

# CURRICULUM MAP

Subject: SCIENCE

Grade: 4<sup>TH</sup>

Quarter: 2<sup>ND</sup>

Teacher(s): 4<sup>th</sup> Grade

Month _____	WEEK 1 _____	WEEK 2 _____	WEEK 3 _____	WEEK 4 _____	WEEK 5 _____
<p><b>Concept</b></p> <p><b>GDOE &amp;</b></p> <p><b>CCSS Standards</b></p>	<p><b>GDOE 4.1.1</b> Observe that results of repeated scientific investigations are seldom exactly the same. When differences occur, propose an explanation for them using recorded information from the investigations.</p> <p><b>GDOE 4.1.2</b> Form and support a hypothesis after collecting information by gathering specimens or observing an experiment.</p> <p><b>CCSS: 4.RI.4</b> Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.</p>	<p><b>GDOE 4.1.3</b> Differentiate between evidence gathered through observations and inferences, and use the evidence to develop a line of reasoning.</p> <p><b>GDOE 4.3.3</b> Describe motion in reference to space and time. <i>EXAMPLE(S):</i> Measure and graph motions of objects (e.g., ball, toy car) with reference to time.</p> <p><b>CCSS: 4.RI.5</b> Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concept or information in a text or part of a text.</p>	<p><b>GDOE 4.4.7</b> Describe, compare, and contrast objects in the universe. <i>EXAMPLE(S):</i> solar systems, galaxies, stars</p> <p><b>GDOE 4.4.8</b> Describe the seasonal changes that occur as a result of the Earth’s orbit around the Sun. <i>EXAMPLE(S):</i> Compare and contrast Guam’s two seasons: wet and dry.</p> <p><b>CCSS: 4.W.7</b> Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p><b>CCSS: 4.W.10</b> Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames ( a single sitting or a day or two) for a range of discipline-specific tasks, purposes and audiences.</p>	<p><b>Guam Standards:</b></p> <p><b>4.3.1 Demonstrate that the mass of a whole object is always the same as the sum of the masses of its parts.* Mass: a measure of how much matter is in an object</b></p> <p><b>CCSS: 4.RI.1</b> Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p>	<p><b>Guam Standards:</b></p> <p>4.3.2 Investigate, observe, and explain that heat is produced when one object rubs against another, such as one’s hands rubbing together.</p> <p><b>CCSS: 4.RI.2</b> Determine the main idea of a text and explain how it is supported by key details; summarize the text.</p>
<p><b>Big Idea:</b></p> <p><b>Vocabulary</b></p>	<p><b>Big Idea 1, Quarter 2</b></p> <p>Students will investigate and connect the relationships between the rotation of the earth around the sun, the solar system, and the changes of seasons.</p> <p>Question, hypothesis, data, collect, analyze, conclusion, prediction, investigation, experiment, support, observation, inference, inquiry, solar system, patterns, relationships, planets, sun, comets, meteors, asteroids, compare, contrast</p>	<p><b>Big Idea 1, Quarter 2</b></p> <p>Students will investigate and connect the relationships between the rotation of the earth around the sun, the solar system, and the changes of seasons.</p> <p>Question, hypothesis, data, collect, analyze, conclusion, prediction, investigation, experiment, support, observation, inference, inquiry, solar system, patterns, relationships, planets, sun, comets, meteors, asteroids, compare, contrast</p>	<p><b>Big Idea 1, Quarter 2</b></p> <p>Students will investigate and connect the relationships between the rotation of the earth around the sun, the solar system, and the changes of seasons.</p> <p>Question, hypothesis, data, collect, analyze, conclusion, prediction, investigation, experiment, support, observation, inference, inquiry, solar system, patterns, relationships, planets, sun, comets, meteors, asteroids, compare, contrast</p>	<p><b>Big Idea 2, Quarter 2</b></p> <p>Students will compare and contrast ways that heat is produced. They will cite evidence to show its benefits to humans as energy sources.</p> <p><b>Key Vocabulary</b></p> <p>mass, physical change, chemical change, friction, light, heat, fossil fuels, energy, transfer of energy, motion graphs</p>	<p><b>Big Idea 2, Quarter 2</b></p> <p>Students will compare and contrast ways that heat is produced. They will cite evidence to show its benefits to humans as energy sources.</p> <p><b>Key Vocabulary</b></p> <p>mass, physical change, chemical change, friction, light, heat, fossil fuels, energy, transfer of energy, motion graphs</p>

