

**GRADE 5**

**State Goal 11:** Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Critical to Understand and Master at Grade 5:</b> 5.11.01 Formulate and ask questions on a specific science topic and outline ideas for steps to answer the questions.</p>	<ul style="list-style-type: none"> <li>• Develop questions about action and reaction that involve forces and motion.</li> <li>• Discuss with your class the kinds of investigations you can do to answer your questions.</li> <li>• Consider whether dominoes can cascade or “fall” up a ramp or incline and what variables would affect the experiment.</li> </ul>	<p>Language Arts: Choose a scientist to interview and create a list of questions to ask. Language Arts: Scan an informational article to find answers to review questions.</p>
<p>5.11.02 Plan a simple investigation, design a valid experiment (a “fair test”) to answer the question, and predict what might happen in the investigation.</p>	<ul style="list-style-type: none"> <li>• Design an investigation that tests the effect of a change in 1 variable on the result (e.g., height of ramp and speed of vehicle; size of rubber band and distance traveled).</li> <li>• Include a control in your investigation in which the variable remains constant.</li> <li>• Predict what you think will happen as a result of changes to the variable.</li> <li>• Design an experiment to test whether dominoes can fall and cascade up a ramp or incline. Determine a control for your experiment (e.g., test dominoes on a flat surface).</li> </ul>	<p>Physical Education: Run a race with and without ankle weights. Language Arts: Write your prediction prior to the race and then compare it to actual results. Religion: Discuss the concept of “fairness” as it applies to everyday life and testing situations in science.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.03</p> <p>Collect data from investigations with plants, animals, rocks, or other materials using skills such as observing, estimating and measuring, and somewhat more sophisticated tools such as scales, microscopes, computers, and calculators.</p>	<ul style="list-style-type: none"> <li>• Find the steepest ramp that dominoes can cascade up; demonstrate and list the factors that affect the upward cascade; and link your observations to concepts of motion, force, and equilibrium.</li> <li>• Conduct an investigation and carefully make observations, measure results, and calculate speed and acceleration (e.g., ball and ramp type designs, falling objects, accelerating vehicles).</li> <li>• Use appropriate tools for your investigation (e.g., scales to measure mass, stopwatches to measure time, metersticks to measure distance, calculators to make computations).</li> </ul>	<p>Social Studies: Take a field trip to the zoo, observe animals, and speak to zookeepers to collect information.</p> <p>Math: Estimate the height and weight of a zoo animal from observations; check your estimates by asking a zookeeper for information.</p> <p>Art: Make a scale drawing by measuring the object and using a calculator to compute scale measurements.</p>
<p>5.11.04</p> <p>Arrange data and observations into logical patterns, describe the patterns, and compare the data with predictions.</p>	<ul style="list-style-type: none"> <li>• Find patterns in data and describe the patterns using graphs, written paragraphs, and drawings with short labels.</li> <li>• Compare data from investigations with predictions in discussion and writing.</li> </ul>	<p>Art: Observe and draw patterns in nature (e.g., patterns on a pineapple, patterns in leaf branching).</p> <p>Math: Use pattern blocks to see if you can reproduce the natural patterns.</p> <p>Math: Study number sequences to identify patterns.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.05 Use evidence, observations, and logic to develop scientific explanations for student investigations.</p>	<ul style="list-style-type: none"> <li>• Use observations from your experiment to develop scientific explanations.</li> <li>• Be able to distinguish between a scientific explanation based on evidence and an explanation based on beliefs or opinions.</li> </ul>	<p>Social Studies: Visit with a police officer to learn how evidence is collected to solve crimes.</p> <p>Language Arts: Write a short detective story in which the main character uses distinctive evidence and logic to solve a crime.</p> <p>Religion: Discuss how evidence, observations, and logic are essential to scientific explanations, but not necessarily part of belief-based explanations (e.g., you don't need to see God to believe in Him).</p>
