With money you can always eat, take care of your family, and deal with emergencies. —Happiness from money is short-lived. People spend their lives running after material things, only to be temporarily satisfied before they start wanting some other object of desire. True happiness comes from within. By agreeing or disagreeing with the ideas presented here, write your own explanation of wealth and happiness. **MODERATE MASTERY** ◒ **Comb for Text Characteristics** Many of the characteristics of a written piece are dictated by the genre or form the author chooses. For example, you don't expect to find imagery (words that paint a picture in your mind) in an instruction manual but you would in a poem. Understanding the characteristics (features) of various types of reading material will help you understand

	and evaluate the effectiveness of the texts that you read. Gather several examples of different types of reading material from each category: fiction (writing from the imagination), nonfiction (writing that gives information or describes real events such as magazine articles, biographies, and research studies) and informational texts (such as instructions, forms and schedules). Study the examples in each category. Then write the category names on a piece of paper. List the characteristics that are common to all the examples in each category.

Return to Table of Contents

GRADE 11 WRITING / LANGUAGE

GRADE 11 OBJECTIVES	MASTERY
Sentence Structure statement to question subject/predicate sentence structure complete/fragment/run-on sentence combining mixed structure problems misplaced modifier nonparallel structure verbosity/redundancy	**LOW MASTERY** ○ **De-frag Sentences** Sentence fragments are incomplete sentences that lack either a subject (who the sentence is about) or a predicate (the action the subject takes). Many authors of narratives (stories), use sentence fragments next to complete sentences. This is a stylistic device that writers use for emphasis. Read this example: *The cold wind rustled the leaves of the trees that towered high above her head. Goose bumps. Something moved in the bushes to her left. Shudder.* In this example, does the fragment "Goose bumps" have a verb? Does the fragment "Shudder" have a subject? Rewrite these fragmented sentences as complete sentences (having a subject and predicate). What do you need to add to these sentences to make them complete? **MODERATE MASTERY** ◒ **Parallel Pointers** Good writers use parallel structure to make their writing flow. Readers read more fluently (easily and automatically) when they can anticipate what will come next. For the reader, parallel structure is like a brand new road—smooth and easy. A passage that lacks parallel structure is like a road full of potholes. To achieve parallel structure, writers use phrases and sentences with similar structure. For example, compare these two sentences: 1. *"The Adventures of Huckleberry Finn" is a novel that examines racism, freedom, and struggling against society's values.* 2. *"The Adventures of Huckleberry Finn" is a novel that examines racism, freedom, and the struggle against society's values.* Notice that the second sentence—the one with parallel structure—flows better and so is easier to read and understand. Write three sentences about a novel, using parallel structure.
Writing Strategies topic sentence relevance sequence supporting sentences connective/transitional words information sources organize information writing strategies topic selection/narrowing	**LOW MASTERY** ○ **Persuasive Punches** When you write persuasively (to convince someone to think or act a certain way), choose your language carefully. Do you plan to persuade with appeals to logic or reason, emotion (like love or fear), or ethics or morals? To organize your ideas, create a chart with the headings *Logic, Emotion and Morals* and list the possible appeals. *For example,* you plan to persuade readers about the positive impact of sports on youth. Under *Logic*, you would list facts and research studies that support your ideas. Under *Emotion* you would put words or phrases with strong feelings: *winner, loser, weak, strong*, etc. Under *Ethics* you would list ideas that appeal to people's concept of right and wrong such as, *Young athletes are less likely than their peers to use drugs or alcohol.* Which appeal will your audience find most persuasive? **MODERATE MASTERY** ◒ **Support Me!** When constructing paragraphs, all the sentences must be related. Often the first sentence of an essay states the topic. The sentences that follow support or explain the topic sentence. Consider this topic sentence: *Shakespeare's plays continue to address modern social problems.* Which of the following sentences most clearly supports this topic sentence? Explain your thinking.

