

Bringing Pieces “Ring of Fire” Puzzle

Grade Level: 7th Grade

Duration: 2 x 45 min lesson

Objectives:

- Students will research on various earth process/geological events such as, Tsunamis, Earthquakes, Volcanoes and present their data to the class.
- Students will collect real life data of dynamic earth process.
- Students will analyze collected data, and coming up with a conclusion if there are any correlation between presented earth events.

Next Generation Science Standards (NGSS)

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.

Materials Needed:

Chromebooks
Poster Papers
Colored pencils/Markers/Crayons
Scissors
Glues

During the first 45 min of this lesson, working in students will research about a geologic event, answer questions, and design a poster. Each group will present their research results in the next 45 min session. Finally, by comparing their research data, students will make a correlation between movement of tectonic plates and various geologic events such as tsunamis, earthquakes and volcanoes.

Engage	Demonstration: Students will watch a short video “What is Ring of Fire?”
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<https://www.cnn.com/2017/09/08/world/ring-of-fire-explainer/index.html>

Probing Questions:

What are the geological events that shape, change the earth?
Are there any connections between different geologic events?

Explore

Activity 1: Working in groups of four, students will select a topic. Using the given resources, students will answer the research questions, designing with a final poster to present their study.

A) Tracking Tsunamis

Research Questions:

1. What is a Tsunami?
2. Where do we see more Tsunami?
3. What is DART?
4. How do they work?
5. Where are DARTS utilised?
6. Share a map with classmates showing DART locations.
7. Click on the interactive map to show real data.

Resources:

<https://www.ndbc.noaa.gov/dart/dart.shtml>

<https://www.tsunami.gov/>

<http://itic.ioc-unesco.org/index.php>

B) Mapping Earthquakes

Research Questions:

1. What is an earthquake?
2. What is subductions zone?
3. What causes an earthquake?
4. How are earthquakes recorded?
5. Where do we see the most earthquakes?
6. Present a map showing subduction zones.
7. Present latest 7 days earthquake data using <https://earthquake.usgs.gov/> .
8. (students will present rel data of the earthquakes happened in the last week.

Resources:

<https://earthquake.usgs.gov/learn/kids/eqscience.php>

<https://www.britannica.com/science/subduction-zone>

<https://earthquake.usgs.gov/>

C) Volcanic Activity on Earth

Research Questions:

1. What is a volcano?
2. How do volcanoes erupt?
3. What are the different types of volcanoes?
4. Can an eruption at one volcano trigger an eruption at another nearby volcano
5. How many active volcanoes are there on earth?
6. Where are the most active volcanoes located?
7. Check on the real-time status of some of the volcanoes tracked by the USGS by going to the provided online Volcano Status Map.

Resources:

<https://pubs.usgs.gov/gip/dynamic/fire.html>

<https://volcanoes.usgs.gov/index.html>

<https://www.khanacademy.org/partner-content/amnh/earthquakes-and-volcanoes/volcanoes/a/volcanoes-101>

Explain

Each group will present their poster to the class.
Each group will share real life data related with their event.

Elaborate/Extend

With real life data of the three geologic events, and the worldwide map of the distribution frequency of them students will be able to make connections between tsunamis, earthquakes and volcanoes.

Evaluate

- Final group posters
- Group presentations

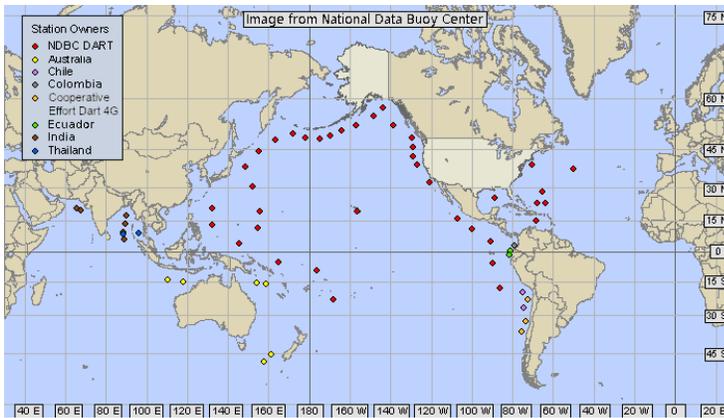
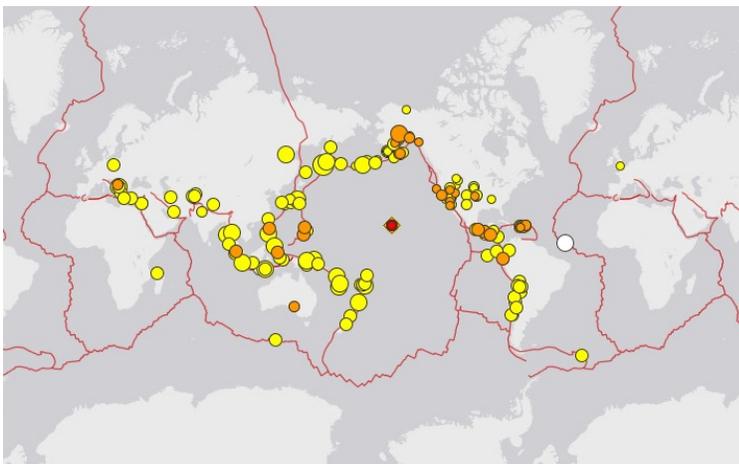
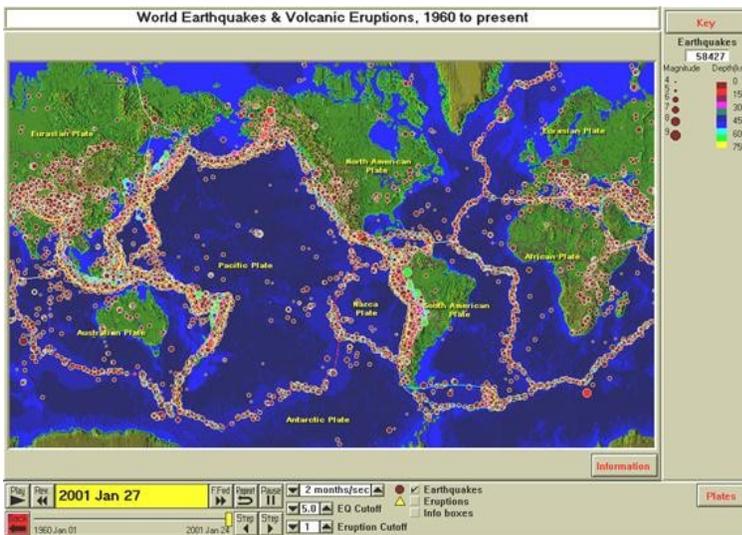


Image from National Data Buoy Center



Latest (7 days) Earthquake Data Map (<https://earthquake.usgs.gov>)



[World Earthquakes and Volcanic Eruptions](#)

References

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