<p>5.11.06 Use evidence, observations, and logic to evaluate respectfully the explanations of other students and other teams.</p>	<ul style="list-style-type: none"> <li>• Discuss explanations of other students and teams using evidence from the investigations.</li> <li>• Be willing to test a phenomenon again in order to clarify observations to strengthen or refute an explanation.</li> </ul>	<p>Language Arts: Orally share the detective stories you wrote and participate in a discussion of the strength of the evidence you created in the plot.</p> <p>Drama: Create a crime scene and leave clues, then have other classmates solve the crime.</p>
<p>5.11.07 Report and display the results of individual and group investigations.</p>	<ul style="list-style-type: none"> <li>• Use written and oral communication skills to share the results of investigations.</li> <li>• Present and share science results in a public forum (e.g., science fair, parents' night).</li> </ul>	<p>Music: Investigate a new type of music and prepare an oral report for the class that includes a visual (e.g., picture, poster) and a sound clip.</p> <p>Business: Hold a Market Day in which students sell handmade items that they have designed and constructed and for which they have developed a budget.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.08 Identify a design problem and propose possible solutions to the problem with words and design sketches.</p>	<ul style="list-style-type: none"> <li>• Investigate ways to make a musical instrument that can play at least 5 notes.</li> <li>• Experiment with and discover that sound is created by vibrations.</li> <li>• Diagram and design a system to carry groceries from the car to the kitchen.</li> <li>• Design and diagram an apparatus to stop kicked soccer balls that miss the goal by 5 feet.</li> </ul>	<p>Art: Draw a design for a space-age bicycle that might even be able to fly short distances.</p> <p>Language Arts: Use a Venn Diagram to compare a space-age bicycle with a standard bicycle.</p>
<p>5.11.09 Develop a plan, design a procedure to address the problem, and identify constraints (e.g., cost, time, materials, space, technology, safety).</p>	<ul style="list-style-type: none"> <li>• Design drawings or plans for a musical instrument.</li> <li>• Use materials that are inexpensive and readily available to you (e.g., strings on a bow, glasses of water, pieces of PVC pipe of different sizes).</li> <li>• Discuss the design with others in the class and make changes, if necessary.</li> </ul>	<p>Language Arts: Write about why a standard bicycle would not be effective in space.</p> <p>Economics: Discuss the costs for a space-age bicycle (e.g., time to produce it, materials).</p> <p>Religion: Outline the ethical constraints and considerations with the practice of cloning organisms.</p>
<p>5.11.10 Build a prototype of the design using available tools and materials.</p>	<ul style="list-style-type: none"> <li>• Construct your device (e.g., musical instrument, specialized soccer goal, bag-carrying system) using your planned materials.</li> <li>• Use materials and tools safely and appropriately.</li> </ul>	<p>Home Economics: Hold a bake-off to find the best chocolate chip cookie recipe.</p> <p>Physical Education: Build a model of new, proposed playground equipment.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.11</p> <p>Test the prototype using suitable instruments, techniques, and quantitative measurements to record data.</p>	<ul style="list-style-type: none"> <li>• Test the sound of the musical instrument by varying lengths, sizes, and amount of materials to make distinct notes.</li> <li>• Make measurements and record them so that you can get similar results each time you construct the instrument.</li> </ul>	<p>Technology: Use the Internet to research how NASA tests materials such as ceramics for use in space.</p> <p>Physical Education: Invite children to evaluate your playground model; have them test equipment if you have built life-sized models.</p>
<p>5.11.12</p> <p>Assess test results and the effectiveness of the design using the given criteria and noting possible sources of error.</p>	<ul style="list-style-type: none"> <li>• Evaluate the ability of the instrument to play 5 distinct notes.</li> <li>• Discuss possible sources of error or ways to improve the design of the instrument.</li> </ul>	<p>Language Arts: Develop a rubric against which a design will be tested and use the rubric to evaluate the design (e.g., evaluate cookies by observing criteria such as taste, texture, appearance, and number of ingredients).</p> <p>Social Studies: Identify times in history when people have tested ideas, revised and corrected errors, and tested again many times (e.g., airplane flight and the Wright brothers).</p>
