Unit 3: Inside the Earth
6th Grade Science
23 Class Meetings

Revised March 2026

Essential Questions

- How do natural and manmade features affect the flow of water and erosion?
- How do Earth's rocks and other materials provide a record of Earth's history?
- How can rocks, minerals, and fossils tell us about the past, present, and future of Earth.

Enduring Understandings with Unit Goals

EU 1: Constructive and destructive natural processes shape Earth's surface.
- Examine how continents are pushed by a powerful force.
- Rocks and minerals emerge from the ever-changing Earth.

EU 2: Sediments are soil components that have been eroded and deposited by moving water.
- Explain how Earth's rocks and other materials provide a record of its history.
- Examine how water has helped shape the Earth.

Standards

Next Generation Science Standards:

- **MS-ESS1-4:** Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
- **MS-ESS2-1:** Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- **MS-ESS2-2:** Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- **MS-ESS2-3:** Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
- **MS-ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- **MS-ESS3-4:** Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Common Core State Standards:

- **RST.6-8.:** Cite specific textual evidence to support analysis of science and technical texts.
- **RST.6-8.9:** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
- **RI 6.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

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- **RI 6.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text.
- **RI 6.8:** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
- **W 6.1:** Write arguments to support claims with clear reasons and relevant evidence.
- **W 6.2:** Write informative/explanatory texts to examine and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.
Competency 2: Speak to diverse audiences in an accountable manner.
Competency 3: Develop the behaviors needed to interact and contribute with others on a team.
Competency 4: Analyze and solve problems independently **and** collaboratively.
Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. **Erosion**
   - Define the breakdown of organic matter and its process.
   - Define the process of Earth changing over time.
   - Examine how erosion transforms the landscape.

2. **Rocks and Minerals**
   - Show how rocks and minerals form.
   - Define how rocks and minerals tell a historical story of earth.
   - Examine rock and fossil formations.

3. **Earth's Shape**
   - Explain the flow of energy through the cycling of Earth's materials.
   - Analyze continental shape and seafloor structures using past evidence.
   - Compare and contrast Earth in its beginning and now.

Key Terms and Vocabulary: sediment, erosion, weathering, silt, deposition, minerals, igneous, metamorphic, sedimentary, fossil fuels, cycle, magma, fossils, atmosphere, gravity, tectonic plates, constructive forces, destructive forces, continental drift

Interdisciplinary Connection:
Language Arts, Humanities

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Daily Learning Objectives with *TWPS*

Students will be able to…

- Develop a model showing geological time scale is used to organize Earth's 4.6-billion-year-old history. **
    - *What evidence do scientists use to estimate the age of the Earth?*
    - *Why is it important to study Earth's geological history?*
- Create a timeline mapping the order of major changes in our planet's history. Highlight the key changes to our Earth's history using data. ***
    - *How have continents moved over time?*
    - *What evidence supports the theory of continental drift?*
    - *How did Earth form? What were the processes involved?*
- Identify the three main rock types, and how they form.**
    - *Why is it important for scientists to understand the rock cycle?*
- Using scientific identification and analysis, list the characteristics of each of the three main rock types.
    - *How do weathering and erosion play a role in the rock cycle?*
- Create a model describing how energy plays a role in changing the structure and layout of Earth. Examine what "energy" is?
    - *How do natural disasters like earthquakes and volcanic eruptions impact the Earth's surface and living organisms?*
- Outline how the ever-changing landscape is determined by the inside of our planet.
    - *What are the forces involved in the movement of rocks within the Earth's crust?*
- Analyze natural events that follow patterns of distribution that reflect geological cause and effect.**
    - *How do geological processes like weathering, erosion, and plate tectonics interact to shape the Earth's surface?*
    - *What are some examples of cause-and-effect relationships in geology? For instance, how does erosion cause the formation of valleys and canyons?*
- Analyze how structures provide evidence of the past plate motions.**
    - *How do scientists know that tectonic plates exist if they are beneath Earth's surface?*
    - *How have tectonic plate movements shaped the Earth's surface over millions of years?*
- How does the distribution of fossils, continental shapes, and the seafloor show past plate motions?
    - *How do fossils provide evidence of life on Earth millions of years ago?*
- Analyze and interpret data to determine similarities and differences in fossil findings.**
    - *What conditions are necessary for the formation of fossils?*
    - *What are common misconceptions about fossils?*
- Compare and contrast specific historical data in the development of Earth.**
    - *Can you explain how radioactive dating techniques are used to determine the absolute ages of rocks and fossils?*
    - *What are some examples of historical events recorded in geological features like mountains, canyons, and volcanoes?*
- Explain that many changes in biodiversity have occurred since life evolved on Earth.**

- *How has climate changed over geological time?*
- *What evidence do scientists use to study ancient climates?*

- Organize, prepare, and discuss evidence that supports findings of biodiversity. Create a chart, timeline, or visual representation of findings.***
  - *How have life forms changed over geological time?*
  - *What are some major milestones in the evolution of life on Earth?*
  - *How have geological changes contributed to biodiversity on Earth?*

Instructional Strategies/Differentiated Instruction

- Guided notetaking
- Vocabulary Wall
- Interactive Notebook
- Warm up activities
- Flexible grouping
- Independent reading
- Lab activities
- Exit slips
- Graphic Organizers
- Creating authentic connections for students
- Vocabulary word bank
- Rephrasing and restatement of information and concepts
- Tiered instruction
- Student-led instruction
- Homework assignments
- Spiraling back to guiding questions
- Multiple CFUs
- Close reading with text-dependent questions
- Frayer Model for Vocabulary
- Visual exemplars with teacher and student critiques

EL Differentiated Strategies:

- Alternative test settings
- Paragraph frames and sentence starters
- Teacher modeling
- Think-write-pair-share and small-group discussions
- Graphic organizers
- Word walls with visuals (Venn Diagrams)
- Small group instruction
- Text and video chunking
- Word Banks and Word Walls with visuals

- TWPS (Think, write, pair, share)
- Pre-reading strategies
- Culturally responsive teaching
- Explicit teacher modeling
- Key vocabulary
- Graphic organizers
- Strategic Grouping
- Non-verbal assessments

Assessments

FORMATIVE ASSESSMENTS:

- Interactive Notebook
- Guided notes
- Homework
- Daily Think-Write-Pair-Share (TWPS) Activities
- Accountable Talk Discussions
- Oral questioning
- Exit slips
- Warm Up activities
- Close reading and interpretation of text
- Performance Task – Earth's History is Funny
    - Literacy Rubric/Teacher's Scoring Rubric

SUMMATIVE ASSESSMENTS:

- Quiz on EU 1
- Quiz on EU 2
- Performance Task – Earth's History is Funny

Unit Task

Unit Task Name: Earth's History is Funny

Description: Students will utilize nonfiction text, timelines, and their understanding of the unit topics to create a comic strip that describes one of four choices. Students may make a comic strip explaining landforms, erosion, weathering, or the rock cycle (EU1, EU2). Students will then write an explanatory paragraph that explains the topic they chose.

Evaluation: Literacy Rubric/Teacher's Scoring Rubric

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Unit Resources
● Non Fiction Text ● NewsELA Articles ● Interactive Notebooks ● Lab Experiments ● Internet databases ● Dennison Pequotsepos Visits ● Large format poster printer ● Microsoft Power Point or Prezi ● Laptops ● NOAA website ● Lab materials ● https://pals.sri.com/tasks/5-8/ChangeRocks/