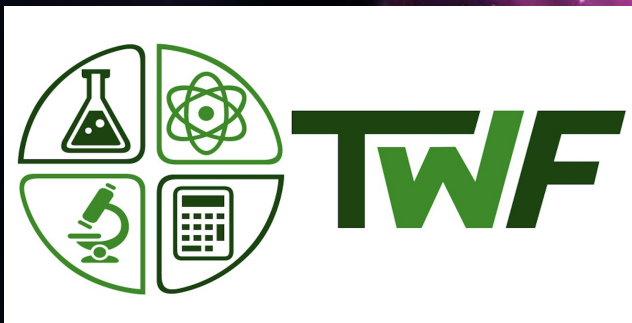


Plate Tectonics

5E Lesson

The 5E model is a scientifically proven method to improve student engagement and learning in your classroom

- ✓ Engagement
- ✓ Exploration
- ✓ Explanation
- ✓ Elaborate
- ✓ Evaluate



Complete Teacher Instructions

Plate Tectonics 5E Lesson

Grades 7-10	Plate Tectonics	Ongoing Les
Lesson Objective: Students will learn about: • Earth's Layers • Continental Drift • Thermal Convection • Earth's Plates • Plate Boundaries • Hotspots • Earthquakes • Seafloor spreading		
Possible Student Misconceptions: • "Crust" and "lithosphere" are synonymous. • The asthenosphere is liquid. • Only continents move. • Most crust motions are due to vertical, not lateral, motion. • Ocean ridges form at convergent plate boundaries. • Plate motion is fast enough that continent collision and rifting can cause impacts on humans (e.g. financial/political chaos, divide families). • The edge of a continent is the same thing as a plate boundary. • Plates are divergent or convergent. • Earthquakes are rare. • Earthquakes are caused by continents bumping into each other. • Any mountain could become a volcano.		
Materials: • 1 device (smartphone, Chromebook, laptop, tablet, or computer) per student • A means of projecting a PowerPoint presentation • Internet access • General classroom objects		
Teacher Notes: ➢ All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If reason, right-click on the image and click Edit Hyperlink or something similar. I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ ➢ I don't believe in long lessons. If you feel your students are losing the Stop the PowerPoint and give them a 5-minute break. If you'd like to see recommend my video collection here - http://www.teachwithferdy.com are tons of brain-break videos to choose from all grouped by category.		

Plate Tectonics – 5E Lesson

Engagement Phase Your students will watch the video 'Plate Tectonics Explained' and complete the questions found in the file – Engagement – Plate Tectonics Explained Video . Teacher Notes: - The video is about two and a half minutes long - You may need to show the video more than once or pause when an answer is given to one of the questions.	
Exploration Phase Exploration – Lab Station Activity • In groups of 2-3, have your students complete Exploration – Lab Station Activity. Once they're done, they will submit their passport to you. Teacher Notes: • The complete instructions for my Lab Station activity can be found in the START HERE – Instructions file.	
Explanation Phase PowerPoint Lesson • The lesson is found in the folder – Explanation – Plate Tectonics Lesson • This lesson is designed to be completed over one day • There are multiple embedded videos and plenty of opportunity to engage, interact and check for your students' understanding throughout the lesson • The lesson covers the following topics: ➢ Earth's Layers ➢ Earth's Crust ➢ The Lithosphere ➢ Continental Drift ➢ Thermal Convection ➢ Earth's Plates ➢ How Plate Tectonics Works ➢ Plate Boundaries ➢ Hotspots Teacher Notes: • All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and select Edit Hyperlink or something similar.	

- I've created a video walkthrough if needed. It can be accessed here - <https://youtu.be/oCIKIP9SaDQ>
- I have also enclosed a PDF version of both the teacher and student versions.

Elaborate Phase

Elaborate – Reading

Your students will complete – [Elaborate – Plate Tectonics Reading](#). This reading will require your students to move beyond what was covered directly in the lesson and allow them to further develop their understanding.

Teacher Notes:

- Students will work individually or in small groups
- This reading contains 5 comprehension questions and 4 extension questions. It is fully editable so I encourage you to remove any question(s) in order to meet the needs of your students as well as your time frame.