<p>5.11.13</p> <p>Report the test design, the test process, and the test results, as would a team of scientists and engineers.</p>	<ul style="list-style-type: none"> <li>• Play the instrument for the class. Demonstrate the 5 notes the instrument can play. Discuss how you designed the instrument to play different notes. Relate your design to the science of sound that you used.</li> <li>• Make suggestions for improvements you would make in the future.</li> </ul>	<p>Technology: Use Power Point and collaborative learning to prepare an oral report by a team.</p> <p>Religion: Plan and hold a community service event; report to the class how it went and recommendations you have for future events.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.14 Use numbers to describe and compare scientific objects and events.</p>	<ul style="list-style-type: none"> <li>• Research decibel levels of common machines and group them according to whether or not you need to wear earplugs when using them.</li> </ul>	<p>Technology: Use the Internet to learn more about comets and how scientists know when to expect to see them. Math: Calculate the year in which the next three comets will appear.</p>
<p>5.11.15 Apply math skills to measure, record, and organize scientific data; apply several types of operations to compare the data and observations (e.g., multiplication, division).</p>	<ul style="list-style-type: none"> <li>• Carefully draw design plans using measurements and noting specific materials needed.</li> <li>• Create a graph that displays data collected in an investigation and accurately compares 2 variables.</li> </ul>	<p>Physical Education: Run relay races, time each time, and analyze differences in time as a function of race distance. Math: Record times for each team and calculate the average speed and mean speed in kilometers per hour.</p>
<p>5.11.16 Identify shapes and patterns that are found in nature and in things that people make (e.g., circles, rectangles, triangles, cubes); identify how measurements can be displayed with simple graphs.</p>	<ul style="list-style-type: none"> <li>• Observe moon phases and plot changes on a graph.</li> <li>• Identify patterns in the life cycles of various organisms.</li> </ul>	<p>Art: Look through a recent catalog of clothing and describe the shapes and patterns you see (e.g., tropical colors, geometric prints, A-line skirts, square-toed shoes). Math: Find out the shoe sizes of all your classmates and present the data in a histogram.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.11.17</p> <p>Use communication and dialogue (e.g., reading, writing, speaking, listening) to conduct investigations, report results, and learn others' discoveries.</p>	<ul style="list-style-type: none"> <li>• Recognize that some scientific inquiry can be accomplished by reading and listening to others who have conducted long-range investigations across time and with sophisticated equipment.</li> <li>• Use oral and written communication skills to report understandings in science.</li> <li>• Discuss as a class different designs and models for the soccer goal barrier, summarize strengths and weaknesses of different models, and respectfully ask questions of classmates.</li> </ul>	<p>Technology: Use a digital camera and a computer to create a slide show of patterns in nature.</p> <p>Language Arts: Attend a talk or a presentation at a library or museum and write a synopsis of the content.</p>
<p><b>Significant to Develop at Grade 5:</b></p> <p>5.11.18</p> <p>Give examples of how scientists make the results of their investigations public and how they describe their work so that any other scientist can repeat the investigation. (11A)</p>	<ul style="list-style-type: none"> <li>• Read about and discuss recent science in the news (e.g., health or medical sciences, earth and space sciences, fossils, global seismic or volcanic events).</li> <li>• Read scientific journals designed for students or newspaper articles about science and discuss the findings presented.</li> <li>• Repeat the investigations of other teams following their directions; compare your results.</li> </ul>	<p>Language Arts: Find out what children's book authors must do to get their books published.</p> <p>Technology: Create a web page to inform people of a recent accomplishment.</p>
<p>5.11.19</p> <p>Communicate ideas and findings in science to others using accurate representations, such as models, diagrams, numerics, flowcharts, and schematics. (11C)</p>	<ul style="list-style-type: none"> <li>• Create a display that includes diagrams, graphs, flowcharts, and other representations so that the observer can understand your findings directly from your display.</li> <li>• Participate in opportunities to share science results in a public forum (e.g., science fair, parents' night).</li> </ul>	<p>Art: Make a 3-dimensional model of the solar system.</p> <p>Technology: Discuss hybrid cars as a class, and draw a diagram showing how the hybrid would work.</p>

**State Goal 12:** Understand fundamental concepts, principles, and interconnections of the life, physical, and earth and space sciences.

