

PHYSICAL SCIENCE	
Matter and its Interactions	Second Grade
SCRIPTURE	
<i>By faith we understand that the universe was ordered by the word of God,* so that what is visible came into being through the invisible. Hebrews 11:3</i>	
STANDARD	
<p>S. 1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>S. 2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</p> <p>S. 3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.</p> <p>S. 4. Construct an argument with evidence that some changes caused by heating and cooling can be reversed and some cannot.</p>	
EXAMPLES	
<p><i>What the World is Made Of?</i> By Kathleen Weidner Zoehfeld</p> <p><i>Change It</i> by Adrienne Mason</p> <p>Catholics making contributions to this topic: Alessandro Volta, Charles Coulomb, William Thompson Kelvin, Henri Victor Regnault</p>	
ESSENTIAL QUESTIONS	
<ol style="list-style-type: none"> <li>1. Define matter?</li> <li>2. Name and describe the three states of matter?</li> <li>3. How can properties of matter be changed?</li> <li>4. Can the changes of matter be reversed?</li> <li>5. How can an object be disassembled and made into a new object?</li> </ol>	
VOCABULARY TERMS	
<ol style="list-style-type: none"> <li>1. Solid</li> <li>2. Liquid</li> <li>3. Gas</li> <li>4. Classify</li> <li>5. Observable</li> <li>6. Evidence</li> <li>7. Color</li> <li>8. Texture</li> <li>9. Hardness</li> <li>10. Flexibility</li> </ol>	
ACTIVITIES	
<ol style="list-style-type: none"> <li>1. AlkaSeltzer Tablet <ol style="list-style-type: none"> <li>a. Give every student a small cup of water.</li> <li>b. Give every student an AlkaSeltzer tablet.</li> <li>c. Asks students to predict what is going to happen when they drop the tablet into the water.</li> </ol> </li> </ol>	

- d. Tell the students to drop the tablet into the water and observe what happens.
  - e. As they are observing, have students put their hand over the cup to feel the gas.
  - f. Have students illustrate what happened in the activity.
2. States of Matter Collage
    - a. Give each student a large piece of construction paper.
    - b. Tell the students to fold the paper into three columns.
    - c. Label each column - Solid, Liquid, Gas.
    - d. Provide students with magazines and have them cut out pictures representing the three states of matter and glue them to their construction paper.
3. Culminating Activity - Rootbeer Floats
    - a. Rootbeer is the liquid
    - b. Ice Cream is the solid
    - c. Add them together and you have a gas.

LIFE SCIENCE	
Ecosystems: Interactions, Energy, and Dynamics	Second Grade
SCRIPTURE	
<i>And so it happened, the earth brought forth vegetation: every kind of plant that bears seed and every kind of fruit tree that bears fruit with its seed in it. God saw that it was good. Genesis 1:12</i>	
STANDARD	
<p>S. 1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p> <p>S. 2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p>	
EXAMPLES	
<p><i>The Reason for a Flower</i> by Ruth Heller  <i>The Tiny Seed</i> by Eric Carle  Catholics making contributions: Isaac Newton, James Britten, Stephan Endlicher, Antione Laurent de Jussieu, Pierre Duhem</p>	
ESSENTIAL QUESTIONS	
<ol style="list-style-type: none"> <li>1. Why do plants need sunlight to grow?</li> <li>2. Why do plants need water to grow?</li> <li>3. Would a plant survive if you withheld sunlight and only gave the plant water?</li> </ol>	
VOCABULARY	
<ol style="list-style-type: none"> <li>1. Pollinate</li> <li>2. Disperse</li> <li>3. Investigation</li> <li>4. Mimic</li> </ol>	
ACTIVITIES	
<ol style="list-style-type: none"> <li>1. Sunflower Seed Investigation <ol style="list-style-type: none"> <li>a. Place students in groups of three</li> <li>b. Provide each group with a cup filled with dirt and sunflower seeds</li> <li>c. Instruct students to plant the seed in the cup and water it.</li> <li>d. Allow groups to choose where they would like to place their plant in the classroom. Ensure students place their plant in different locations depending on sunlight.</li> <li>e. Tell students they will be recording in their Science journal the growth of their plant every week in class.</li> <li>f. At the end of the investigation, each group must present to the class their findings and explain the reason for the growth or lack of growth of their plant.</li> </ol> </li> <li>2. Watch the following video about the Parable of the Mustard Seed.  <a href="https://www.youtube.com/watch?v=sYmRj3s6JLE">.https://www.youtube.com/watch?v=sYmRj3s6JLE</a> Have students write a three sentence reflection about how they can live the parable in the classroom and at home.</li> </ol>	

