Earth History
Teaching Slides, 6.1
Volcanoes and igneous rocks

1. What sorts of landforms do we know are formed from igneous rocks?
2. What types of rock do we find in and around volcanoes?
3. What is the difference between extrusive and intrusive igneous rocks?
Generate volcano questions

Generate a few questions you have about volcanoes.
Focus question

• Where do volcanoes occur on Earth?
Introduce mapping activity

Each group will be assigned a group of volcanoes to locate and mark on a world map. You will become the volcanology team that specializes in the volcanoes in that part of the world.

Volcanologists are the scientists who study volcanoes.
View online activity

“Latitude and Longitude”

Latitude can be thought of as imaginary lines running around the earth. The most important line of latitude is the one going around the earth, halfway between the North and South Poles. It is called the equator, and it circles the globe like a belt.

Other lines of latitude run around the globe above.
View online activity

“Volcano-Plotting Activity”
Each location appears in the sidebar menu in Google Earth™. Right-click My Places (at the top of the list) and select Add and then Folder. Enter the folder name, such as “Group 1,” and click OK.
Look for the folder at the bottom of the list of places. Click one of the pushpins created by the team and drag it into the folder you created.

Once each pushpin is in the folder, right-click the folder and select **Save Place As**. Enter the file name and select where you want to save the file.
Display group data

“Class data”

Earth History: Volcanoes around the World

This tour uses Google Earth. You will need a recent version of Google Earth to run this tour. If you need to download a current version of Google Earth or encounter any problems installing or using the program, go to the Google Earth website.

Google also provides a variety of tools, resources, and tips for using Google Earth. Check out the online Google Earth learning center.

To download a tour, right click (or control click if on a Mac) on the file you would like to download. Choose “Save File As” and select a destination to download the file. Open the KMZ file with Google Earth.

<table>
<thead>
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Google Earth Settings

You will need an Internet connection when using Google Earth. Once you have installed Google Earth, change these default settings before you begin work:

- Display distance units in kilometers. Change miles to kilometers in “Preferences” under the Google Earth drop-down menu.
- Ensure that the Terrain layer is on. In the left sidebar of Google Earth, locate the Layers menu. Check the “Terrain” box to turn terrain on.
- Remove unnecessary layers.
  - In Layers menu of the left side bar, deselect all boxes except “Terrain.”
  - This will remove place names and political boundaries from the images. You may want to add boundaries, roads, and place names after students have first had an opportunity to view Google Earth without these labels.
Analyze class data

• When we pull together all the groups’ data, we can see a picture of where on Earth volcanoes are found. What patterns do you see on the map?
Display additional data

“Volcanoes around the World”

Earth History: Volcanoes around the World

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Answer the focus question

• Where are volcanoes occur on Earth?
Introduce Ring of Fire

1. Why do you think they call this pattern the **Ring of Fire**?
2. What is a volcano?
3. Why do you think some areas have volcanoes and others do not?
Introduce vocabulary

- An **active** volcano erupted during recorded history, is currently erupting, or is likely to erupt in the near future.
Introduce vocabulary

- A **dormant** volcano is not presently erupting but probably will erupt in the future. Some active volcanoes are considered to be dormant because they have not erupted recently but have the potential to erupt again.
- An **extinct** volcano is not expected to erupt again.
“Volcanoes Formation”

<table>
<thead>
<tr>
<th>Volcano types</th>
<th>Shield</th>
<th>Strato</th>
<th>Cinder cone</th>
</tr>
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View online activity

Earth History Course, 6.1: Mapping Volcanoes and Earthquakes
Step 18
May 18, 1980, Mount St. Helens volcano exploded violently after 2 months of intense earthquake activity and occasional, relatively weak eruptions.

It caused the worst volcanic disaster in the recorded history of the United States.
View video

Mount St. Helens: The Eruption Impact
Discuss earthquakes

• What were some of the clues that scientists looked for to help them predict an eruption for Mount St. Helens?
Discuss earthquakes

1. What is an earthquake?
2. Do earthquakes happen only where there are volcanoes?
Focus question

- Where do earthquakes occur on Earth?
Explain earthquake magnitude

People who study earthquakes, the study of seismology, describe the strength of an earthquake with magnitude.
View online activity

“Earthquakes around the World”

Earth History Course, 6.1: Mapping Volcanoes and Earthquakes
Step 24
View online activities

“Earthquakes around the World” and “Volcanoes around the World”
Human implications

Discuss in your groups, why it is important for humans to understand where volcanoes and earthquakes are likely to occur.
Review vocabulary

Spend a few minutes reviewing the vocabulary for this part. Update the vocabulary index and table of contents in your notebook.
Review vocabulary

- active
- dormant
- earthquake
- extinct
- latitude
- longitude
- Ring of Fire

- seismology
- volcano
- volcanology
Answer the focus question

- Where do earthquakes occur on Earth?
Homework

What safety precautions should people take in the event of an earthquake or imminent eruption?

Find information online and write a short report.
Wrap-Up/Warm-Up

Discuss the importance of identifying patterns in nature.

Give examples of other kinds of patterns that have lead to new understanding in science.