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Critical to Understand and Master at Grade 5:</b>  <b>Life Sciences</b>                      5.12.01                      Diagram life cycles of plants and animals and the similarities and differences between parents and their offspring.</p>	<ul style="list-style-type: none"> <li>• Diagram the physical changes in a plant or animal from birth to maturity.</li> <li>• Explain the difference between a life cycle and a life span.</li> <li>• Compare the life cycles of various organisms.</li> </ul>	<p>Religion/Language Arts: Discuss life cycles in <i>The Very Hungry Caterpillar</i> (Eric Carle), <i>The Proud Tree</i> (Luane Roche), and <i>Hermie: A Common Caterpillar</i> (Max Lucado).</p> <p>Art: Select a plant, and draw pictures representing its life cycle.</p>
<p>5.12.02                      Describe how organisms interact in ecosystems by food chains and other interdependencies (e.g., predator-prey, parasite-host, pollination, food chains, food webs).</p>	<ul style="list-style-type: none"> <li>• Given 2 organisms in an environment, describe how they interact.</li> <li>• Role-play the interdependencies among a variety of organisms in an ecosystem and discuss what happens if one or more of the organisms disappears.</li> </ul>	<p>Music: Listen to and discuss the lyrics of the song <i>Circle of Life</i>, recorded by Elton John for the movie <i>The Lion King</i>.</p> <p>Art: Use pictures of various plants and animals in an environment to make a poster of a food chain.</p>
<p>5.12.03                      Show how food chains rely on plants, which in turn rely on energy from the sun.</p>	<ul style="list-style-type: none"> <li>• Develop a food web to show the energy flow from the sun to various organisms within the ecosystem.</li> <li>• Over the course of a week, trace food from your meals back to the sun.</li> </ul>	<p>Social Studies: Locate regions in the country that have the best farming and discuss their similarities.</p> <p>Math: Calculate the number of calories you eat in a day.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Physical Sciences</b> 5.12.04 Demonstrate and explain ways that forces cause actions and reactions (e.g., magnets attracting and repelling; objects falling, rolling and bouncing, changing direction).</p>	<ul style="list-style-type: none"> <li>• Using a variety of methods (e.g., attaching magnets to carts), explore and document the forces and the motion that results when objects move, change directions, and stop.</li> </ul>	<p>Physical Education: Conduct scooter races and test whether pushing or pulling the scooter was more effective. Art: Construct parachutes of tissue paper or plastic, and describe the force that makes them fall and the force that holds them aloft.</p>
<p>5.12.05 Demonstrate and record that motion can be characterized as constant, variable, or periodic.</p>	<ul style="list-style-type: none"> <li>• Give examples from everyday life of motion that is constant, variable, and periodic.</li> <li>• Identify elements of a soccer game that may be constant, variable, and periodic.</li> </ul>	<p>Physical Education: Demonstrate constant, variable, and periodic motion using a jump rope. Language Arts: Practice handwriting, paying attention to constant, variable, and periodic motions that you use to form letters, words, and sentences.</p>
<p>5.12.06 Measure how the position of an object (e.g., distance) can change with time to give speed.</p>	<ul style="list-style-type: none"> <li>• Describe an object's motion and position (in 5-second intervals) relative to a fixed point and calculate its speed.</li> <li>• Measure the distance traveled by a moving object in a given period of time and calculate its speed (e.g., compare walking and running along the same course).</li> </ul>	<p>Math: Solve word problems in which objects change position with time. Social Studies: Compare travel times between two cities using various forms of transportation (e.g., train, plane, car, walking).</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Earth and Space Sciences</b> 5.12.07 Identify and explain natural cycles and patterns in the solar system (e.g., order of the planets, moon phases, seasons, latitude, and Earth in its yearly orbit around the Sun).</p>	<ul style="list-style-type: none"> <li>• Research, and then compare and contrast, Earth’s properties with other planets or moons in the solar system.</li> <li>• Use simple materials (e.g., light source, balls, pushpins) to model the orbit of the moon and how Earth’s view of the lit side of the moon changes.