

Teacher Guide for the Lesson on **Ring of Fire**

Standard:

WG.3(C) describe how physical processes such as hurricanes, El Niño, earthquakes, and volcanoes affect the lithosphere, atmosphere, hydrosphere, and biosphere.

Content Objective:

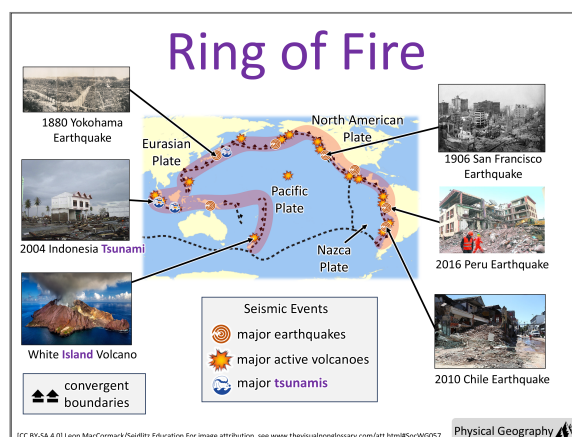
We can describe how the physical process of the **Ring of Fire** affects Earth's systems through earthquakes, volcanoes, and **tsunamis**.

Language Objective: Answer the following question in complete sentences using the sentence stem and the key vocabulary of the lesson:

How do you think major cities along the **Ring of Fire** adapt to the dangers of its seismic activity?

*I think major cities along the **Ring of Fire** adapt to the dangers of its seismic activity by ...*

Other key vocabulary: [tsunamis](#)



By studying this visual, students might:

Notice	Wonder
The Ring of Fire is highlighted with a thick red/orange outline around the Pacific Plate	Why are there so many disaster symbols in the same area around the Pacific?
There are icons for earthquakes, volcanoes, and tsunamis all along the Ring of Fire	What causes the tsunamis, volcanoes, and earthquakes shown in the pictures?

• The convergent boundary symbol appears along the tectonic plate lines	• Why is this area called the Ring of Fire when the color is purple/orange and it's about more than fire?
• Photos of real disasters (e.g., 2010 Chile Earthquake, 2004 Indonesia Tsunami) are labeled with dates and places	• What does the convergent boundary symbol mean?
• Multiple tectonic plates (e.g., Nazca, Eurasian, North American) are named and shown on the map	• How are the tectonic plates moving in these areas?

EXTENDING THE DISCUSSION

- After randomly calling on students, if there is anything from this list that was not mentioned, then ask the class, "Did anyone notice...?"
- After students have shared what they notice, ask the class, "Did anyone wonder...?" using the suggestions above or anything else you might think is interesting or relevant to the lesson.

Structured Conversation Prompts

OBSERVATIONAL	RELATIONAL	INFERENTIAL
What is the Ring of Fire? The Ring of Fire is...	How is the Ring of Fire related to tsunamis? The Ring of Fire is related to tsunamis because...	How do you think major cities along the Ring of Fire adapt to the dangers of its seismic activity? I think major cities along the Ring of Fire adapt to the dangers of its seismic activity by ...

Example Student Responses to the Observational Question

Low-Level	High-Level
The Ring of Fire is a place where there are a lot of earthquakes and volcanoes around the ocean.	The Ring of Fire is a tectonically active zone around the Pacific Plate where many earthquakes, volcanoes, and tsunamis occur due to convergent boundaries between plates.

RESPONDING TO RESPONSES

Emphasize and celebrate each student's use of the key vocabulary to support a culture of "no wrong answers."

STRUCTURING STUDENT CONVERSATIONS

Have students list observations from the visual as a warm-up, then use the Q-SSS-A process to guide small-group conversations. In the slide decks, brackets can be moved to prepare the structured conversation. In the example to the right, students will be instructed: [Q-SSS-A](#).

- To put a thumb up, then lower their hand when they are ready to answer the question
- To share with their elbow/shoulder partner, and that the student with the darkest shoe will share first
- That they will be randomly called on after the conversation



[Here is an example](#) of structuring a conversation with Q-SSS-A.

Note: the inferential question is the same as the language objective. It is recommended that students answer the inferential question in a small-group discussion before answering it individually as the closure or exit ticket of the lesson.

Structured Reading

READING PURPOSE	PAT LIST	POST-READING DISCUSSION
The purpose for reading is to explore how tectonic forces shape the Ring of Fire and how that impacts people who live there.	• The location and shape of the Ring of Fire • Examples of seismic activity in the region • How tectonic forces affect Earth's surface • Places where humans are affected by these events • Clues about how people might prepare for danger	How does the location of the Ring of Fire influence the way humans build and prepare for natural disasters? <i>The location of the Ring of Fire influences humans because... It affects how they build and prepare by...</i>

STRUCTURING THE READING

Communicate the purpose of reading to the students and instruct them to make a note every time they see something on the PAT ("Pay Attention To") list. How you have students note items on the PAT list is up to you. This could include:

- Putting an asterisk in the margin
- Underlining text that supports the PAT list
- Putting a comment in the margin

Follow the reading with the post-reading discussion. Structure this discussion using the Q-SSS-A process just like the structured conversations in this lesson.

Note: you might find the relational question is better discussed before or after the reading. This depends on whether the relational question is directly related to the reading or might make connections across units.

DIFFERENTIATING THE READING

You will notice that three different reading passages are provided with this lesson. Look at the shapes in the top-left of each passage to determine the grade level.

BELOW GRADE LEVEL	ON GRADE LEVEL	ABOVE GRADE LEVEL
 <i>Triangle is bottom-left</i>	 <i>Square is bottom-left</i>	 <i>Circle is bottom-left</i>

In a class with students at diverse reading level proficiencies, you can give the appropriate reading passage to different students, while having all students follow the same PAT list and post-reading discussion.