

STANDARD II:

Students will understand that volcanoes, earthquakes, uplift, weathering, and erosion reshape Earth's surface.

**Science Benchmark:**

The Earth's surface is constantly changing. Some changes happen very slowly over long periods of time, such as weathering, erosion, and uplift. Other changes happen abruptly, such as landslides, volcanic eruptions, and earthquakes. All around us, we see the visible effects of the building up and breaking down of the Earth's surface.

STANDARD II: Students will understand that volcanoes, earthquakes, uplift, weathering, and erosion reshape Earth's surface.

Objective 1: Describe how weathering and erosion change Earth's surface

- a. Identify the objects, processes, or forces that weather and erode Earth's surface (e.g., ice, plants, animals, abrasion, gravity, weather, wind).
- b. Describe how geological features (e.g., valleys, canyons, buttes, arches) are changed through erosion (e.g., waves, wind, glaciers, gravity, running water).
- c. Explain the relationship between time and specific geological changes.

Objective 2: Explain how volcanoes, earthquakes, and uplift affect Earth's surface.

- a. Identify specific geological features created by volcanoes, earthquakes, and uplift.
- b. Give examples of different landforms that are formed by volcanoes, earthquakes, and uplift (e.g., mountains, valleys, new lakes, canyons).
- c. Describe how volcanoes, earthquakes, and uplift change landforms.

Objective 3: Relate the building up and breaking down of Earth's surface over time to the various physical land features.

- a. Explain how layers of exposed rock, such as those observed in the Grand Canyon, are the result of natural processes acting over long periods of time.
- b. Describe the role of deposition in the processes that change Earth's surface.
- c. Use a timeline to identify the sequence and time required for building and breaking down of geologic features on Earth.
- d. Describe and justify how the surface of Earth would appear if there were no mountain uplift, weathering, or erosion.

Science language students should use:

Earthquakes, erode, erosion, faults, uplift, volcanoes, weathering, buttes, arches, glaciers, geological deposition.

Intended Learning Outcomes for Fifth Grade Science

The Intended Learning Outcomes (ILOs) describe the skills and attitudes students should learn as a result of science instruction. They are an essential part of the Science Core Curriculum and provide teachers with a standard for evaluation of student learning in science. Instruction should include significant science experiences that lead to student understanding using ILOs.

The main intent of science instruction in Utah is that students will value and use science as a process of obtaining knowledge based upon observable evidence.

By the end of fifth grade students will be able to:

- 1. Use Science Process and Thinking Skills**
 - a. Observe simple objects and patterns and report their observations.
 - b. Sort and sequence data according to a criteria given.
 - c. Given the appropriate instrument, measure length, temperature, volume, and mass in metric units as specified.
 - d. Compare things and events.
 - e. Use classification systems.
 - f. Plan and conduct simple experiments.
 - g. Formulate simple research questions.
 - h. Predict results of investigations based on prior data.
 - i. Use data to construct a reasonable conclusion.
- 2. Manifest Science Attitudes and Interests**
 - a. Demonstrate a sense of curiosity about nature.
 - b. Voluntarily read or look at books and other materials about science.
 - c. Pose questions about objects, events, and processes.
 - d. Maintain an open and questioning mind toward new ideas and alternative points of view.
 - e. Seek and weigh evidence before drawing conclusions.
 - f. Accept and use scientific evidence to help resolve ecological problems.
- 3. Understand Science Concepts and Principles**
 - a. Know and explain science information specified for the grade Level.
 - b. Distinguish between examples and non-examples of science concepts that have been taught.
 - c. Solve problems appropriate to grade level by apply science principles and procedures.

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4. Communicate Effectively Using Science Language and Reasoning

- a. Record data accurately when given the appropriate form (e.g., table, graph, chart).
- b. Describe or explain observations carefully and report with pictures, sentences, and models.
- c. Use scientific language in oral and written communication.
- d. Use reference sources to obtain information and cite the source.
- e. Use mathematical reasoning to communicate information.

5. Demonstrate Awareness of Social and Historical Aspects of Science

- a. Cite examples of how science affects life.
- b. Understand the cumulative nature of science knowledge.

6. Understand the Nature of Science

- a. Science is a way of knowing that is used by many people not just scientists.
- b. Understand that science investigations use a variety of methods and do not always use the same set of procedures; understand that there is not just one “scientific method.”
- c. Science findings are based upon evidence.

- **Instruction should include significant science experiences that lead to student understanding using ILOs.**