<p><b>Assessment</b></p> <p><b>Resources:</b></p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4 pp. x–xxiv and pp. D60–D93</p> <p><a href="#">Experimental Design</a></p> <p><a href="#">Nature of Science Game</a></p> <p><a href="#">Orbit and Spin</a></p> <p><a href="#">Force and Motion Professional Development</a> (Free online courses that include labs and activities for K–8 teachers for presenting concepts in force and motion. □)</p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4 pp. x–xxiv and pp. D60–D93</p> <p><a href="#">Experimental Design</a></p> <p><a href="#">Nature of Science Game</a></p> <p><a href="#">Orbit and Spin</a></p> <p><a href="#">Force and Motion Professional Development</a> (Free online courses that include labs and activities for K–8 teachers for presenting concepts in force and motion. □)</p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4 pp. x–xxiv and pp. D60–D93</p> <p><a href="#">Experimental Design</a></p> <p><a href="#">Nature of Science Game</a></p> <p><a href="#">Orbit and Spin</a></p> <p><a href="#">Force and Motion Professional Development</a> (Free online courses that include labs and activities for K–8 teachers for presenting concepts in force and motion. □)</p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4, pp. x–xxiv; E2–E64; E96–E118; C50–C58</p> <p><a href="#">Renewable Energy Activity Book</a></p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4, pp. x–xxiv; E2–E64; E96–E118; C50–C58</p> <p><a href="#">Renewable Energy Activity Book</a></p>
<p><b>ESSENTIAL QUESTIONS</b></p>	<p><b>Essential Question(s):</b></p> <p>How are the objects in our universe the same and how are they different? How does the relationship between Earth and the sun affect our seasons? What constitutes a year on the various planets? Why are they different? What predictable observable pattern occurs as a result of the interaction between the earth, sun, and moon?</p>	<p><b>Essential Question(s):</b></p> <p>How are the objects in our universe the same and how are they different? How does the relationship between Earth and the sun affect our seasons? What constitutes a year on the various planets? Why are they different? What predictable observable pattern occurs as a result of the interaction between the earth, sun, and moon?</p>	<p><b>Essential Question(s):</b></p> <p>How are the objects in our universe the same and how are they different? How does the relationship between Earth and the sun affect our seasons? What constitutes a year on the various planets? Why are they different? What predictable observable pattern occurs as a result of the interaction between the earth, sun, and moon?</p>	<p><b>Essential Question(s):</b></p> <p>How is mass effected when a physical change occurs? How is heat produced? What produces heat? How does one form of energy produce another form of energy? How can heat change the property of a substance?</p>	<p><b>Essential Question(s):</b></p> <p>How is mass effected when a physical change occurs? How is heat produced? What produces heat? How does one form of energy produce another form of energy? How can heat change the property of a substance?</p>

