

Updated June 2023

Kindergarten Science Curriculum

Topic 1- Motion-- [KPS 2-1 and KPS 2-2, KETS 1-1, 1-2, 1-3]

Cross Curricular Standards			
Math	ELA	Technology	SEL
MP 2 MD 1-2	RI 1 W 7 SL 3	8.2	SELPK-12 1.4 SELPK-12 2.2 SELPK-12 3.3 SELPK-12 3.4 SELPK-12 4.1 SELPK-12 5.2

Objectives

1. Students will carry out an investigation and collect data to provide evidence for the effects of pushes and pulls.
2. Students will observe how objects move.
3. Students will observe different ways objects can move and tell why objects move.
4. Students will investigate how objects move.

Extended Activities:

1. **Label, Draw, Color:** Students will draw 2 pushes and 2 pulls, label, and explain each drawing.
2. **Directions:** Students will tell a story about three images in the book to explain how two different cars are moving along a road.

Gifted and Talented Activities:

1. Help children think of everyday examples of pushes and pulls, such as pushing a button and pulling on socks. Ask them to tell a story that features the pushes or pulls. They might draw an illustration to support their story.

2. Independently read *Give it a Push! Give it a Pull!* By Jennifer Boothroyd. Have students create drawings of the examples given in the book. Explain what happens when an object is pushed or pulled. (It moves.)

STEM Objectives:

1. Students will design a sail for a car to optimize the way it moves.

STEM Activities:

Students will design and build a sail and attach it to a car. They will make changes to the sail to make it work better.

Topic 2- Matter-- [ETS 1-1 and 1-2]

Cross Curricular Standards			
Math	ELA	Technology	SEL
MP 2, 4	RI 2.1 W 2.8	8.2	SELPK-12 1.2 SELPK-12 2.1 SELPK-12 3.2 SELPK-12 4.2-4.3 SELPK-12 5.1-5.2

Objectives

1. Students will name the five senses.
2. Students will describe and sort objects.
3. Students will observe the three states of matter.

Extended Activities:

Students will sort objects into groups based on their traits/characteristics.

Students will learn how a hot air balloon works, then using that knowledge and their background knowledge on the three states of matter, tell how they can make a hot air balloon work better. Draw a picture, label the parts, and tell a friend about their design.

Gifted and Talented Activities:

1. Students will look at a photograph of a child in nature. Tell how they are using their senses, then tell a different way they can use the same sense.

2. Students can play “teacher”. First they will think of two properties such as “hard” and “small” then ask their partner to find an object in the room that has those two characteristics. Have the “teacher” explain why each object is correct or incorrect.

STEM Objectives:

1. Use senses to make observations about objects hidden in a bag in order to identify the objects.
2. Students will use their senses to observe and sort objects.
3. Students will use what they know about matter to sort objects.

STEM Activities:

Students will sort a box of objects into two groups based on their characteristics.

Students will sort images of solids, liquids, and gasses. Then they will tell which group is the largest and smallest.

Topic 3- Sunlight- [PS 3-1 and 3-2]

Cross Curricular Standards			
Math	ELA	Technology	SEL
MD 2	RI 1	8.2	SELPK-12 1.4 SELPK-12 2.2 SELPK-12 3.3-3.4 SELPK-12 4.1 SELPK-12 5.2

Objectives

1. Students will use their senses to observe how sunlight feels.
2. Students will observe how sunlight warms everything on Earth’s surface.

Extended Activities:

Design and construct a model of a doghouse that will help a fictional dog keep cool if the weather is hot and sunny.

Students will place 3 various objects in the sun and wait ten minutes. After ten minutes, the students will tell which objects became hot, warm, or slightly warmer. The students will record their observations on a data sheet.

Gifted and Talented Activities:

Students will write a “how-to” book explaining how to build the dog house that they created in the extended activity.

Students will go on a nature walk outside of the school to discover what they can observe using their five senses. They will draw and label what they observe. For the sense of taste, the students will discuss how tasting objects outside is not safe.

STEM Objectives:

1. Students will describe the sun.
2. Students will plan and design a roof to block the effects of the sun.

STEM Activities:

Students will place ice cubes in the sun and ice cubes in the shade and compare what happens to the ice cubes after ten minutes.

Students will design a wearable device to keep themselves cool on a hot sunny day. Describe how the device will work and what materials would be needed to make it.

Students will plan and design a roof using foil, sandpaper, pieces of plywood, or squares of canvas to block the effects of the sun. They will then test and evaluate their designs.

Cross Curricular Standards			
Math	ELA	Technology	SEL
MD 1	RI 1	8.2	SELPK-12 1.4 SELPK-12 2. 2 SELPK-12 3.3-3. 4 SELPK-12 4.1 SELPK-12 5.2

Objectives

1. Students will describe different types of weather.
2. Students will observe that weather changes from day to day.
3. Students will observe patterns in the weather.
4. Students will describe the seasons.
5. Students will understand why it is important to prepare for severe weather.

Extended Activities:

Students will observe and record the weather for one month. They will use a weather chart and check marks to indicate the type of weather each day.

Have students bend a stretch according to the direction given from the teacher using the words, "low" and "high" in order to reinforce the vocabulary that describes the sun's position.

Have the students pretend to be meteorologists giving warnings about various types of severe weather. The students should tell what the weather will be like, the name of the type of weather, and how best to stay safe.

Gifted and Talented Activities:

The children will draw a picture of a sunny day and cloudy day and compare and contrast their pictures.

The students will draw a picture of weather that is different from the one on page 102-103 (fall). Then they will add a person wearing the correct clothes as well as a tree to indicate what the weather is like.

