



# **Fourth Grade Earth Science**

**Written By:  
Lauri Dahlin  
Hortencia Garcia  
Christina Mavaro  
Kathleen Tomscha**

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**Grade 4**  
**Earth Science**  
**Introduction and Conceptual Flow Narrative**

**Introduction:** The *Grade 4 Earth Science Unit* focuses on the Earth’s continuous process of change. All of the Grade 4 California Science Content Standards for Earth Science are addressed in this unit. By the end of the unit students will know: Earth changes and is shaped through slow and rapid processes. Through a series of hands-on investigations students will experience the effects of weathering and erosion. Students will learn how to identify rocks and minerals via their properties. The *Grade 4 Earth Science Unit* is presented to students through a series of investigations, experiments, active learning experiences, questions, and assessments. Assessments include: pre-, post-, and 1 formative assessment.

**Conceptual Flow Narrative:** The *Grade 4 Conceptual Flow Narrative for Earth Science* builds on the concepts presented on conceptual flow graphic by describing the concept(s) addressed in each lesson and the links that connect each lesson to the next. Lessons are linked to the previous lesson and the lesson that follows via a conceptual storyline. This ensures the development of student understanding as students progress from one concept to the next.

After students have completed the **Pre-Assessment**, they begin their exploration of earth science with **Lesson 1, “Rapid Processes Change Landforms.”** In this lesson students learn that rapid processes, such as volcanic eruptions, earthquakes, landslides, tsunamis, and severe wind, quickly change landforms. A Powerpoint presentation and video clip of the Mount St. Helen’s eruption help students experience rapid earth processes that change landforms.

In the previous lesson, students learned about rapid processes that change the Earth. In **Lesson 2, “Rockin’ Roots,”** students learn that weathering causes rocks to break down. Students experience weathering as the result of acid rain, roots, freezing and thawing of water. A Powerpoint presentation is included in the lesson to illustrate the effects of weathering.

In **Lesson 2** students learned about the effects of weathering. In **Lesson 3, “Slowly Reshaping Earth’s Landforms,”** students learn that erosion by moving water, air, or ice, is a process that transports Earth materials. A Powerpoint presentation is included in the lesson to illustrate the effects of slow processes that change landforms. In the next lesson students learn that rocks are transformed through the rock cycle.

In **Lesson 4, “Introduction to the Rock Cycle,”** students learn that weathering and erosion are processes of the rock cycle

After **Lesson 4**, students complete **Formative Assessment #1**. This assessment is aligned to the learning objectives of Lessons 1-4 and provides feedback to the teacher, students, and parents about what students have learned in the beginning of the unit. The teacher is able to use information from this formative assessment to determine if additional instruction is necessary for student understanding of the concepts presented in Lessons 1-4 before proceeding to the next section of the unit.

In **Lesson 5, “Sorting Rocks Using Properties,”** students learn that rocks can be identified by their properties. In the next lesson students learn that rocks can also be identified based upon how they are formed.

In **Lesson 6 “Transforming Rocks”** students learn rocks can be identified as igneous, metamorphic, or sedimentary by the way they are formed.

In **Lessons 7, “All About Minerals,”** students learn the differences between rocks and minerals. A Powerpoint presentation provides additional support for student understanding of this concept.

In the previous lesson students learned that rocks are made of organic materials and minerals such as quartz, calcite, feldspar, mica, and hornblende. In **Lesson 8, “Minerals Have a Crystalline Structure,”** students make crystals to deepen their understanding of the difference between rocks and minerals.

In the previous lesson, students learned how minerals are formed, and that they have a crystalline structure. In **Lesson 9, “Mystery Minerals,”** students learn how to test common minerals and use Moh’s Hardness Scale and a Mineral Reference Sheet to identify minerals based on their properties (color, luster, streak, and hardness.)

After **Lesson 9**, students complete a post-assessment to determine their overall understanding of the concepts presented in the unit.