

# Geology Comic Book

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## Essential Question(s)

How can I use patterns and clues in nature to help me figure out how different natural features formed?

## Enduring Understanding(s)

Features on Earth's surface are formed by natural processes and cycles. These processes and cycles follow set patterns and rules, and leave tell-tale clues of their actions. People can use the clues they find on different features as evidence to figure out how those features were formed.

## Performance Task(s)

Select two images that represent examples of weathering, erosion, or plate tectonics anywhere in the world, and use evidence from these features to model and provide a written explanation of their formation through a comic book.

**Link to Teacher Resources Folder** ([https://drive.google.com/a/summitps.org/?usp=chrome\\_app#folders/0B7Pge9UBsg0gS19WQUg1dllrV1E](https://drive.google.com/a/summitps.org/?usp=chrome_app#folders/0B7Pge9UBsg0gS19WQUg1dllrV1E))

[https://drive.google.com/a/summitps.org/?usp=chrome\\_app#folders/0B7Pge9UBsg0gS19WQUg1dllrV1E](https://drive.google.com/a/summitps.org/?usp=chrome_app#folders/0B7Pge9UBsg0gS19WQUg1dllrV1E)

## Courses

**Math 7 (/courses/118/plan)**

- Sequence:

**Science 7 (/courses/126/plan)**

- Sequence:

## Cog Skills

- Making Connections & Inferences
- Modeling
- Narrative
- Precision

## Focus Areas

- Earth Materials and Systems 1 (ESS2.A) (/foci/1310)
- Water and the Earth 2 (ESS2.C) (/foci/1111)
- Plate Tectonics 1 (ESS2.B) (/foci/529)

CLT Approved

## **Description and Context**

Have you read a comic book recently? In the last couple of years, the popularity and sales of comic books has increased significantly. Maybe it's because of the superhero movies and TV shows? Some would say video games are helping to sell comic books. People may also just really like to read the stories and see the cool drawings. Regardless, a lot of people want to read comic books from kids to adults. You have been hired by a local textbook publisher because they have realized that their textbooks are not selling like they used to, and due to the information above, they want to redesign their textbook to be a comic book. They are hiring you to write a comic book for elementary students that will help them learn about features of weathering, erosion, deposition, and plate tectonics and their formation in the landscapes of the earth. It is important for us to know that the Earth is constantly changing! Have you ever experienced an earthquake? Have you ever visited the California coast and seen Big Sur? Both of these are the results of Earth's constantly changing surface and as scientists, it is important for us to understand how and to help educate others. In California, people must know about how the Earth changes to determine where they live and if their homes are safe. Your comic book will help elementary students to understand how and why the Earth is changing.

In order to practice the cognitive skill of making connections and inferences, you will find two photos of specific locations in the world that represent weathering, erosion, or plate tectonics and you will research and use your knowledge of geology to determine how these land features were formed. Using this information, you will practice the cognitive skill of narrative, modeling, & precision by creating a comic strip which will explain the terms, the formation of the feature shown in the image, and the age of the feature. The picture will be the inspiration for your comic strip, but you do not need to include that picture in the comic. These pictures can be found online or can be pictures you have taken!

Objective: Students will identify patterns and relationships of geological processes in order to explain the formation of Earth's geologic features.

Your task is to select two images that are examples of the following:

- a. Weathering
- b. Erosion
- c. Land movement because of plate tectonics (mountain ranges, volcanoes, earthquakes, fault lines)

For each example you will do a minimum of one page that is a comic explaining the following:

1. Define the term and explain how it works/what it does
2. Explain how the feature shown in your picture was formed
3. Explain how old the feature is and how long it took to form

#### Final Product

A comic book with a minimum of 3 pages describing 3 of the following: erosion, weathering, deposition, or plate tectonics. You may have more than 3 pages. The comic book must be colored and contain at least one line of narration or dialogue in each square. There will be a gallery walk to allow students and teachers to see all the comic books.

# Geology Comic Book

**Steps:**

[Teacher Resources](#) 

*Step Description ( instructional day number )*

1.
2.
3.
4.
5.
6.
7.