LIFE SCIENCE	
Biological Evolution: Unity and Diversity	Second Grade
SCRIPTURE	
<i>Then God said: Let the earth bring forth every kind of living creature: tame animals, crawling things, and every kind of wild animal. And so it happened. Genesis 1:11</i>	
STANDARD	
S. 1. Make observations of plants and animals to compare the diversity of life in different habitats.	
EXAMPLES	
<a href="https://kids.sandiegozoo.org/">https://kids.sandiegozoo.org/</a> Catholics making contributions to this topic: Gregor Mendel, Leonardo da Vinci, Paula Gonzalez, Jean-Baptiste Lamarck	
ESSENTIAL QUESTIONS	
1. Where do different kinds of living things live on land and in water?	
VOCABULARY	
1. Diversity 2. Habitat 3. Compare 4. Contrast	
ACTIVITIES	
1. Using <a href="https://kids.sandiegozoo.org/">https://kids.sandiegozoo.org/</a> have students observe three different animals and their habitats. Use a Venn diagram to compare and contrast their habitats. 2. Give students a large piece of construction paper and several magazines. Fold the paper in two (hotdog style) and label on side "habitat" and the other "non-habitat." Students find three pictures from magazines to glue under each heading. In groups of four, students take turns explaining why they chose each picture.	

EARTH AND SPACE SCIENCE	
Earth's Place in the Universe	Second Grade
SCRIPTURE	
<i>You fixed the earth on its foundation, so it can never be shaken.</i> Psalms 104:5	
STANDARD	
S. 1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	
EXAMPLES	
<i>The Next Time You See the Moon</i> by Emily Morgan Catholics making contributions to the topic: Gaspard-Gustave Coriolis, Giovanni Domenico Gassini, Leonardo da Vinci, Nicholas Copernicus and Johannes Kepler	
ESSENTIAL QUESTIONS	
1. Why is it important to find information from more than one source when studying Earth's events?	
VOCABULARY	
1. Space 2. Planet 3. Earth	
ACTIVITIES	
1. Students create booklets about the different places they could visit in space. Allow them to share with the class. 2. Students observe the night sky for three evenings and record what they observed. Give each student a dark piece of construction paper and white crayons or chalk. Students should fold the paper into three sections and label each - Observation 1, 2, 3. Students should draw what they observed each night, and write a one sentence description.	

EARTH AND SPACE SCIENCE	
Earth's Systems	Second Grade
SCRIPTURE	
<p><i>During the fourth watch of the night, he came toward the, walking on the sea. When the disciples saw him walking on the sea they were terrified. "It is a ghost," they said, and they cried in fear. At once, Jesus spoke to them, "Take courage, it is I; do not be afraid." Matthew 14:25-27</i></p>	
STANDARD	
<p>S. 1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</p> <p>S. 2. Develop a model to represent the shapes and kinds of land and bodies of water in the area.</p> <p>S. 3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.</p>	
EXAMPLES	
<p>Catholics making contributions to this topic: Gaspard-Gustave Coriolis, Giovanni Domenica Gassini, Leonardo da Vinci, Nicholas Copernicus and Johannes Kepler</p>	
ESSENTIAL QUESTIONS	
<ol style="list-style-type: none"> <li>1. What structures hold back water?</li> <li>2. How are mountains created?</li> <li>3. What causes erosion?</li> <li>4. Name the types of bodies of water in your city/state.</li> </ol>	
VOCABULARY	
<ol style="list-style-type: none"> <li>1. Bodies of Water</li> <li>2. Solid</li> <li>3. Liquid</li> <li>4. Erosion</li> </ol>	
ACTIVITIES	
<ol style="list-style-type: none"> <li>1. <a href="https://betterlesson.com/lesson/635808/how-are-mountains-made">https://betterlesson.com/lesson/635808/how-are-mountains-made</a></li> <li>2. <a href="https://betterlesson.com/lesson/637182/using-skittles-to-learn-about-weathering-and-erosion">https://betterlesson.com/lesson/637182/using-skittles-to-learn-about-weathering-and-erosion</a></li> </ol>	

<b>ENGINEERING</b>	
Engineering Design	Second Grade
<b>SCRIPTURE</b>	
<i>God created mankind in his own image, in the image of God he created him; male and female he created them. Genesis 1:27</i>	
<b>STANDARD</b>	
<p>S. 1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p> <p>S. 2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p> <p>S. 3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>	
<b>EXAMPLES</b>	
<i>The Most Magnificent Thing</i> by Ashley Spires	
<b>ESSENTIAL QUESTIONS</b>	
1. Why is it important to make observations before deciding to make changes?	
<b>VOCABULARY</b>	
<ol style="list-style-type: none"> <li>1. Gather</li> <li>2. Problem</li> <li>3. Engineering</li> <li>4. Design</li> <li>5. Teamwork</li> </ol>	
<b>ACTIVITIES</b>	
<ol style="list-style-type: none"> <li>1. Index Card Structure/Spaghetti Structure - Place students in groups of three. Give half the class index cards and tape, and the other half spaghetti and styrofoam pieces. Tell the students to make a structure at least two feet high that will hold two books (you choose the books). Utilizing a Venn diagram, students should compare and contrast the weaknesses and strengths of the structures.</li> <li>2. Paper Airplane Design - Provide students with paper to create a paper airplane. The goal is to create an airplane that will fly the farthest. Students should draw their design first, and then create their airplane. Allow each student two flights. Suggestion: Students can fly planes in the hallway. Have a measuring tape set up and have students record flight distance. Students can make a graph of the flights.</li> </ol>	