HIGHLANDS SCHOOL DISTRICT
9 WEEK PACING GUIDE
GRADE 1 SCIENCE

COURSE **Science 1**	**UNIT 1: How Can We Send a Message Using Sound?** Number of Weeks __9__	**Big Idea(s):** Sound is caused by vibration. A pattern of sounds can be used to send a message without speaking.	**Essential Question(s):** What is needed to make sound? How can we send a message a long distance? How do our ears hear sounds?	**Materials/Resources /Activities**: Smithsonian Science for the Classroom Lessons 1-10 (follow teacher's manual for pacing of each lesson) Materials list p. 32 of Teacher Manual
Quarter 1	**Science and Engineering Practices**	**Disciplinary Core Idea**	**Cross Cutting Concepts**	
	Analyzing and interpreting data Constructing explanations Designing solutions Planning and carrying out investigations Engaging in argument from evidence	**PS4.A:** Sound can make matter vibrate, and vibrating matter can make sound. **PS4.C:** People use a variety of devices to communicate (send and receive information) over long distances. **ETS1.A:** A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. Before beginning to design a solution, it is important to clearly understand the problem. Asking questions, making observations, and gathering information are helpful in thinking about problems. **ETS1.B:** Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. **ETS1.C:** Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	Scale, proportion, and quantity Patterns Cause and effect Systems and system models	

COURSE Science 1	UNIT 2: How Can We Light Our Way in the Dark? Number of Weeks __9__	Big Idea(s): Objects are only visible if they give off their own light or if an external light shines on them. Light interacts with different materials in different ways. Interactions between light and materials can be used to keep people safe.	Essential Question(s): What is needed for an object to be visible? How do different materials placed in a beam of light cause different effects? How can light enhance safety?	Materials/Resources /Activities: Smithsonian Science for the Classroom Lessons 1-10 (follow teacher's manual for pacing of each lesson) Materials list p. 32 of Teacher Manual
	Science and Engineering Practices	**Disciplinary Core Idea**	**Cross Cutting Concepts**	
Quarter 2	Defining problems Planning and carrying out investigations Constructing explanations Obtaining, evaluating, and communicating information	**PS4.B:** Objects can be seen if light is available to illuminate them or if they give off their own light. Some materials allow light to pass through them, others allow only some light through, and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. **LS1.A:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. **LS1.D:** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. **ETS1.A:** A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.	Patterns Cause and effect Structure and function	

<table>
<tr><td>COURSE

Science 1</td><td>UNIT 3: How Can We Predict When the Sky will be Dark?

Number of Weeks
__9__</td><td>Big Idea(s):

We see objects when light shines on them or when they give off their own light.

The sun and moon appear to move across the sky in an arc pattern.

There is more daylight in the summer and less daylight in the winter.</td><td>Essential Question(s):

What objects can we see in the sky during the day and at night?

How does the sun and moon appear to move in the sky?

How does the amount of sunlight change throughout the year?</td><td>Materials/Resources /Activities:

Smithsonian Science for the Classroom Lessons 1-10

(follow teacher’s manual for pacing of each lesson)

Materials list p. 32 of Teacher Manual</td></tr>
<tr><td rowspan="2">Quarter 3</td><td>Science and Engineering Practices</td><td>Disciplinary Core Idea</td><td colspan="2">Cross Cutting Concepts</td></tr>
<tr><td>Developing and using models

Planning and carrying out investigations

Analyzing and interpreting data

Constructing explanations</td><td>ESS1.A: Patterns of the motion of the Sun, Moon, and stars in the sky can be observed, described, and predicted.
ESS1.B: Seasonal patterns of sunrise and sunset can be observed, described, and predicted.
PS4.B: Objects can be seen if light is available to illuminate them or if they give off their own light.
.</td><td colspan="2">Patterns

Cause and effect

Scale, proportion, and quantity</td></tr>
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COURSE Science 1	UNIT 4: How Do Living Things Stay Safe and Grow? Number of Weeks __9__	Big Idea(s): Living things can be categorized using patterns of similarities and differences. Individuals within a species have variation but are recognizable as that species. Parents and offspring behave in ways that help offspring survive.	Essential Question(s): What similarities and differences are there among young and adult animals? What similarities and differences are there among animals of different species? What behaviors do parents engage in to help their offspring survive? How do living things use their body parts to survive?	Materials/Resources /Activities: Smithsonian Science for the Classroom Lessons 1-10 (follow teacher's manual for pacing of each lesson) Materials list p. 32 of Teacher Manual
	Science and Engineering Practices	**Disciplinary Core Idea**	**Cross Cutting Concepts**	
Quarter 4	Asking questions and defining problems Constructing explanations and designing solutions Obtaining, evaluating, and communicating information	**LS1.A:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. **LS1.B:** Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. **LS1.D:** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. **LS3.A:** Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. **LS3.B:** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. **ETS1.A:** A situation that people want to change or create can be approached as a problem to be solved through engineering. Before beginning to design a solution, it is important to clearly understand the problem.	Patterns Structure and function	