

KINDERGARTEN

FOSS: Trees and Weather

Anchor phenomenon: Trees are plants that live and grow through the seasons

What do trees need to live and grow?

How does weather affect trees?

What changes do trees cause in their surroundings?

To a kindergartner, the oak on the corner, the pines at the park, and the mulberry tree at school are all phenomena. Systematic investigation of trees over the seasons provides students with a better understanding of the place of trees in the community. Students observe day-to-day changes in weather over the year and the impact weather has on living things. Students have experiences that help them understand what plants (and animals) need to survive and the relationship between their needs and where they live. By monitoring weather, they find patterns and variations in weather and come to understand the importance of weather forecasts to prepare for severe weather.

New York State Science Learning Standards:

Earth Sciences: K-ESS2-1, K-ESS2-2*, K-ESS3-1*, K-ESS3-2

Physical Sciences: K-PS3-1*; Life Sciences: K-LS1-1*

Engineering Design: K-2 ETS1-2*

Practices:

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Crosscutting Concepts:

- Patterns
- Cause and effect
- Scale, proportion, and quantity
- Systems and system models
- Structure and function
- Stability and change

FOSS: Materials and Motion

Anchor phenomenon: Objects are made of materials and the properties of those materials determine their use; objects can move

What is made of wood, paper, and fabric?
How are the properties of those useful to us?
How can we change the motion of an object?

Students start by investigating materials—wood, paper, and fabric—and determine how material properties determine their use. Students use those materials to engineer structures, applying ideas of energy transfer. Students come to understand that humans use natural resources for everything they do and that people impact the world around them. After building a repertoire of practices with materials and objects, students investigate the effect of pushes and pulls on objects, and apply their intuitive notion of the concept of variables to change the speed and direction of rolling balls and balloon rockets to achieve specific outcomes.

New York State Science Learning Standards:

Physical Sciences: K-PS2-1, K-PS2-2, K-PS3-1*, K-PS3-2

Earth Sciences: K-ESS3-3

Engineering Design: K-2 ETS1-1, K-2 ETS1-2*, K-2 ETS1-3

Practices:

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Crosscutting Concepts:

- Patterns
- Cause and effect
- Scale, proportion, and quantity
- Systems and system models
- Energy and matter
- Structure and function

Amplify: Needs of Plants and Animals

Anchor phenomenon: When vegetables were planted in the Mariposa Grove community garden, the monarch caterpillars disappeared

How can the kids in Mariposa Grove attract monarch caterpillars to their neighborhood?

Students take on the role of scientists in order to figure out why there have been no monarch caterpillars in the community garden since vegetables were planted. They investigate how plants and animals get what they need to live and grow, and make a new plan for the community garden that provides for the needs of the monarch caterpillars in addition to producing vegetables for humans.

New York State Science Learning Standards:

Life Sciences: K-LS1-1

Earth and Space Sciences: K-ESS2-2, K-ESS3-1, K-ESS3-3

Engineering Design: K-2-ETS1-1, K-2-ETS1-2

Practices:

- Developing and using models
- Analyzing and interpreting data
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information
- Engaging in argument from evidence

Crosscutting Concepts:

- Patterns
- Systems and system models