</li> <li>• Use simple materials (e.g., light source, balls, pushpins, markers) to model how a position on Earth experiences a change in the angle of incidence of sunlight as Earth revolves around the Sun; relate this change to seasonal changes at various locations on Earth.</li> <li>• Interpret yearly temperature data to determine whether the data are measured near the equator or at a location far north of the equator.</li> <li>• Identify several patterns in the solar system that are cyclical (e.g., moon phases, seasons, day and night).</li> </ul>	<p>Art: Create a flip book illustrating the phases of the moon.</p> <p>Language Arts: Write a story about what it would be like to live on an Earth that did not rotate. Write a story about a character that tries to “straighten out” the tilted axis of Earth, and the affect on seasons.</p> <p>Math: Calculate how fast you would need to travel on Earth to remain in daylight forever. How fast is this compared with an airplane flying 500 miles per hour?</p>
<p>5.12.08 Explain the apparent motion of the sun and stars or other objects in the sky.</p>	<ul style="list-style-type: none"> <li>• Describe common situations in which objects move relative to one another and where it may be difficult to determine which object is actually changing location (e.g., car stopped next to moving train).</li> <li>• Relate motions in different reference frames to the apparent motions of the sun and stars.</li> </ul>	<p>Language Arts: Write a story in which a character is confused by the relative motion of an object (e.g., a telephone pole appears to sway, but it is actually the trees behind it moving in the wind).</p> <p>Physical Education: Move a hoop relative to your body; move your body relative to a hoop.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p>5.12.09 Diagram how Earth rotates on a tilted axis and orbits the Sun one time each year.</p>	<ul style="list-style-type: none"> <li>• Offer an explanation that considers the alternatives, using models or diagrams, of how we know that Earth is tilted on its axis.</li> <li>• Diagram the position of Earth with respect to the Sun at each of the 4 seasons experienced at your location.</li> </ul>	<p>Art: Make shadow drawings with chalk on the sidewalk or other hard surface. Architecture: Explain how the design of eaves on a house can shade the house’s windows in the summer but allow sunlight into the windows in the winter.</p>
<p><b>Significant to Develop at Grade 5:</b> 5.12.10 Describe factors that cause populations of organisms in an area to increase or decrease (e.g., disease, famine, larger ecosystems). (12B)</p>	<ul style="list-style-type: none"> <li>• Given a change in an ecosystem, predict its effect on populations of a resident organism using your understanding of the interconnections among living and nonliving things in the ecosystem.</li> </ul>	<p>Music: Listen to and discuss the lyrics of the song, <i>Colors of the Wind</i>, from the movie, <i>Pocahontas</i>. Social Studies: Discuss the positive and negative effects of a forest fire.</p>
<p>5.12.11 Show how the atmosphere and weather have properties that are measurable and sometimes predictable (e.g., temperature, air pressure, wind direction, wind speed). (12E)</p>	<ul style="list-style-type: none"> <li>• Explain common observations in terms of properties of the atmosphere (e.g., fog, dew on grass, condensation on the bathroom mirror, sweating glass in summer).</li> <li>• Build and use a classroom weather station that records temperature, air pressure, and wind direction and speed and be able to describe and interpret patterns in your data.</li> <li>• Make a prediction about weather and justify it based on your understanding of properties of the atmosphere, weather patterns, or the tilt of Earth.</li> </ul>	<p>Math: Use a 2-line graph to find relationships between 2 sets of data, such as monthly temperature for 2 cities. Technology: Consider professions by attending a presentation by a meteorologist to learn about tools he uses to find and interpret weather patterns (e.g., radar, computer models).</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Useful to Work on at Grade 5:</b>                      5.12.12                      Describe how sound and pitch relate to the perception of vibrating objects (e.g., strings, bells, blades of grass). (12C)</p>	<ul style="list-style-type: none"> <li>• Design a musical instrument made of common materials that has at least 5 distinct notes and describe your design process.</li> <li>• Diagram the relative frequency and wavelength of sound waves for a variety of pitches in a number of situations (e.g., high or low pitch, moving source of sound, different musical instruments).</li> </ul>	<p>Math: Use a ruler over a desk to produce sounds. Measure the length of the exposed ruler and compare the length with the relative frequency (e.g., high or low pitch, long or short ruler).</p> <p>Music: Listen to a variety of musical styles and examine the range of pitches used to make the song (e.g., hip-hop, classical, jazz, Native American, blues, rock, Asian).</p>
