First Grade Elevate Science Curriculum June - 2023

Physical Science

Topic 1: Sound - Connect ideas about sounds and expand on them.

Standards: 1-PS4-1, 1-PS4-4, ETS1-1

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
1.MD.A.1	**SL1.1** **W.1.8**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Learn how sound is related to the vibration of matter
- Describe sound by its pitch and volume
- Explore the vibrations that sounds make in matter
- Vibrate objects to make sounds
- Show that sounds can make objects vibrate
- Identify how people use sounds
- Order and compare objects by length
- Recall information from experiences and gather information to answer questions
- Participate in collaborative conversations

Extended Activities:

1. ***Cultural Music:*** Brainstorm a list of musical instruments they know. Remind children that sound can be described as high or low and loud and soft. Play several pieces of music from different cultures. Invite children to describe the music they hear using words such as happy, sad, excited or scary.

2. ***Secret Code:*** Design a code to send a secret message through sound. Make a plan for how they can design a device or an instrument to solve the problem of sending a sound code over a long distance. Students will use the device to send a message and evaluate its effectiveness.

Gifted and Talented Activities:

1. ***Sound Waves:*** Set up two stations in the classroom. At the first station, place several tuning forks, along with a metal spoon, a plastic container, a notebook and a wooden box. At the second station, place a portable radio or CD player with a CD, several sheets of paper, a meter stick, a marker and a roll of masking tape. Have students work in small groups to write or draw up a plan for investigations based on the materials found in each station based on tests they conduct during their exploration. Ask questions about each other's findings to assess understanding of sound waves and vibrations.

2. ***Alert! Alert!:*** Improve the design of a smart phone's bad weather alert. Play some of the alert sounds on a smartphone for students to hear. Invite them to share ideas about what they like or dislike about each alert. Remind students that alerts should not entertain but rather get a person's attention. Consider both pitch and volume in the design. Use what is learned during the lesson to create an alert for another situation - waking up in the morning or taking vitamins.

Topic 2: Light **-** Learn about sources of light and recognize that light enables them to see objects while exploring how light interacts with matter.

Standards: 1-PS4-2, 1-PS4-3, 1-PS4-4, ETS-1

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
1.MD.A.1	**SL1.1** **W.1.8**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Observe that light is needed to see objects
- Distinguish between objects that are sources of light and those that are seen when illuminated by a light source
- Identify objects that give off light
- Describe how light interacts with different materials
- Classify materials as opaque, transparent or translucent
- Explain how people use light
- Identify how people use light to communicate with others far away
- Recall information from experiences and gather information to answer questions
- Participate in collaborative conversations

Extended Activities:

1. ***Light Transmission:*** Use flashlights to determine light transmission through materials. Turn on the light. Shine it on plastic wrap. Observe. Repeat with wax paper, aluminum foil and white paper. Record whether the

light was bright, dim, or no light. Explain what the light did (light will only be seen where a material is present to reflect the light in our eyes).

2. ***Game Designer:*** Provide groups with resources about the work of a videogame designer and the work of a board game designer. Work with partners to design a board game that uses light in a game to tell when an answer is correct or incorrect.

Gifted and Talented Activities:

1. ***Puppet Show:*** Have children create character puppets using both opaque and translucent materials and craft sticks. Create a skit for the puppet show telling how much light can shine through different materials.

2. ***Help Send a Message:*** Consider how to design a method that uses light to communicate a message and how it will be understood by someone else. Use the following questions to help guide inquiry - How can you send messages with light? How can one message be different from another? How can you keep your message secret? Draw and write a guide of codes. Describe how messages are shared.

Earth Science

Topic 3: Earth and Sky - Learn that the sun is a star that provides heat and light to Earth. Earth's movement around the sun produces seasons, and Earth's rotation produces day and night. The moon moves around Earth, and it also rotates.