**Instructional Days:**

1	<ul style="list-style-type: none"> <li>• Handout: Project 2 Calendar</li> </ul>	<ul style="list-style-type: none"> <li>• Assignment: 3 Modeling Practice</li> </ul>	4
<ul style="list-style-type: none"> <li>• Assignment: 5 Geology Lab - Modeling Practice</li> </ul>	<ul style="list-style-type: none"> <li>• Assignment: Task6 2 - Making Connections &amp; Inferences</li> </ul>	<ul style="list-style-type: none"> <li>• Assignment: Task7 3 - Finding Images</li> <li>• Handout: Final Product Requirements</li> </ul>	8
9	<ul style="list-style-type: none"> <li>• Assignment: 10 Rough Draft</li> </ul>		

Domain	Dimension	1	1.5	2	2.5	3	3.5	4	4.5	5
Analysis & Synthesis	Modeling	No evidence of using models, visuals, or symbols to represent concepts.		Identifies surface level components of a concept and develops an accurate visual or model; key features of the concept are missing or only partially represented. OR Most key features are represented, with inaccuracies.		Identifies general components of a concept and develops a partially accurate visual and/or model to represent some key features.		Identifies specific components of a concept and develops an accurate visual and/or model to represent most key features.		Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual or model begins to make visible the relationship of the components to the whole.
	Making Connections & Inferences	No evidence of inference or making connections.		Makes surface-level inferences that are only generally based on evidence or are too broad, with minimal connection between a specific example and the larger idea.		Makes inferences that are based on evidence but may be partially formed with gaps in explaining the connection of a specific example to the larger idea.		Makes relevant inferences based on evidence and attempts to identify the larger significance of the inference.  Connections between a specific example and the larger idea are clear and appropriate.		Makes clear and relevant inferences based on evidence and partially explains the larger significance of the inference.  Connections to the larger idea are made through multiple examples but may have some gaps in explanation or may not be fully developed.
Composing/Writing	Narrative	Orientation, storyline, and/or organization of experiences, events, and/or steps is unclear or missing.		Orientation, storyline, and/or organization of experiences, events, and/or steps are loosely established; experience/event/step sequence may not be logical or unfolds awkwardly; conclusion may be missing.		Orientation (including point of view), storyline, and/or organization of experiences, events, and/or steps are clearly established; organizational sequence is logical or unfolds naturally; narrative techniques are primarily limited to description and/or dialogue; conclusion may be weak.		Orientation (including point of view), storyline, and/or organization of experiences, events, and/or steps are clearly established; organizational sequence is logical, coherent, and/or unfolds naturally; where appropriate, multiple narrative techniques are used (e.g., description, dialogue, pacing, or reflection); description includes some precise vocabulary and some details and/or sensory language; conclusion generally follows from the narrated experiences/events/steps.		Orientation (including point of view), storyline, and/or organization of experiences, events, and/or steps are clearly established; organizational sequence is logical, coherent, and/or unfolds naturally and smoothly; where appropriate, multiple narrative techniques are used effectively (e.g., description, dialogue, pacing, or reflection); description includes precise vocabulary and, where appropriate, vivid details and sensory language; conclusion clearly follows from the narrated experiences/events/steps.
Products & Presentations	Precision	No evidence of precision.		Express ideas in very broad or general terms. Does not define terms, symbols, etc.		Mostly expresses ideas with adequate specificity for the given purpose. Defines some terms, symbols, etc.		Consistently expresses ideas with adequate specificity for the given purpose. Defines most terms, symbols, etc.		Consistently expresses ideas with clarity and specificity. Consistently defines terms, symbols, etc.

# Modeling Review

Remember that good comic book models...

- Are accurate - show how things actually look
- Are detailed - have words and labels to make it clear what is happening
- Show the before, during and after - so we can see how things changed

# Today's Goals

Practice *modeling*:

- Wave Erosion
- Water Erosion
- Mechanical Weathering
- Chemical Weathering
- Transform Plate Boundaries
- Convergent Plate Boundaries
- Divergent Plate Boundaries

(the things you can choose from to model for your final project!)

# How today works

- Work as a team
- Choose a station to work on. Send Materials Manager to get task card and materials.
- Complete station as a team
- When everyone is done, get teacher to check work
- Then, return materials and choose another station
- Finish at least 6 stations



# Today's stations

1. Wave Erosion
2. Erosion Reading
3. Mechanical (Physical) Weathering
4. Mechanical Weathering Reading
5. Chemical Weathering
6. Chemical Weathering Reading
7. Milky Way Plate Tectonics
8. Plate Tectonics Reading
9. Mountain Formation

# Station Time

10 minutes per station!

**Clean Up Time**

# Norms for stations

1. Read task card instructions first
2. Follow instructions exactly
3. Stay at your station until told to rotate
4. Talk only with your group
5. *First discuss, then write*
6. When finished, reset station *exactly as you found it!*

Name: \_\_\_\_\_

## Part 2 of the Task - Identifying the Process that Shape the Earth's Surface

### THIS IS A TEAM TASK!!!

In Part 1 of this Task (the Geology Lab Stations), you learned about different processes that shape the Earth's surface. In your final comic book, you are going to find an image of a feature on the Earth's surface and model and explain the process that formed it.