<p>5.12.13                      Identify easily recognizable star patterns in constellations (e.g., Orion, the Big Dipper, Cygnus, Cassiopeia). (12F)</p>	<ul style="list-style-type: none"> <li>• Using a map of stars visible in your area, identify a new constellation of your design and describe it relative to historical constellations that use some of the same stars. Recognize that constellations are human constructs.</li> <li>• Identify key constellations visible during each season and explain why your view of constellations changes across a year.</li> </ul>	<p>Social Studies: Read a sky map and use a star finder to identify various constellations.</p> <p>Language Arts: Read the myths and legends for which the constellations are named.</p>

**State Goal 13:** Understand the relationships among science, technology, and society in historical and contemporary contexts.

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Critical to Understand and Master at Grade 5:</b>  <b><i>Safety in science</i></b>                      5.13.01                      Demonstrate ways to perform science investigations safely at home and at school (e.g., wearing goggles, using fire extinguishers).</p>	<ul style="list-style-type: none"> <li>• Follow safety rules posted in the classroom (e.g., never taste materials, wash hands after working with objects and materials, pick up after yourself, use tools safely).</li> <li>• Explain why the safety rules are important and why you should report unsafe behavior (e.g., wear goggles to protect eyes from splashes, keep work space clean to avoid accidents, don't play with matches).</li> </ul>	<p>Personal Health: Demonstrate proper use of a home fire extinguisher.                      Art: Draw a map of a fire escape plan for your home.                      Personal Health: Make a safety presentation to a younger grade and answer their questions about the importance of practicing safe behavior in the science laboratory.                      Social Studies: Discuss what would be involved to complete a safe trip to Mars and back.</p>
<p><b><i>Understanding science and technology</i></b>                      5.13.02                      Describe some accepted tools and procedures (ways of doing something) used by scientists and engineers to solve problems in society and to explain the natural world.</p>	<ul style="list-style-type: none"> <li>• Discuss and write about ways that people learn about new topics or discoveries in science and technology (e.g., read articles, interview a scientist, experiment with materials, make models, purchase a high-tech product).</li> <li>• Imagine and discuss knee replacement surgery; list the types of tools, materials, and technology needed.</li> <li>• Describe how you think a cell phone works, complete some research on the topic, and draw a diagram of the technologies needed for 2 people to have a conversation.</li> <li>• Describe the process that scientists use to explore the natural world (e.g., process is not linear, loops back to ask new questions).</li> </ul>	<p>Social Studies: Research some stories of science discoveries (e.g., Benjamin Franklin and electricity, Sir Isaac Newton and gravity).                      Social Studies: Discuss how early scientists did not have many tools for experimentation yet they still made discoveries (e.g., they often were philosophers who spent much of their time thinking deeply about their observations and reaching conclusions based on ideas, not experiments).                      Language Arts: Use a road map as an analogy for the scientific process (e.g., there are many ways to get to your destination and you can circle back many times before you arrive there).</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b><i>Science, technology, and society</i></b>                      5.13.03                      Describe examples of how technology is used in many types of professions and how technology can change ecosystems (e.g., highways, dams, cities, power plants).