Standards: 1-ESS1-1, 1-ESS1-2, ETS1-1, ETS1-2

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
MP2,4,5 **1.OA.A.1**	**W.1.8** **RI.2.1**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Learn that the sun is a star we see in daytime
- Explain what gravity is and why it is an important part of space
- Describe the sun, the moon, and the stars
- Learn that Earth experiences day and night because of its rotation
- Recognize that the moon's shape seems to change because of Earth's revolution around the sun
- Tell what causes day and night
- Observe, describe, and predict the phases of the moon
- Reason abstractly and quantitatively
- Model with mathematics
- Use addition and subtraction to solve problems
- Ask and answer questions to demonstrate understanding of key details
- Recall information from experiences and gather information to answer questions

Extended Activities:

1. ***Moon Changes:*** Observe the moon and record data about how the moon changes during that time. Use a moon calendar. Observe the moon each night and draw a picture of the moon on the calendar every day. Describe how the moon appears to change and why.

2. ***The Night Sky:*** Make a model shoebox viewer and use it to observe the and infer the reasons that objects can be seen in the night sky. Place clay in the middle of each box and a glow in the dark star on top of the clay. Expose the glow in the dark star to light right before the activity. Shine the flashlight and observe. Record observations. Analyze and conclude why they can see stars.

Gifted and Talented Activities:

1. ***Patterns and Cycles:*** Use observations of the sun, moon, and stars to describe patterns that can be predicted. Develop a model based on observations to show the predictable pattern of the motion of the sun and moon in the sky. Observe the position of the sun for at least three different times throughout the day. Predict the pattern of motion for the sun for the next day and record predictions. Make and record similar observations about the motion of the moon (an hour apart during the evening). Predict the moon's motion. Work in pairs to construct a model that shows the pattern of motion of the sun or moon. Point out which horizons are east, west, north, and south so that students can use the directions in recording and talking about their observations. Note the time of day each observation is made.

2. ***Using Phenomena:*** Make a code to tell where Earth is each month in its path around the sun. The code should be a list of descriptions that if a user chooses a month, and applies the description for that month, it will direct the user to a certain labeled position on the diagram of Earth's orbit to identify it as the position of Earth at the chosen month.

Topic 4: Weather and Seasons **-** Learn about different types of weather and how weather changes with the seasons.

Standards: 1-ESS1-2, ETS1-2

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
MP,2,4,5 **1.OA.A.1** **1.MD.C.4**	**W.1.7** **W.1.8**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Learn about different weather
- Observe different tools scientists use to study weather
- Measure weather
- Learn how Earth gets different amounts of sunlight during each season
- Learn how sunlight can affect temperature and precipitation
- Describe how weather changes from day to day
- Describe the seasons

Extended Activities:

1. ***Daylight Time of Year:*** Make observations at different times of year to relate the amount of daylight to the time of year. Collect data on the amount of daylight during each season where we live. Use data to record relative daylight amounts in a chart. Choose a method or how to present the information showing more or less light. Present information to the class and tell what the charts show.

2. ***Seasonal Activities:*** Create a poster or video showing the best activity to do during each season. Show the place and activity. Explain the kind of weather that is best for each activity.

Gifted and Talented Activities:

1. ***Daylight Time of Year Around the World:*** Make observations at different times of year to relate the amount of daylight to the time of year using the United States and another country of their choosing. Collect data on the amount of daylight during each season where we live as well as in the other country. Use data to record relative daylight amounts in a chart. Note similarities and differences. Choose a method or how to present the information showing more or less light. Present information to the class and tell what the charts show.

2. ***Design and Build a Wind Vane:*** Construct a wind vane that aligns with the direction of the wind. Use the wind vane to determine the direction of the wind. Use north, east, south, and west. Share information with the class.

Life Science

Topic 5: Living Things - Learn more about the different parts that plants and animals have and how these parts function.

Standards: 1-LS1-1, ETS1-1, ETS1-2, ETS1-3

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
MP 2,4, **1.OA.A.1** **1.MD.C.4**	**RI.1.1** **W.1.8**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Discover how plant parts help plants survive
- Identify the major parts of plants and explain how they help each plant
- Discover how animal parts help animals survive
- Identify the major parts of animals and explain how each part helps the animal
- Explore how the different parts of plants and animals help them survive
- Demonstrate how people can learn from plant and animal parts
- Use their senses to compare different environments
- Use their senses to observe living things in their environment
- Reason abstractly and quantitatively
- Model with mathematics
- Ask and answer questions about key details in a text
- Recall information from experiences and gather information to answer questions

Extended Activities:

1. ***Greenhouse:*** Build a greenhouse to learn how a greenhouse affects a plant's growth. Recognize design restraints. Propose and test a solution to a problem. Evaluate the effectiveness of a product design or solution. Select the appropriate tools for the task. Gather materials such as chopsticks, shoeboxes, plastic wrap, glue, masking tape, rulers, soil, clay, aluminum foil, wax paper, sand, plastic tubs or trays. Draw their design and the plants they will grow. Build a prototype and plant seeds. Determine how climate affects plant growth. Compare and contrast their design with others. Observe the greenhouses to see whose plants thrive and determine why.