Students will glue sun pictures of the early morning, noon, and early evening skies in sequence. The teacher will ask them to present the pictures and describe where the sun seems to be in the sky at different times of day.

STEM Objectives:

1. Students will obtain and evaluate information about weather patterns. They will communicate this information so that others understand.
2. Students will design a tent that does not blow away in the wind.
3. Students will make a rain collector.

STEM Activities:

The students will work in pairs to gather information about the weather in the area. They will record this data in and communicate with other classmates telling how the weather has changed over one week.

The students will make a model of rain by filling a jar with water, adding shaving cream on top, adding colored water and telling a partner what they observe happening. They will explain why they think it “rained” in the jar.

The students will design and build a model of a tent that can withstand wind. Various materials will be set out for the students to use. The tent must keep the sun (a lamp) out as well as withstand the wind (fan).

The students will build a rain collector using plastic bottles, pebbles, and markers. They will record any rainfall on a data sheet.

Topic 5 - Needs of Living Things [LS 1-1; ETS 1-1, 1-2]

Cross Curricular Standards			
Math	ELA	Technology	SEL
CC 5	RI 1, 3, W 7	8.1 8.2	SELPK-12 1.4 SELPK-1 2.2 SELPK-12. 3.3-3.4 SELPK-12 4.1 SELPK-12 5.2

Objectives

1. Recognize what plants need to survive.
2. Recognize what animals need to survive.
3. Recognize what people need to survive.
4. Recognize that plants and animals change as they go through a life cycle.

Extended Activities:

Students will compare and contrast the needs of cats and big cats telling what each needs to survive. They will draw and label a picture of each.

Students will write a report on a particular animal. They will select an animal that is not a dinosaur and not a pet. They will use PebbleGo to learn about the animal's habitat, diet, and any special facts. They will add pictures to their book as well.

Students will pantomime how they look and feel when they haven't eaten in a while. They will then explain how food is a necessary part of life.

Students will draw and label the life cycle of a caterpillar after reading *The Very Hungry Caterpillar* by Eric Carle. Students will tell how each stage of the life cycle is important.

Gifted and Talented Activities:

Groups of students will make an illustrated chart showing pictures of three nonliving and three living things. Groups may find or draw pictures to use in their chart. The teacher will ask them to explain how they determine whether items were living or nonliving.

The children will make a picture book. The teacher will ask them to draw and label a picture of each

need listed on the board. (air, water, space, light) The teacher will encourage the children to show their pictures and read their labels aloud to a partner.

The children will sort pictures of various animals at various stages in their life cycle. They will tell which animals start as eggs and which animals start as live young.

The students will design a nature park that would invite local animals to stay there. The drawing will include plants the animals need as well as a source of water and food. Students will share their designs with the class.

STEM Objectives:

1. Students will tell what plants need to survive.
2. Students will show how plants get the nutrients they need.
3. Students will show how caterpillars change into butterflies.

STEM Activities:

Students will observe photos of two plants. One plant has gotten what it needs to survive while the other has not. Students will draw conclusions based on the two photos.

Students will water a white carnation with colored water to see how the stem moves water to the petals.

Students will hatch caterpillars from eggs, and observe them daily. They will collect data on the stages of the caterpillar until they turn into butterflies. Through the process, the students will track the days the caterpillar is in each cycle. Drawings and labels will be kept as well.

Topic 6 - Environments [LS 1-1; ETS 1-1, 1-2]

Cross Curricular Standards			
Math	ELA	Technology	SEL
MP 4	W 7	8.1 8.2	SELPK-12 4.1-4.3 SELPK-12 5.5

Objectives

1. Students will observe different places where plants and animals live.
2. Students will observe ways that plants and animals change their environment.
3. Students will observe ways people can change their environment.
4. Students will tell how they can protect the environment.

Extended Activities:

Have students draw one more animal and one more plant (different from that on page 186-187) that could also be found in the environment on pages 186-187 (near green plants, not desert). Have students tell how they know that animal or plant would live in that particular environment.

The students will define “caption”, then write a caption for the animal photos on pages 194-195.

The students will make a trail sign for a beach trail that lets people know how to care for the local environment.

Gifted and Talented Activities:

The students will write a report on a habitat (forest, plain, desert, ocean). They will work in small groups to write sentences telling what the habitat is like, what animals live there, and what the weather is like. The students will gather their information from PebbleGo.

The students will name another animals and describe how it changes its environment. They will draw a before and after picture that shows the changes. They will share their drawings with the class.

STEM Objectives:

1. Students will investigate how plants make changes to where they live.
2. Students will subtract numbers within five.
3. Students will change something old into something new. (resuing)
4. Students will solve a problem using old materials.

STEM Activities:

The students will plant radish seeds in a small cup of soil. They will observe the plants every few days and make note of any changes on a data sheet. They will draw a picture of the plant and add labels for the parts of the plant. They will tell how the plant changes the environment. (It changes the soil).

The students will show how tree populations change when homes are built. They will show a group of five trees, three that are cut to make room for homes, and show how many are left. They will write an equation to match the story. (TB 209)

The students will reuse a plastic bottle to make a paint stamper. They will create a painting with flowers using the bottom of plastic water bottles.

The students will design a way to get into a treehouse using old materials shown on TB 218 - 219. They will show how old materials can be reused so that new materials don't need to be made as well as how landfills can be used less.

New Jersey Legislative Statutes and Administrative Code
(place an "X" before each law/statute if/when present within the curriculum map)

	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>		Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	X	Standards in Action: <i>Climate Change</i>
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