</p>	<ul style="list-style-type: none"> <li>• Describe the questions and problems that different types of engineers are trying to answer in your community (e.g., chemical, civil, structural, electrical, traffic engineers).</li> <li>• Describe a benefit of the Trans-Alaska Pipeline and a cost (e.g., how it affects caribou migration).</li> <li>• List ways that your family physician uses technology in his or her profession.</li> <li>• Write about how technology has changed professional sports.</li> </ul>	<p>Art: Compare pictures of an area 100 years ago and today and identify the technological changes that have occurred in the area.                      Language Arts: Write about a day in your life without technology. How would you wake-up and start the day?                      Social Studies: Discuss the advantages and disadvantages of technological advancements.</p>
<p><b><i>Personal Health</i></b>                      5.13.04                      Describe how nutrition is essential to health, including eating a variety of foods, less sugar, and less fat, and understanding how the body uses food.</p>	<ul style="list-style-type: none"> <li>• Write about the question, Why do we need to eat?</li> <li>• Describe how your body uses energy and what happens when people eat more calories than they use during the day.</li> <li>• Analyze the food pyramid and plan healthy meals for a week of lunches at a summer day camp.</li> <li>• Compare the nutritional differences between eating potatoes as mashed potatoes, french fries, and potato chips.</li> </ul>	<p>Business: Discuss what would happen to some businesses (e.g., candy stores, fast food restaurants, ice cream parlors) if people always ate only healthy food.                      Physical Education: Develop an individual nutrition and exercise plan and follow it. Discuss and write about components of the plan.</p>

LEARNING STANDARD/OUTCOME	SAMPLE ASSESSMENT	CONNECTIONS
<p><b>Significant to Develop at Grade 5:</b>                      5.13.05                      Describe evidence showing that science and technology have been practiced for a long time by people in many cultures and that many people choose science as a professional career. (13A)</p>	<ul style="list-style-type: none"> <li>• Name some inventions that were developed in the past that we still use today (e.g., irrigation, telescopes, clothes, paint, wheels, metal tools, boats and ships).</li> <li>• Research the education and professional backgrounds of prominent women in the nation or your community and consider what they need to know about science and technology in their jobs (e.g., Secretary of State Condoleezza Rice; Director, Center for Disease Control and Prevention, Dr. Julie Gerberding; Justice Sandra Day O'Connor, Justice Ruth Bader Ginsburg).</li> <li>• Discuss whether a priest at your church or the mayor of your town needs some knowledge of science and technology and why.</li> <li>• Using the phone book (or similar resource), identify careers in science practiced in your community (and interview professionals if possible about their careers).</li> </ul>	<p>Religion: Discuss ways that persons in the Bible might have used science in their endeavors.</p> <p>Social Studies: Dress as a famous scientist and give an oral presentation from the point of view of that person (e.g., Hubble, Crick, Curie)</p> <p>Business: Participate in a discussion with parents about how science and technology plays an important part in their professions.</p> <p>Language Arts: Scan the newspaper for articles about advances in science and technology in other countries. Contribute to a collection of science articles on a bulletin board.</p>
<p>5.13.06                      Give examples of substances or medicines that can help the body and others that can damage the body and how it functions (e.g., medicine, tobacco products, alcohol, drugs). (13B)</p>	<ul style="list-style-type: none"> <li>• Explain the difference between a drug that helps you and a drug that harms you.</li> <li>• Examine the label for what is in vitamin tablets and research the reasons why the substances are important for you.</li> <li>• Describe how the same drug can be both bad and good for you (e.g., correct dose vs. overdose).</li> <li>• Describe an illegal drug and how a person can become addicted to it.</li> </ul>	<p>Social Studies: Participate in Red Ribbon Week activities.</p> <p>Language Arts: Write an essay that answers the question, Why do you want to be drug free?</p> <p>Religion: Discuss this benchmark in the context of the 5th commandment.</p>