

Teacher Guide for the Lesson on **tectonic forces**

Standard:

WG.3(B) describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes

Content Objective:

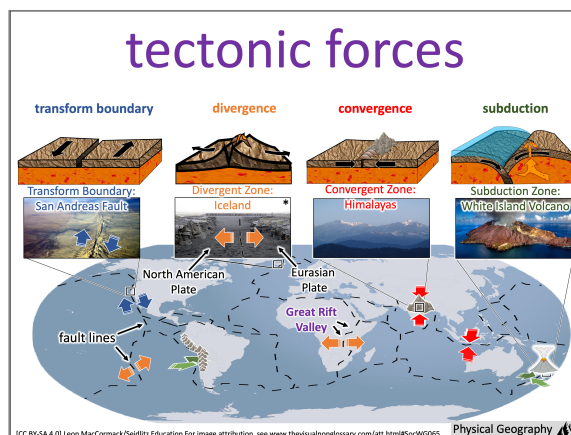
We can identify how different types of **tectonic forces** influence physical features in regions around the world.

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

Which **tectonic force** do you think poses the greatest challenge to human settlements? What makes you think this?

*Divergence/Convergence/Subduction is the **tectonic force** that poses the greatest challenge to human settlements because...*

Other key vocabularies: [Great Rift Valley](#), [tectonic force](#)



By studying this visual, students might:

Notice	Wonder
<ul style="list-style-type: none"> The arrows show different types of tectonic forces like convergence, divergence, and subduction. 	<ul style="list-style-type: none"> Why do some tectonic forces cause mountains and others cause valleys?
<ul style="list-style-type: none"> Earth's plates are labeled and shown interacting at their boundaries. 	<ul style="list-style-type: none"> How do scientists know where plate boundaries are?

<ul style="list-style-type: none"> • The Great Rift Valley is labeled in East Africa near a divergent boundary. 	<ul style="list-style-type: none"> • What happens to people living near subduction zones?
<ul style="list-style-type: none"> • Volcanoes and mountain ranges appear where plates collide. 	<ul style="list-style-type: none"> • How fast do tectonic plates move?
<ul style="list-style-type: none"> • Different boundary types (convergent, divergent, subduction) have distinct movements. 	<ul style="list-style-type: none"> • Why is the Great Rift Valley important to geology?

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	INFERENCEAL
<p>What are tectonic forces?</p> <p>Tectonic forces are...</p>	<p>How are tectonic forces related to the Great Rift Valley?</p> <p>Tectonic forces are related to the Great Rift Valley because...</p>	<p>Which tectonic force do you think poses the greatest challenge to human settlements? What makes you think this?</p> <p>Divergence/Convergence/Subduction is the tectonic force that poses the greatest challenge to human settlements because...</p>

Example Student Responses to the Observational Question

Low-Level	High-Level
<p>Tectonic forces are how Earth's plates move and change the land.</p> <p>□</p>	<p>Tectonic forces are movements of Earth's plates that shape physical features like mountains, valleys, and trenches through processes such as convergence, divergence, and subduction.</p>

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
<p>The purpose for reading is to learn how different tectonic forces shape the Earth's surface and how those changes affect people.</p>	<ul style="list-style-type: none"> • Different types of tectonic forces • Landforms like mountains, valleys, trenches, and volcanoes • Places where tectonic forces are happening (e.g., Great Rift Valley, Himalayas, Andes, San Andreas Fault) • How people might be affected by these landforms or events (e.g., earthquakes, tsunamis, volcanoes) 	<p>What are some physical features that form because of tectonic forces, and how might they affect people who live nearby?</p> <p><i>Some physical features that form from tectonic forces are... These features affect people because...</i></p>

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
 <p data-bbox="212 302 513 331"><i>Triangle is bottom-left</i></p>	 <p data-bbox="667 302 951 331"><i>Square is bottom-left</i></p>	 <p data-bbox="1127 302 1395 331"><i>Circle is bottom-left</i></p>

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.