



Quarrybrook
EXPERIENTIAL EDUCATION CENTER

Program Title: Rock Cycle Survey

Audience: 4th grade students

Program Theme: Any rock you pick up from any rocky planet comes from one of just three rock families: it's either Igneous, Sedimentary, or Metamorphic! Clues visible in the rock show evidence of how it was formed, providing you with the information to decide which rock family it is classified in. The action story of the Rock Cycle helps us comprehend the mechanisms of rock formation, helping us build the story of our dynamic Earth. We can investigate rocks and outcrops anywhere we go, to observe clues and piece together the story of how our landscape has changed over time.

Program Goals: Students will examine rock samples as we unfold the action story of the Rock Cycle. Students will then investigate bedrock outcrops, looking for the evidence recorded in the rock of the Earth events that formed it.

Next Generation/Common Core Connections:

Topics: 4-ESS1 Earth's Place in the Universe, 4-ESS2 Earth's Systems

Dimensions: Patterns, Cause and Effect

Program Outline:

Activity 1: ROCK CYCLE REVIEW (60 min.) – Working with rock samples and visual aids, students will investigate the action story of the Rock Cycle. The presence or absence of a pattern in the rock will be used as evidence to support an explanation.



Teachers are welcome to make any classroom-connecting comments about the students' past or future work on their Rock Cycle Unit.

Objectives: Students will know the three stages of the Rock Cycle: Igneous, Sedimentary, and Metamorphic. Students will comprehend the major Earth processes that form the three different rock families.

Intended Outcome: Students will be able to notice features visible in the rock samples and link them to either the Igneous, Sedimentary, or Metamorphic processes that formed them.

Activity 2: SURVEY HIKE (60 min.) – During an on-trail and off-trail walk, students will survey for bedrock, then investigate the outcroppings found. Students will use what they know about the mechanisms of rock formation to notice the clues in the rock that record the Earth events that formed it.



Teachers and other adults will be helpful in engaging students in active investigation of the bedrock, as the group is spread around the outcrop.

Objectives: Students will be able to distinguish bedrock from glacial erratics. Students will detect the formation evidence recorded in the outcrops. Students will start to piece together the story of how our landscape has changed over time.

Intended Outcome: Students will be able to observe bedrock outcrops closely and notice the consistent patterns found in natural systems.

Successful completion of this program will help support your students' proficiency in NGSS

Performance Expectations:

4-ESS1-1 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

4-ESS2.A Earth Materials and Systems: Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.