

SCED 202 Learning Progressions:
Rock Cycle Learning Progression – Grade Level K-2
SCED 202: Matter and Energy in Earth Systems

Prerequisite skills:

- Basic observation skills, including magnification using handlens and microscope.
- Understand distinction between observation and inference.

Learning Target:

2-PS1-1 Different kinds of matter exist, and many of them can be either solid or liquid. Matter can be described and classified by its observable properties (e.g., visual, aural, textural), by its uses, and by whether it occurs naturally or is manufactured. Objects or samples of a substance can be weighed, and their size can be described and measured.

Success Criteria:

I can explain how rocks can serve as a common example of matter that can be described and classified by its observable properties.

Specifically:

My specialist group can discern the properties that distinguish our assigned rock type by making observations of representative samples.

Formative Assessment:

Completion of Table 2-5 and peer teaching

Learning Target:

ESLI 2.1: Earth Scientists use the structure, sequence, and properties of rocks, sediments and fossils to reconstruct events in Earth's history.

CC(2-PS1-3): Objects may break into smaller pieces and be put together into larger piece, or change shapes.

Success Criteria:

I can correlate my observations of rock properties with their inferred mode of formation.

Specifically:

I can describe how the properties of igneous extrusive, igneous intrusive, sedimentary and metamorphic rocks allow Earth Scientists to infer the processes that formed them.

Formative Assessment:

Completion of Table 2-10 and performance and critique of rock cycle skits

Learning Target:

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

K: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)

Success Criteria:

I can identify examples of important observations of Earth Systems at different scales, from the microscopic to planetary.

Formative Assessment:

Completion of Table 2-2 and class discussion

Big Idea (ESLI 4.6):
Earth materials take many forms as they cycle through the geosphere.

Rocks form from the cooling of magma, the accumulation and consolidation of sediment, and the alteration of older rocks by heat pressure and fluids. These 3 processes form igneous, sedimentary and metamorphic rocks.

Related big ideas include:

- Flowing water in streams strongly shapes the land surface through weathering, erosion and deposition.
- Measurements of a variety of properties can be used to identify particular materials.
- Every human-made product is designed by applying some knowledge of the natural world and is made of materials derived from the natural world.