

SUBJECT: Science		GRADE: First Grade	
UNIT TITLE: Physical Sciences			
UNIT OVERVIEW			
Physics and chemistry involve the study of objects and their properties. Students examine changes to materials during mixing, freezing, heating and dissolving and then learn how to observe and measure results. In chemistry students study the relationships between properties and structure of matter. Laboratory investigations of chemical interactions provide a basis for students to understand atomic theory and their applications in business, agriculture and medicine. Physics deepens the understanding of the structure and properties of materials and includes atoms, waves, light, electricity, magnetism and the role of energy, forces and motion.			
LRG SKILLS AND DISPOSITIONS		STANDARDS	
		<p><u>PA Standards</u></p> <ul style="list-style-type: none">3.2.1.B5. Compare and contrast how light travels through different materials. Explore how mirrors and prisms can be used to redirect a light beam. <p><u>Next Gen Standards</u></p> <p>Waves and Their Applications in Technologies for Information Transfer</p> <ul style="list-style-type: none">Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.Make observations to construct an evidence-based account that objects can be seen only when illuminated.Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	
COMPETENCIES		LEARNING TARGETS	
<p><u>Competency:</u> I can think, reason, & explain the way a scientist does.</p>		<ul style="list-style-type: none">I can ask questions and define a problem. (K1SCA1B1)I can develop and use a model. (K1SCA1B2)I can plan and carry out an investigation. (K1SCA1B3)I can analyze and interpret data. (K1SCA1B4)I can use mathematical and computational thinking. (K1SCA1B5)I can construct explanations and design solutions. (K1SCA1B6)I can engage in an argument with evidence. (K1SCA1B7)I can obtain, evaluate, and communicate information. (K1SCA1B8)	

<p><u>Competency:</u> I can understand light and sound waves.</p>	<ul style="list-style-type: none"> ● I can state that heat, light, and sound travel in waves. (K1SCA7B1) ● I can describe sounds in terms of pitch, loudness, and reflection. (K1SCA7B2) ● I can explain the relationship between vibration and sound. (K1SCA7B3)
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<p>SUBJECT: Science GRADE: First Grade</p>	
<p>UNIT TITLE: Earth and Space Science</p>	
<p>UNIT OVERVIEW</p>	
<p>The dynamics of earth science include the studies of forces of nature that build up and wear down the earth's surface. Dynamics include energy flow across the earth's surface and its role in weather and climate. Space science is concerned with the origin and evolution of the universe. The understanding of these concepts uses principles from physical sciences, geography and mathematics.</p>	
<p>LRG SKILLS AND DISPOSITIONS</p>	<p>STANDARDS</p>
	<p><u>PA Standards</u></p> <ul style="list-style-type: none"> ● 3.3.1.A5. Become familiar with weather instruments. Collect, describe, and record basic information about weather over time. ● 3.3.1.B1. Explain why shadows fall in different places at different times of the day. <p><u>Next Gen Standards</u></p> <p>Earth's Place in the Universe</p> <ul style="list-style-type: none"> ● Use observations of the sun, moon, and stars to describe patterns that can be predicted. ● Make observations at different times of year to relate the amount of daylight to the time of year.
<p>COMPETENCIES</p>	<p>LEARNING TARGETS</p>
<p><u>Competency:</u> I can think, reason, & explain the way a scientist does.</p>	<ul style="list-style-type: none"> ● I can ask questions and define a problem. (K1SCA1B1) ● I can develop and use a model. (K1SCA1B2) ● I can plan and carry out an investigation. (K1SCA1B3) ● I can analyze and interpret data. (K1SCA1B4) ● I can use mathematical and computational thinking. (K1SCA1B5) ● I can construct explanations and design solutions. (K1SCA1B6) ● I can engage in an argument with evidence. (K1SCA1B7)

	<ul style="list-style-type: none"> ● I can obtain, evaluate, and communicate information. (K1SCA1B8)
<u>Competency:</u> I can explain patterns of weather and climate.	<ul style="list-style-type: none"> ● I can observe the weather and record data. (K1SCA10B1) ● I can use weather data to look for patterns in months and seasons. (K1SCA10B2) ● I can state that heat and light are forms of energy that come from the sun. (K1SCA7B4) ● I can state that heat, light, and sound travel in waves. (K1SCA7B1)
<u>Competency:</u> I can describe the Earth's place in the universe.	<ul style="list-style-type: none"> ● I can explain why we have different seasons. (K1SCA11B1) ● I can describe the different amount of daylight for different seasons of the year. (K1SCA11B2) ● I can describe motions of the sun, earth, and moon. (K1SCA11B3) ● I can relate the motion of the earth to time (K1SCA11B4)