

Content Standard and Benchmarks Grade 4	Main Elements of Earth Forms Module and Activities that Apply to the Standards
<p><b>Standard:Benchmark</b> <b>1:1, 1:2, 1:3, 1:4, 1:5</b></p>	<p>In the previous module, students collaborate on designing and conducting data collection for field map construction. During this module, students add landform features to their maps. Students continue to explore landscape and topography within their site as well as a larger view through GoogleEarth. The maps students create in the field and view on GoogleEarth are 2-dimensional models of the 4-dimensional world.</p> <p>Students will utilize tools to observe and measure the shape and topography of their site, including measurement of elevation and relief. Students will describe the landforms of their site in using both qualitative and quantitative terms.</p> <p>Students will begin to discover how Geologists investigate questions related to landscape formation.</p>
<p><b>4:1, 4:2</b></p>	<p>In the last module students describe and map the location of natural and anthropogenic earth features, including rocks and water. The earth forms module continues to build on the observations of anthropogenic features of their site. Students begin to make inferences about how each feature formed and begin to investigate the forces that act upon the earth to shape topography such as water and wind erosion. Students investigate plate tectonics and the movement of landforms within the module.</p> <p>Students investigate the interactions between the lithosphere, hydrosphere, and atmosphere as reflected in the local topography.</p>
<p><b>5:1, 5:3, 5:4</b></p>	<p>Students are able to describe how the map will be used in future science studies at the field site. Students explain how they use GoogleEarth to view the map area. Students work in collaboration, conducting mapping in pairs or small groups and comparing maps as a single large group. Students use their maps to identify environmental problems and propose solutions.</p>
<p><b>6:3</b></p>	<p>Students continue to use maps for other field investigations in an ongoing scientific process. Students recognize knowledge about the earth's landforms is a shared endeavor and is often investigated on a local scale first, and then shared with other geologists to complete the picture.</p>

**The content standards that are addressed in the module are the following:**

**Content Standard 1:** Students through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.

Benchmarks (End of Grade 4) –

1. develop the abilities necessary to safely conduct scientific inquiry, including (a step-by-step sequence is not implied): (a) asking questions about objects, events, and organisms in the environment, (b) planning and conducting simple investigations
2. select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations
3. use data to describe and communicate the results of scientific investigations
4. use models that illustrate simple concepts and compare those models to the actual phenomenon
5. identify a valid test in an investigation

**Content Standard 4:** Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.

Benchmarks (End of Grade 4)

1. describe and give examples of earth's changing features
2. describe and measure the physical properties of earth's basic materials (including soil, rocks, water and gases) and the resources they provide,

**Content Standard 5:** Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.

Benchmarks(End of Grade 4)

1. describe and discuss examples of how people use science and technology
  3. simulate scientific collaboration by sharing and communicating ideas to identify and describe problems
  4. use scientific knowledge to make inferences and propose solutions for simple environmental problems (can be modified to include)
- Can be modified to include: 5. identify how the knowledge of science and technology influences the development of the Montana American Indian cultures*

**Content Standard 6:** Students understand historical developments in science and technology.

Benchmarks (End of Grade 4) 3. describe science as a human endeavor and an ongoing process

**The grade level expectations for each standard further break down the curriculum goal. This module meets the following grade level expectations:**

*Items noted in italics are items that the module does not directly address, but which could be adapted using the content in this module.*

(Grade 3)

1. With direction, safely completes a simple investigation (direct inquiry) by asking questions with identified variables using appropriate tools, and communicates results. *Identifies that observation is a key inquiry process used by American Indians.*
4. Recognizes and describes Earth's features, illustrates changes of those features. Recognizes and describes changes in weather and seasons.
5. A. Recognizes how technology, science and society are connected; *recognizes Montana American Indian contributions.*
- B. Recognizes that science can help us understand our local problems.

(Grade 4) 1. With direction, safely completes a simple investigation (direct inquiry) by asking questions with identified variables, using appropriate tools, and communicates results with appropriate data. *Identifies that observation is a key inquiry process used by Montana American Indians.*

3. Identifies attributes of living (biotic) things and non-living (abiotic) objects
4. Identifies and accurately illustrates Earth's features, locating several observable changes of those features (e.g. erosion, weathering). Observes and records changes in weather (e.g. water cycle).
5. A. Identifies interactions among technology, science, and society; *recognizes Montana American Indian contributions.*
- B. Discusses and explains how scientific information is related to current events and local problems.

(Grade 5) 1. Identifies a testable question, safely plans and conducts experimental investigations, and communicates results. *Recognizes that observation is the key inquiry process for Montana American Indians.*

4. Identifies and accurately illustrates Earth's features, locating several observable changes of those features, identifies the causes of those changes, and applies the knowledge. Recognize how wind, water, time, and geological shifts affect the earth's surface.
5. A. Explains how technology, science, and society are connected; *relates how science and technology are utilized by Montana American Indians.*
- B. Observes and discusses scientific information related to current events and local problems.

(Grade 6) 1. Student safely conducts and evaluates a simple investigation; identifies variables and controls, and communicates results with appropriate data. *Identifies that observation is the key inquiry process used by Montana American Indians.*

4. a. Identifies the structure and processes of the Earth's lithosphere, hydrosphere, and atmosphere;

5. A. Identifies connections and interactions between technology science, and societies.

B. Identifies scientific information related to current events.

C. *Identifies how science and technology have impacted Montana American Indians.*

6. *Identifies examples of how science and technology are the results of human activity throughout history, including Montana American Indian contributions.*