

FOURTH GRADE

FOSS: Soils, Rocks, and Landforms

Anchor phenomenon: Earth's landscape—the shape and the composition of landforms

What are Earth's land surfaces made of?

Why are landforms not the same everywhere?

Students have firsthand experiences with soils and rocks, and modeling experiences using tools such as topographic maps and stream tables. Students come to understand that weathering by water, ice, wind, living organisms, and gravity breaks rocks into smaller pieces, erosion transports earth materials to new locations, and deposition is the result of that transport process that builds new land. Students conduct controlled experiments to determine the impact of changing the variables of slope and amount of water in stream tables. Students interpret data from diagrams and visual representations to build explanations from evidence and make predictions of future events.

New York State Science Learning Standards:

Earth Sciences: 4-ESS1-1, 4-ESS2-1, 4-ESS2-2, 4-ESS3-1, 4-ESS3-2

Engineering Design: 3-5 ETS1-1, 3-5 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

Amplify: Vision and Light

Anchor phenomenon: The population of Tokay geckos in a rainforest in the Philippines has decreased since the installation of new highway lights

Why is an increase in light affecting the health of Tokay geckos in a Philippine rainforest?

As conservation biologists, students work to figure out why the population of Tokay geckos has decreased since the installation of new highway lights in the rainforest. Students use their understanding of vision, light, and information processing to figure out why an increase in light in the geckos' habitat is affecting the population.

New York State Science Learning Standards:

Physical Sciences: 4-PS4-2

Life Science: 4-LS1-1, 4-LS1-2

Practices

- Asking questions and defining problems
- Developing and using models
- Engaging in argument from evidence
- Analyzing and interpreting data

Crosscutting Concepts

- Cause and effect
- Structure and function
- Stability and change