

GEOSCIENCE PROCESSES

Science Reading

Geoscience Processes

Slow geoscience processes
Earth's surface constantly changes, but some changes happen so gradually that they are barely noticeable in a human lifetime. These slow processes have shaped mountains, valleys, and continents over millions of years and continue to reshape our planet today.

Fast Geoscience Processes
Earth's surface is constantly changing, and some changes happen instantly. Fast geoscience processes dramatically reshape landscapes, sometimes within minutes or hours. These sudden events can create new landforms, destroy ecosystems, and even alter the climate.

Cyclical Geoscience Processes
Earth's surface is constantly shaped by natural processes that repeat over time. These cyclical processes, including river movement, coastal erosion, and seasonal weathering, gradually alter landscapes, creating and reshaping landforms over centuries to millions of years.

Plate tectonics is the slow but powerful movement of large pieces of Earth's outer shell, known as tectonic plates. These rigid plates fit together like a giant puzzle and float on the semi-molten, the flexible layer beneath them called the mantle. Deep inside the Earth, heat causes convection currents—swirling movements of molten rock—that push and pull the plates a few centimeters each year, about the same speed that fingernails grow. Although this motion is slow, it dramatically shapes Earth's surface over millions of years. When plates move against each other, they can crumple and lift to form massive mountain ranges like the Himalayas. They can also move apart, molten rock rises to fill the gap, creating new ocean floors at plate boundaries. When plates slide past one another, they can cause earthquakes and volcanic eruptions along plate boundaries.

Weathering is the slow process that breaks down rocks into smaller pieces. It involves physical weathering (mechanical) and chemical weathering. Physical weathering involves the breaking of rocks into smaller pieces without changing their chemical composition. Chemical weathering involves the breaking of rocks into smaller pieces and the change in their chemical composition.

Diagrams and Photos: The collage includes a diagram of plate tectonics, a photo of a river in Yellowstone National Park, a photo of a volcanic eruption, and a photo of a coastal area with erosion.

Computer Screen: A digital interface for reading passages with questions and text input fields.

Question / Describe:	Label:
1. What is plate tectonics?	1. List where weathering, erosion, and deposition occur on this diagram.
Add text	Add text
2. What is the difference between physical weathering and chemical weathering?	
Add text	Add text
3. What is deposition?	3. How do plate tectonics contribute to the formation of new landforms?
Add text	Add text
4. How do rivers contribute to both erosion and deposition?	
Add text	
5. How might human activities influence erosion and deposition?	
Add text	

Readings with Questions

Scroll Through

To take a peek inside!

Help students learn about how fast, slow, and cyclical geoscience processes help shape the Earth and then test their comprehension with these easy to read science reading passages.

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Each topic *includes*

- ✓ **One page science reading passage to teach the topic.**
- ✓ **Notes with questions to guide their reading**
- ✓ **Comprehension worksheets to review the information using multiple levels of questioning**
- ✓ **Task cards to extend their learning and for extra review**
- ✓ **Answer keys to easily check the student knowledge**
- ✓ **Digital version for more flexibility on how to use the lesson**
- ✓ **Lesson Design to help you differentiate the lesson in your classroom**