Month _____	WEEK 6 _____	WEEK 7 _____	WEEK 8 _____	ELEMENTS OF STANDARDS – WHATS THE MEANING? _____	Instructional Strategies (District) _____
<p>Concept</p> <p>GDOE &amp;</p> <p>CCSS Standards</p>	<p><b>Guam Standards:</b></p> <p>4.3.4 Investigate, observe, and explain that things that give off light often also give off heat. * Heat: a form of energy characterized by random motion at the molecular level.</p> <p>4.3.5 Observe and describe the things that give off heat, such as people, animals, and the Sun.</p> <p><b>CCSS: 4.RI.3</b> Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p>	<p><b>Guam Standards:</b></p> <p>4.3.6 Explain that energy in fossil fuels comes from plants that grew long ago. * For natural gas or coal, that was formed a long time ago from decayed plants and animals</p> <p><b>CCSS: 4.RI.4</b> Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area subject area.</p>	<p><b>Guam Standards:</b></p> <p><b>4.3.7 Describe how using one form of energy produces another form of energy. EXAMPLE(S): gasoline fuels motors to produce motion, heat boils water to produce steam, solar light is captured to produce electricity</b></p> <p>4.W.4 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-standards 1-8)</p>	<p><b>Big Idea 1: Elements of the Standard(s) – What’s the meaning?</b></p> <p>Students should be learning the following concepts as they study the relationships of space and time.</p> <p>Students should focus on comparing and contrasting various objects in the solar system. This includes the relationships within the solar system as well as galaxies and stars. One example would be length of years on the planets.</p> <p>Students should look for patterns and relationships between the objects and how these relationships affect the objects.</p> <p>As a continued study of patterns, students should be able to explain and predict weather patterns as it connects to specific periods of time during the year. While temperature doesn’t vary greatly in Guam, it is important that students connect their location to the equation as the stability that isn’t present in other locations on Earth.</p>	
<p>Big Idea:</p> <p>Vocabulary</p>	<p><b>Big Idea 2, Quarter 2</b></p> <p>Students will compare and contrast ways that heat is produced. They will cite evidence to show its benefits to humans as energy sources.</p> <p><b>Key Vocabulary</b></p> <p>mass, physical change, chemical change, friction, light, heat, fossil fuels, energy, transfer of energy, motion graphs</p>	<p><b>Big Idea 2, Quarter 2</b></p> <p>Students will compare and contrast ways that heat is produced. They will cite evidence to show its benefits to humans as energy sources.</p> <p><b>Key Vocabulary</b></p> <p>mass, physical change, chemical change, friction, light, heat, fossil fuels, energy, transfer of energy, motion graphs</p>	<p><b>Big Idea 2, Quarter 2</b></p> <p>Students will compare and contrast ways that heat is produced. They will cite evidence to show its benefits to humans as energy sources.</p> <p><b>Key Vocabulary</b></p> <p>mass, physical change, chemical change, friction, light, heat, fossil fuels, energy, transfer of energy, motion graphs</p>	<p>Students know that it is possible to measure the motion of an object based on the distance it will travel in a certain amount of time. They should be experimenting with motions and measuring the speed of an object at different time intervals. Changes in motion—speeding up, slowing down, changing direction—are due to the effects of forces. Any object maintains a constant speed and direction of motion unless an unbalanced outside force acts on it. When an unbalanced force does act on an object, the object's motion changes. Depending on the direction of the force relative to the direction of motion, the object may change its speed ( a falling apple) or its directing of motion ( the moon in its curved orbit), or both ( a fly ball). Students know that a graph can be created using one axis to represent the distance that an object travels and the other axis to represent the period of time the object is traveling. They know how to construct a graph that demonstrates a relation of</p>	

				<p>distance to time.</p> <p>This data should be graphed so that students are seeing how motion appears over time in the form of a graph.</p>	
<p><b>Assessment /Resources</b></p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4, pp. x–xxiv; E2–E64; E96–E118; C50–C58</p> <p><a href="#">Renewable Energy Activity Book</a></p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4, pp. x–xxiv; E2–E64; E96–E118; C50–C58</p> <p><a href="#">Renewable Energy Activity Book</a></p>	<p><b>Resources &amp; Links to Technology</b></p> <p>Harcourt Grade 4, pp. x–xxiv; E2–E64; E96–E118; C50–C58</p> <p><a href="#">Renewable Energy Activity Book</a></p>	<p><b>Big Idea 2: Physical Science: Elements of the Standard(s) – What’s the meaning?</b></p> <p>This unit will focus on physical science. Students will learn the following concepts:</p> <p>Students will be able to demonstrate that the mass of a whole object is always the same as the sum of the masses of the parts of the object.</p> <p>Student must learn that heat is a form of energy. They should learn various sources of heat energy and how each one gives off heat.</p> <p>Students will be able to identify and explain how heat transfers from one object to another. This includes recognizing that some materials are better conductors than others. Students know that when warmer things are put with cooler things, the warmer things lose heat and the cool things gain it until they are all at the same temperature. They know that a warmer object can warm a cooler object by contact or at a distance. Conduction is the transfer of thermal energy between things that are touching. Conduction can happen within one object. (For example, thermal energy can be conducted through the handle of a metal pot? Convection is the movement of thermal energy by the movement of liquids or gases. Convection in the oceans and atmosphere helps to move thermal energy around Earth, and is an important factor influencing weather and climate</p> <p>Energy in the form of fossil fuels comes from plants. Students will learn about the sources of fossil fuels and how they are formed as another form of energy.</p> <p>One form of energy is often used to produce another form of energy. Students will be able to provide examples of this and explain how fossil fuels are used to produce motion or how solar energy is used to produce electrical energy.</p>	

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