Evaluate Phase

Quiz

Have your students complete - [Evaluate – Plate Tectonics Quiz](#)

Teacher Notes:

- It's sometimes best to have the students peer evaluate
- Placing students in small groups and having them exchange papers to mark will accomplish two things
 - 1) Provide immediate feedback on the questions they just completed
 - 2) Significantly reduce your marking time
- Peer evaluation is not needed, only suggested when appropriate

Duration: 1 hour

Teacher Role – Facilitate learning and keep students focused

Goal

- ☐ Students use their newly obtained knowledge to propose solutions and extend their learning to new situations

Duration: 30 min

Teacher Role – Distribute and collect evaluation

Goal

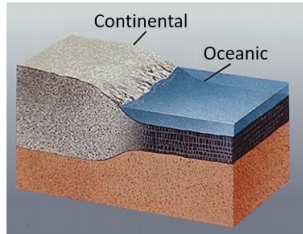
- ☐ Students are given the opportunity to demonstrate their understanding and evaluate their own progress

Each phase is clearly described

A Complete Lesson

Earth's Crust

- Two types
 - Continental
 - Includes land masses and continental shelves
 - Usually about 40 km (25 mi) thick
 - Oceanic
 - Includes ocean basins
 - Usually about 6 km (4 mi) thick



← Make sure your students are on track

Student copies with blanks
Videos embedded right into
your slideshow

Earth's Crust

- Two types
 - Continental
 - Includes land masses and continental shelves
 - _____
 - Oceanic
 - Includes ocean basins
 - _____

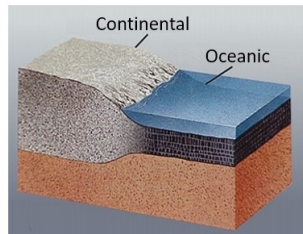


Plate Tectonics Overview



Interactive and Engaging Activities

Plate Tectonics

Scientific Reading Comprehension Article and Extension Activity – **Grades 5-7**

Plate Tectonics

What are plate tectonics?
Plate tectonics is the theory that Earth's surface is broken up into major surface called tectonic plates. These plates move and interact with each other like a bunch of puzzle pieces. But sometimes they don't fit together quite as well as puzzle pieces.

Did You Know?
The tectonic plates are constantly moving. The North American and European plates are moving away from each other about one inch every year.

What are tectonic plates?
Tectonic plates are pieces of the surface of the Earth that are floating on top of the molten rock (magma) of Earth's mantle, the layer above the core. There are seven major and eight minor plates. The seven major plates are the African, Antarctic, Eurasian, Indian, North American, Pacific, and South American plates. The eight minor plates are the Arabian, Caribbean, Cocos, Eurasian, Indian, Pacific, Philippine, and South American plates.

What are the different types of plates?
There are two types of plates: **oceanic** and **continental**. Oceanic plates are the plates beneath Earth's oceans. They have a top layer, or crust, called "oceanic" which is made of silicon and magnesium. Continental plates are the plates with landmasses on them. They also have a crust called "continental" which is made of silicon and aluminum.

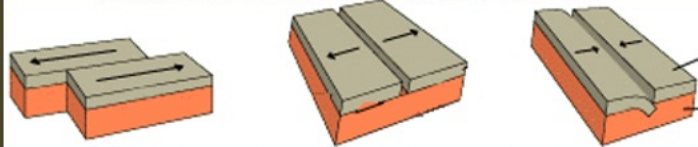
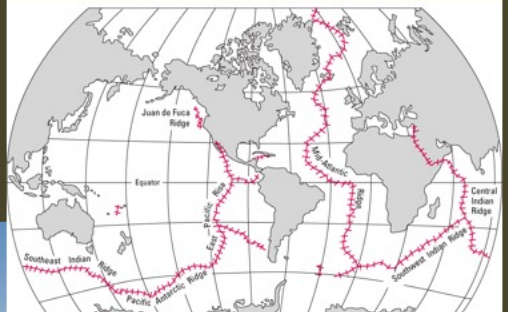
Who do plates move?
Plates move because of forces within the mantle. The mantle is molten and moves. Plates move together, apart, or slide past each other.

What are the different types of plate boundaries?
There are three types of plate boundaries: **divergent**, **convergent**, and **transform**. Divergent boundaries are where plates move apart. Convergent boundaries are where plates move together. Transform boundaries are where plates slide past each other.



Improve your students **Literacy** and **Analysis Skills**, use as an **Emergency Substitute Plan** or create **Applicability** in your classroom

Plate Tectonics Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