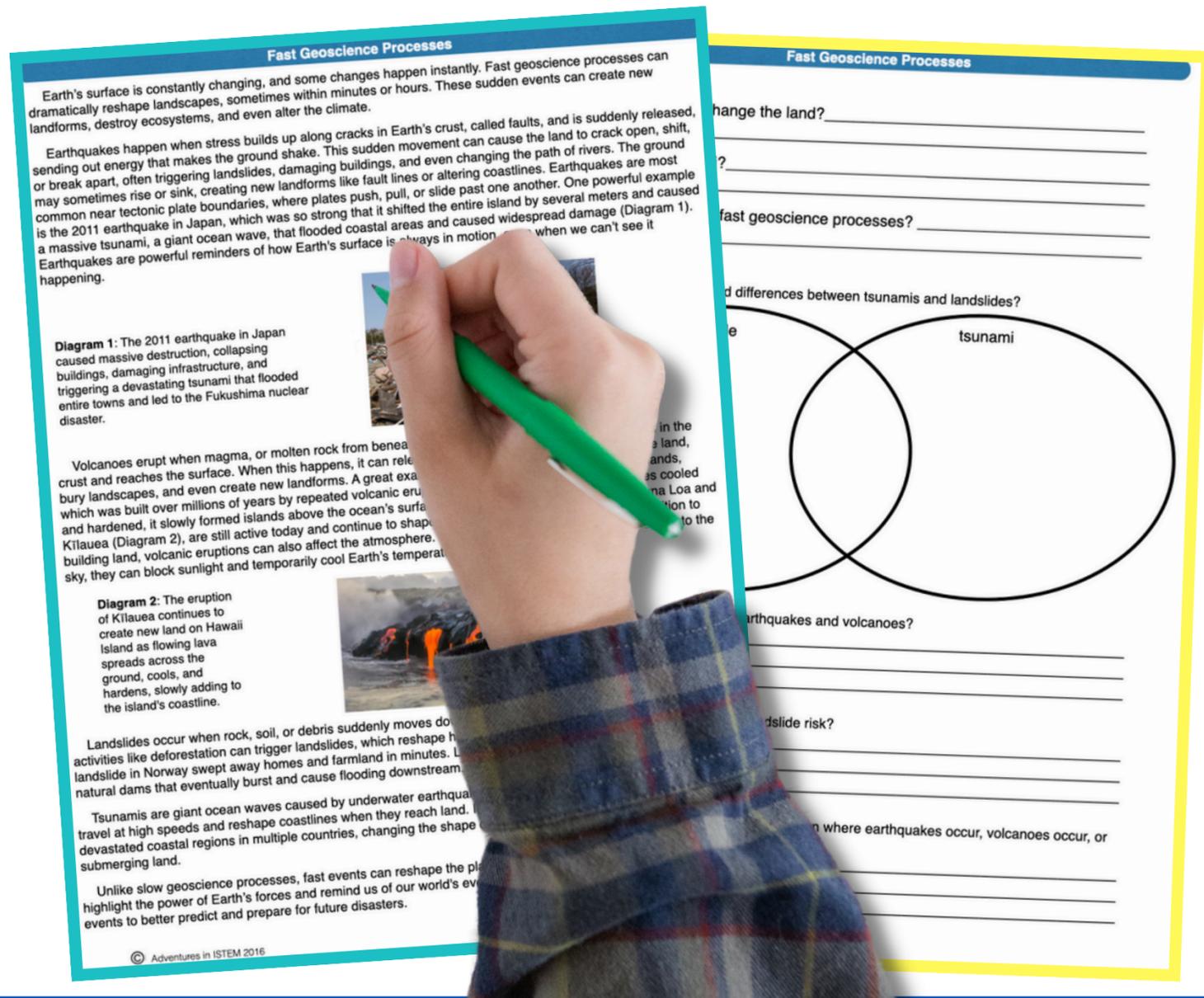
The collage displays various components of the lesson materials:

- Worksheet 1:** Titled "Cyclical Geoscience Processes", it includes a "Define / Describe:" section with three questions: "1. What is a cyclical geoscience process?", "2. How do rivers shape the land?", and "3. How do storms affect coastal erosion?". It also has a "Compare:" section with question "4. What are some similarities and differences between river erosion and coastal erosion?".
- Worksheet 2:** A "Notes" page with a header "Cyclical Geoscience Processes" and a main question: "Question: How do cyclical geoscience processes change the Earth?". It includes fields for "Class:" and "Date:" and a large area for handwritten notes.
- Reading Passage:** Titled "Cyclical Geoscience Processes", it explains that Earth's surface is constantly shaped by natural processes that repeat over time. It details how rivers shape the land through erosion, transport, and deposition, and how storms affect coastal erosion.
- Venn Diagram:** A diagram with two overlapping circles labeled "river erosion" and "coastal erosion".
- Photographs:** Two photos showing river erosion. The left photo shows a riverbank with a "Specific conductance probe in 3 feet of water" and a "Riverbank about 3 feet from tree base". The right photo shows a riverbank with a "Probe and distance probe below 14 feet" and a "Riverbank approximately 50 feet away".
- Diagram 1:** A diagram illustrating river channel changes during flooding in Yellowstone National Park in the summer of 2022, showing a new, deeper path and eroding land.
- Digital Tablet:** A tablet displaying a digital version of the worksheet with a table for comparing river erosion and coastal erosion.

Define / Describe:	Compare / Contrast:		
1. What is a cyclical geoscience process? Add text	river erosion Add text	Both Add text	coastal er Add text
2. How do rivers shape the land? Add text			
3. How do storms affect coastal erosion? Add text	Elaborate / Extend: 5. How do changes in climate affect cyclical geoscience processes? Add text		
	6. How can understanding cyclical processes help in land management and city planning? Add text		
	7. How do humans try to control or slow river and coastal erosion? Add text		

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Science Reading



What Are *students* Doing?

- ✓ **Marking the text**
- ✓ **Filling in the guided note-taking template**
- ✓ **Reviewing and applying their knowledge**
- ✓ **Reinforcing their understanding**

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The image shows two overlapping worksheets titled "Slow geoscience processes". The top worksheet has a green border and contains a "Define / Describe" section with three questions: "1. What is plate tectonics?", "2. What is the difference between physical weathering and chemical weathering?", and "3. What is deposition?". Below these is an "Identify" section with a diagram of a landscape and a question: "4. Label where weathering, erosion, and deposition occur on this diagram." The bottom worksheet has a red border and contains a "Define / Describe" section with a paragraph about Earth's surface changes, a paragraph about plate tectonics, a diagram of supercontinents, a paragraph about weathering, a paragraph about erosion, a paragraph about deposition, and a diagram of sedimentation. A hand is pointing to the diagram of weathering and erosion on the top worksheet.

Different ways to use the science readings

Substitute plan on days you will be out

Introduction of the material at the beginning of the unit

During the explain phase of the 5E model

As part of a science station

For reteach to reinforcing their understanding

During the review at the end of the unit

Why? SCIENCE READING PASSAGES?

- ✓ Increase science literacy in the classroom
- ✓ Simple passages to help students comprehend the information
- ✓ Note-taking template to help students interact with the reading
- ✓ Worksheets to review and apply their knowledge
- ✓ Reinforcement task cards to continue their understanding



“My students and I absolutely loved this resource!!! The way this was planned out with the reading, diagrams, and questions was perfect. I mainly used this with my students but they used it one day with a substitute and they wrote to tell me how great it was! (I think they thought I created it so I have to tell them otherwise!)” -

Nicole

GEOSCIENCE PROCESSES

Science Reading

Cyclical Geoscience Processes **Answer Key**

Define / Describe:

1. What is a cyclical geoscience process? A process that repeats over time, shaping Earth's surface.
2. How do rivers shape the land? They erode land and deposit sediment, creating valleys, floodplains, and deltas.
3. How do storms affect coastal erosion? They increase wave energy, causing faster erosion.

Cyclical Geoscience Processes

Earth's surface is constantly shaped by natural processes that repeat over time. These cyclical processes, including river movement, coastal erosion, and seasonal weathering, gradually alter landscapes, creating and reshaping landforms over centuries to millions of years.