	Romeo and Juliet explores the effects of learned hatred. *A Midsummer Night's Dream* investigates the effect of human shortcomings on the magical world. *Julius Caesar* is a study in the art of persuasion. The sentence about *Romeo and Juliet* is the only one that mentions a current social problem. Now write three to five more supporting sentences to complete the paragraph. If you are unfamiliar with Shakespeare's plays pick a familiar author and write a topic sentence and three to five supporting sentences.
Editing Skills capitalization punctuation usage proofreading idiom/diction	**LOW MASTERY** ○ **The Particulars of Punctuation** Correct punctuation makes your message clear and understandable to readers. To improve your writing, review the use of end marks, colons, and semicolons. Finish every sentence with an end mark. Use periods for statements, question marks for questions, and exclamation points to show excitement (Do you enjoy studying history?). Use colons before listing items (Yes, I love to study the following subjects: English, Science, and Art). Use semicolons to join sentences that share the same idea (Next year, I hope to study abroad; I'd like to study in Spain). Now edit the following sentences: Shoot the ball, Megan I play the following sports soccer, basketball, and football In a few years, I hope to play sports in college I want to study sports medicine and play soccer. **MODERATE MASTERY** ◒ **Comma Control** Correct punctuation is necessary for clear and understandable writing. To improve your writing, review the use of commas. Commas separate items in a series *(Ben went to the bookstore, the shoe store and the movie theater).* They set off introductory words or phrases (*At the movie theater, Ben ate popcorn.*) and words or phrases that interrupt the text or do not contain essential information (*The usher, who wore a green hat, cautioned Ben not to spill the popcorn.*) Commas are also used to indicate direct address or a quotation (*Ben offered to clean his mess, and the usher said, "Thank you"*). Edit the following sentences: While running in the park Jewel saw a family of ducks. The mother duck whose feathers were brown shepherded the babies. Jewel stopped to watch the ducks and the mother duck winked at Jewel.

Return to Table of Contents

GRADE 11 SCIENCE

GRADE 11 OBJECTIVES	MASTERY
Science Inquiry data interpretation methods and design	**LOW MASTERY** ○ **Compost** In this activity, you'll experiment with compost to practice science inquiry skills. Start by learning the basics about composting. Some issues to research: *What are the standard industrial processes for compost? How do organisms help with composting? Why is air necessary? How much time is needed to create good compost? Which organic materials decompose quickly, and which ones decompose slowly? What are the best components for compost?* Next, come up with a hypothesis you can test in your kitchen or yard. What are your independent and dependent variables? What procedure will you use? Write everything you do in a lab notebook, just like an actual scientist would do. Finally, graph your results and explain them to a family member. **MODERATE MASTERY** ◒ **Cola Beverage Challenge** Understanding fundamental concepts in scientific inquiry can help make sense of many areas of life, not just science. For example, in the 1980s the second-leading U.S. cola manufacturer challenged shoppers to take a taste test. People across America would take a sip of the company's cola and the top-selling competitor's cola from unlabeled cups. They clearly preferred the second-leading cola! The company expected a huge increase in sales, but this never happened. Even though the taste test was well-designed, it was not valid. *Validity* means how well the results of a study apply to the real world. Why did the cola challenge fail? Think about how a taste test is different from the way people usually drink cola. Research it on the Internet to check your answer.
Physical Science energy motions and forces structure and properties of matter	**LOW MASTERY** ○ **Large Cars, Small Cars, and Momentum** The concept of momentum in Newtonian physics is fundamental to understanding automobiles. Develop your understanding by using two vehicles as examples: a small two-seater and a truck or van that seats seven or more. Research their weights and their fuel efficiency. You should be able to answer the following questions: *Why is more fuel needed to move the large truck than the small car? Is there a difference in the braking power needed to stop the truck and the car, assuming they are traveling at the same speed? Is there a difference in the amount of damage the two vehicles would do to others in a collision?* Create a small poster by taping two pieces of paper together and display what you have learned using text, equations, and simple diagrams. **MODERATE MASTERY** ◒ **Clean Chemistry** Apply chemistry to a real-life situation. Special electrostatic devices used to clean tarnished silver, copper, or brass items are advertised on television. Making your own can help you understand chemical reactions. Tear a large sheet of aluminum foil and fold it in quarters. Place the foil on the bottom of a clear glass baking pan or other container and fill the pan with hot water and a few spoonfuls of baking soda. Gather tarnished items made of silver, copper, or brass (or that are plated in these metals) and place them on the aluminum foil. Watch what happens. What are the clues that a chemical reaction is taking place? Research the process to find out what chemicals are involved in the reaction.

