1st Grade Earth Science

Weather Observations

Big Idea

We can observe our weather changing.

Teacher Background Information – for teacher content knowledge only, NOT student learning goals

Perhaps the most important reason for students to study the earth repeatedly is that they take years to acquire the knowledge that they need to complete the picture. The full picture requires the introduction of such concepts as temperature, the water cycle, gravitation, states of matter, chemical concentration, and energy transfer. Understanding these concepts grows slowly as children mature and encounter them in different contexts.

Essential Question

How does the weather give us information about the world around us?

Instructional Implications

At this stage children have many questions and ideas about the world outside their door. They should be provided with guidance to make observations on a daily basis, record as data, and discuss their ideas based on the evidence from the data. Encouraging young children to think like scientists is key to their development.

Tracking daily weather occurrences throughout the year will provide real data for students to further their understanding. Students can discover patterns of weather changes during the year by keeping a journal. They can draw a daily weather picture based on what they see out the window and make simple charts and graphs from data they collect.

Emphasis should be on developing observation and description skills.

AAAS Benchmarks/National and Science Education Standards

Processes that Shape the Earth

- Change is something that happens to many things. 4C/P2*

Weather

- Weather changes from day to day and over the seasons. Weather can be described in measurable quantities, such as temperature, wind direction, and precipitation.

Objects in the Sky

- The Sun provides the light and the heat necessary to maintain the temperature of the earth.

Materials/Resources

STC Weather Kit

Weather vane, thermometers, rain gauge

What's the Weather Like Today by Rozanne Williams

Science Process Skills
Observation
Classification
Simple Investigation
Prediction
Data Collection
Communication

Local Connections
Use your outdoor setting; playground.
National Weather Service
Meteorologist
Traditional Ecological Knowledge (TEK)

- Tlingit Elder/Culture Bearer

Related Scientist or Career Path

What is a Scientist by Barbara Lehn
Meteorologist

Scientist: Gabriel Farenheit

Fahrenheit was known for developing meteorological instruments. He is credited for creating very precise thermometers. The first ones used alcohol. Later, he used mercury due to superior results. In order for Fahrenheit's thermometers to be used, though, there had to be a scale associated with them. He came up with one based on 1. the coldest temperature he could get in a laboratory setting 2. the point at which water froze 3.and the temperature of the human body. Once he started using a mercury thermometer he adjusted his scale upward to include the boiling point of water.

Student Difficulties and Misconceptions

Students' ideas about conservation of matter, phase changes, clouds, and rain are interrelated and contribute to understanding the water cycle. Students seem to transit a series of stages to understand evaporation. Before they understand that water is converted to an invisible form, they may initially believe that when water evaporates it ceases to exist, or that it changes location but remains a liquid, or that it is transformed into some other perceptible form (fog, steam, droplets, etc.)

Concepts of the water cycle are to be left for older grades.

Assessments

Assessment– ongoing formative, appropriate for the primary classroom

Science Notebooks

Anecdotal notes – continuum

Photo documentation - of student work