Rivers are powerful forces that shape Earth's surface over time through erosion, transport, and deposition. As rivers flow from higher ground to lower areas, rock, and soil slowly wear away, carving out deep valleys and canyons. They carry materials like sand, silt, and clay downstream, especially during floods when the water flows faster and has more energy. When a river slows down—such as in flatter areas—it drops these sediments, forming fertile floodplains that support rich plant life. In some cases, rivers can change their course entirely. For example, in the summer of 2022, extreme flooding in Yellowstone National Park caused one river to shift about 30 feet to the east and become deeper and narrower, showing how quickly a river's path can change during powerful natural events (Diagram 1). Rivers may also break away from their main channel over time, leaving behind curved bodies of water called oxbow lakes. These ongoing changes show how rivers wear down and build up the land, playing a major role in shaping Earth's landscapes.



Diagram 1: In the summer of 2022, flooding in Yellowstone National Park caused a river to shift about 30 feet to the east and become deeper and narrower, showing how quickly a river's path can change during powerful natural events.

Along coastlines, the powerful action of waves and tides constantly shapes the land, especially during storms, which speed up erosion by breaking up and carries away sediments, making erosion more powerful during this time of year. Over thousands of years, massive glaciers—slow-moving rivers of ice—grow during colder periods and shrink when the climate warms. In Alaska, this process has created dramatic landforms such as glacial valleys and steep, icy fjords that show the power of ice in shaping the land. These seasonal changes continue to influence how Earth's surface looks and evolves.

Although these processes occur in cycles, their impact is long-lasting. Rivers, waves, and seasonal changes continuously reshape Earth's surface, demonstrating the ongoing power of nature.

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Check out what teachers just like you have said about the science reading products:



“I love using reading passages in my science classes because I am able to reinforce all the learning strategies they have learned in the past and give the students more understanding of the information provided.” – Suzzane



“I was really glad to find a bundle that included so many of our objectives since we do not have a curriculum” – Amanda



“This article kept my 8th graders engaged while reviewing this topic” Brower Power Science

HOW TO USE THE RESOURCE IN

3 simple steps

1

Print the PDF version, make copies, and hand out to students

2

Use the digital version by clicking the titles in the RED BOX to make your own copy (found at the end of the PDF)

3

Share the resource with your students using your favorite LMS (Google Classroom, Powerschool (schoolology), Canva...)

Interactive Digital Flip Book

Teachers Guide

What You Will Need To Get Started:

1. Download link for the Google Resource by clicking on the titles in the red box
Cell Energy Digital Flip Book Student
Cell Energy Digital Flip Book Teacher
2. Access to the Internet and a Google Account (Free)
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Define / Describe:

1. What is the law of superposition?
Add text

2. What can fossils tell us about Earth's past?
Add text

3. If a fault cuts through rock layers, is it older or younger than the layers?
Add text

Identify:

4. Put the layers of rock in order from youngest to oldest. (1-youngest, 5-oldest)

5. Put the fossils in order from youngest to oldest. (1-youngest, 4-oldest)

Elaborate / Extend:

6. How do scientists know that the Earth has changed over time?
Add text

7. What could happen in the future to mark the end of the Cenozoic Era?

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All 3 Years

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Earth Science Standards

Earth and Space

NGSS MS-ESS1

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Earth's Systems

NGSS MS-ESS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Human Impact on the Environment

NGSS MS-ESS3

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Life Science Standards

Integrated Model by Grade Level

NGSS Grade 6 Integrated

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

NGSS Grade 7 Integrated

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

NGSS Grade 8 Integrated

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Molecules to Organisms

NGSS MS-LS1

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

Ecosystems

NGSS MS-LS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Heredity

NGSS MS-LS3

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
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Evolution

NGSS MS-LS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Physical Science Standards

Alternative Model by Topic

Earth Science

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Life Science

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Physical Science

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Chemistry

NGSS MS-PS1

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Chemistry also includes thermal energy

Waves

NGSS MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Force and Motion

NGSS MS-PS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Physics

NGSS MS-PS2, MS-PS3, MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Science Reading Comprehension questions and Worksheets Bundle

Physics includes mechanical energy



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