Life Science cells and energy changes over time ecology habitat and adaptation heredity life cycles organ systems taxonomy	**LOW MASTERY** ○ **Problem…Solution**! This activity will help students understand the adaptive functions of traits that are shared by large groups of organisms. For example, almost all plants that we are familiar with are vascular plants—they contain special structures that transport food and water to all plant tissues, and provide support. Did this feature help plants to adapt to a special circumstance or solve a particular problem? Did it allow plants that shared it to create new ecological niches (ways of obtaining what an organism needs to survive)? Use library or Internet resources to find your answer. Other adaptive traits of large groups of organisms you may want to investigate include: watertight eggs, internal fertilization, lungs, bony limbs, flowers. Share what you find out with a family member or friend. **MODERATE MASTERY** ◒ **Eye-Color Genetics** This activity will help students understand how genes work with a realistic example. Eye color in human beings is determined by not just one gene, but by two or more. (Keep in mind the difference between a gene and an allele: an allele is the "flavor" a gene can come in.) Search the Internet to find an eye color "calculator" online. What are the genes and alleles involved? The term "epistatic" means that one gene hides the effects of another gene. In the case of eye color, which gene is epistatic? Which allele of this gene is dominant? Do all the alleles found in all human populations appear in equal amounts? If not, how would you expect them to vary? Given that there are three eye color genes, how many different locations in the human genome have information that affects eye color?
Earth and Space Science changes in the Earth and sky Earth material Earth-moon system the universe objects in the sky rock dynamics solar system weather, atmosphere, and climate water dynamics	**LOW MASTERY** ○ **Fishy Fossil** Fossils tell us a lot about Earth's past. One of the most important fossils for understanding the evolution of tetrapods (four-limbed creatures) was discovered recently in northern Canada. Research this fossil using Internet or library resources, and answer the following questions: When was the fossil creature thought to have lived? How do we know that? What kind of rock was it found in? What kind of climate did it live in? How did it obtain food? What is its relationship to fish? Tell a family member or friend about what you have learned. **MODERATE MASTERY** ◒ **Wet or Dry?** Thinking about the climate where you live will help you understand how landforms influence climate. How much does it rain where you live? Most parts of the northern United States experience rain showers several times each month. Some parts of the U.S. are drier, receiving only occasional rain. And other parts get drizzle and light rain showers almost every day. How does the land help produce these differences? If you live near certain latitudes, you may be in a high pressure zone. If you live on one side of a mountain range, you may be on a drizzly, humid side, or in a dry rain shadow. Areas near large lakes sometimes get "lake effect" snow. Find out more about the weather in your area and explain to a family member or friend what causes local weather patterns.
Science and Technology careers design of technology science and technology use of technology	**LOW MASTERY** ○ **More DNA** Progress in science often depends on having the appropriate technology. Many of the recent advances in genetics and DNA testing would not have been possible without a