2. ***Edible Plant Parts:*** Use of a chart showing the parts of a plant. Research each part to identify a food that he/she eats and the part of the plant it represents. Create a poster advertising their findings. Compare posters with other students.

Gifted and Talented Activities:

1. ***Mix It Up!:*** Build a compost pile using soil and different organic materials. Use containers of assorted sizes and shapes with lids, non-biodegradable materials, craft sticks or small shovels and earthworms. Find out what rots in a compost pile. Research what those things need in order to rot. Decide where the pile needs to be. Write why. Observe each week. Record changes. Write and draw about what they discover. Compare and contrast their pile to another group's pile. Decide if changes need to be made.

2. ***Plant and Animal Structure Invention Ideas:*** Show students images from a Burdock plant or other plants that have burs such as Cocklebur or Sandbur. Identify the plant seed or fruit that has tiny hooks that attach easily and tightly to fur and fabric. Explain that people observed these plants because they wanted an easy and fast way to attach parts of clothes and/or shoes

(hook and loop closure and Velcro). Brainstorm a list of other plant and animal structures to get children thinking about ideas to solve other human problems.

Topic 6: Parents and Offspring - Expand on ideas about how to observe using their senses, how plants are alike and different, how animals are alike and different, and how to differentiate between living and nonliving things.

Standards: 1-LS1-2, 1-LS3-1

Cross Curricular Standards			
Math	**ELA**	**Technology**	**SEL**
1.NBT.B.3 **1.NBT.C.5** **1.NBT.C.6**	**RI 1.1** **RI 1.2** **RI 1.10** **W.1.7 , W.1.8**	**8.1.2 DA.1, 2,3,4** **8.1.2 AP.4**	**SEL.PK-12-1.3** **SEL.PK-12-2.3** **SEL.PK-12-4.1** **SEL.PK-12-5.4**

Objectives:

- Learn about the life cycles of plants and animals
- Observe the life cycles of some plants and animals
- Explore more about how young plants and animals are alike and different from their parents
- Understand that plants and animals are like, but not exactly like, their parents
- Learn what animals need to survive
- Learn how parents' behavior helps their young survive
- Tell what animals need to survive
- Explain how the behaviors of parents and their young help the young survive

Extended Activities:

1. ***Plant Models:*** Choose an illustration of a plant. Design and build a model of the plant. Compare and contrast the model to the picture. Tell if the model shows all of the parts. Compare and contrast to models made by other students. Tell how they are the same and different.

2. ***Cat Whiskers:*** Make a model of the head and whiskers of a cat using various materials. Demonstrate how whiskers help a cat know how big an opening is. Discuss what happens when they brush against the sides of a space. Tell why they are important for helping a cat move through openings and around objects safely.

Gifted and Talented Activities:

1. ***Offspring Survival:*** Identify a pattern in behavior of parents and offspring that help the offspring survive. Describe the behavior pattern they demonstrate and how it helps them survive. Look through textbooks, appropriate websites such as PebbleGo and BrainPop and other available media for images, sounds and text descriptions. Choose one to two behaviors to demonstrate and elicit why the animals may exhibit said behaviors. Describe how the mother might respond. Identify behaviors that relate to survival needs such as feeding, comforting and protecting offspring. Create a class list. Note similarities and differences among animal groups.

2. ***It's All in the Genes:*** Take a photograph of his/her face and enlarge it to compare to photos of parents and/or grandparents. Identify which person he/she inherited different traits from. Include hair color and type, eye shape and color, nose, ears, mouth and any other distinguishing features.

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	**X**	Standards in Action: *Climate Change*