Here's the thing though, these processes take a LOOOOOOONG time to happen. How long? Some can take up to millions of years to form a feature that we see today!

#### Why you are doing this:

In your final comic book, you will find a picture of a feature on the Earth's surface. You will need to explain what process formed this feature, and how you know what process formed that feature. The notes you take for this Task will help you figure out what process formed the features you are looking at.

#### YOUR ASSIGNMENT NOW:

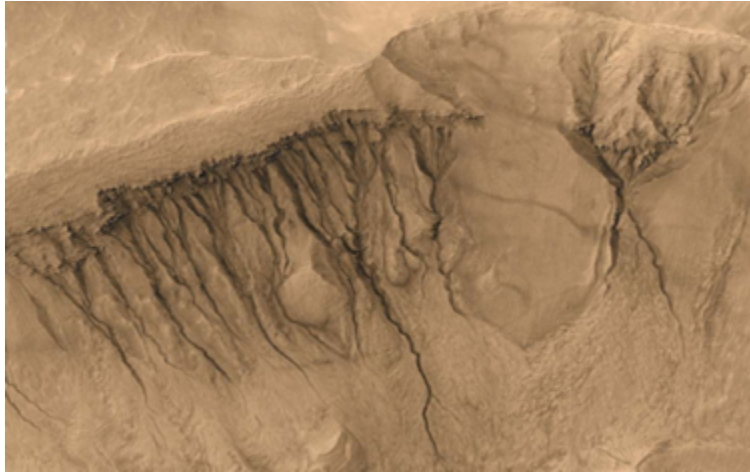
1. Put your pencils down
2. Look at the pictures for the first process (water erosion) on the next two pages.
3. DISCUSS the similarities you see between the pictures. Identify three similarities.
4. Pick up your pencils and write down the name of the process and the three similarities.
5. Put down your pencils and repeat this process for all the other groups of pictures.



Time to be a science detective!

## Water Erosion





This is a satellite picture of Mars. The dark lines show where water used to run down mountains on the surface of Mars.

## Wind Erosion









## Wave Erosion





## Mechanical Weathering





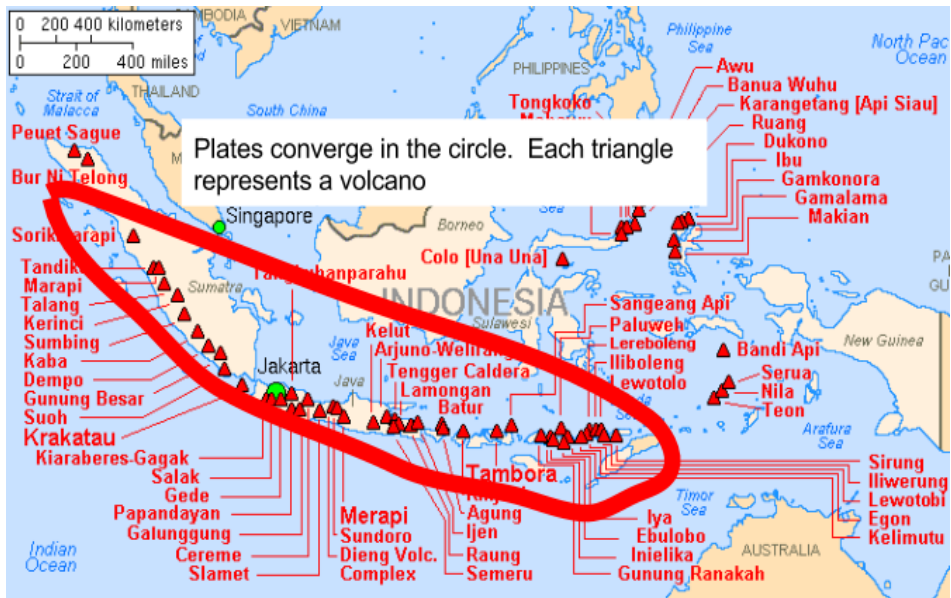
## Chemical Weathering





## Convergent Plate Boundary







Visible rock layers in the Bay Area

## Divergent Plate Boundary



The Great Rift Valley, Eastern Africa



This road marks the place in Iceland where two plates are moving away from each other.



## Transform Plate Boundary





427520 [RM] © www.visualphotos.com

The San Andreas Fault, about 200 miles south of San Jose



This fence used to be connected in one line. Where it broke marks a transform boundary that moved in an earthquake.