	method for making many copies of a DNA strand from a very small amount. This technique is called the polymerase chain reaction (PCR) and was invented by Kerry Mullis in 1983. What can scientists and forensics investigators do today that depends on PCR? Use Internet or library resources to find out, and create a list of at least ten uses of PCR. **MODERATE MASTERY** ◒ **Applications of Electromagnetic Radiation** The electromagnetic radiation that our eyes sense as visible light makes up only a small portion of the electromagnetic spectrum. Light waves of a wide range of frequencies and wavelengths make up the electromagnetic spectrum, and many of these frequencies have practical uses. Find out more about the different types of light by researching the following applications: microwave ovens; X-rays; heat and infrared radiation; ultraviolet light; radio and television waves; gamma rays; radar; long wave radiation. When were each of these discovered and used in technology? Which frequencies have more energy, and which have less? Which are dangerous to living things, and which pass through us harmlessly? Using Internet or library resources, find the answers to these questions and share your findings with a friend or family member.
Personal and Social Perspectives in Science environment health resources technology and society	**LOW MASTERY** ○ **Our DNA Future** Science can often bring technological advances that force societies to make ethical choices. For example, the technology to sequence a person's genes or to find the genetic markers of diseases has recently improved. This has made testing cheaper and easier to do. One concern for society has been discrimination as a result of such tests. Are health insurance companies motivated to discriminate against people with certain genetic test results? Can employers discriminate based on such tests? What is being done to protect people's "genetic privacy?" Find out more about this issue and write a letter to your state representative telling him or her how you feel about this matter. **MODERATE MASTERY** ◒ **Genes, Environment, or Both?** The Pima Indians of Mexico are closely related, genetically, to the Pima Indians Arizona, yet these two groups have drastically different health records when it comes to type II diabetes. Like all Native American groups who have had their traditional lifestyle changed by European settlement of North America, the Pima of Arizona have a high rate of type II diabetes. In contrast, the Pima of Mexico, who practice subsistence farming and animal husbandry, eat a traditional Indian diet similar to that of their ancestors. They also have an extremely low rate of type II diabetes. What is responsible for the difference between the two groups? Research how genetics and the environment have affected the overall health of each group for better or worse. Do you think that your own personal health would be better or worse if you lived a more traditional lifestyle? Why?
History and Nature of Science contributor and contribution historical concepts nature of science science in ancient cultures time lines	**LOW MASTERY** ○ **Meeting of Minds, Much Later** Scientific ideas that develop at the same time may not influence each other until much later in history. Today, genetics, the field originated by Gregor Mendel, is strongly linked to the study of evolution, which began with discoveries by Charles Darwin and Alfred Russell Wallace. Surprisingly, these men lived at around the same time. Charles Darwin even had a copy of Mendel's book in his home library, although he never read it. Using Internet or library resources research answers to the following questions: When did

	genetics and evolution begin to be seen as relevant to each other? Which scientists brought about this "synthesis?" What motivated them to do so? **MODERATE MASTERY** ◒ **Cold Fusion** This activity will help you understand the importance of careful documentation when performing an experiment. In 1989, Martin Fleischmann and Stanley Pons announced they had made nuclear energy without heat. They called it cold fusion. This caused a scientific scandal because the scientists had not kept adequate laboratory reports, and their results were not repeatable. After researching the experiment, write a brief explanation of what happened and who was involved. Why couldn't the scientists replicate their findings? How could embarrassment have been avoided? Do you think the scientists really did perform cold fusion? Explain your answer. Do you think they intentionally lied, or did they just make a mistake? If you think they lied, explain what you think their reasons were.

Return to Table of Contents

NOTES:

- Reading -- Please note that Oral Comprehension is only included in the K and 1 (levels 10 and 11) TerraNova books (Because of Grade Level appropriate content)
- Language -- Please note that the Language objectives are not included in Level 12---they are assessed in Levels 13 (grade 3) and above (Because of grade level appropriate content)
- Science -- Please note that Personal and Social Perspectives in Science are only assessed at Level 13 and up--grades 3 and up. (Because of grade level appropriate content)
- Science -- Please note that History and Nature of Science objectives are only assessed at Level 19 and up (grades 9-12) (Because of grade level appropriate content)