



19

# THE PLATE TECTONICS REVOLUTION



# Scientists

There are SO many people that went into our current understanding of plate tectonics. Here are ten to research about!

1. <https://pubs.usgs.gov/gip/dynamic/HHH.html>
2. <https://pubs.usgs.gov/gip/dynamic/wegener.html>
3. <https://www.encyclopedia.com/religion/encyclopedias-almanacs-transcripts-and-maps/conrad-victor>
4. <https://www.earthscrust.org.au/science/historic/andrija.html>
5. <https://www.smithsonianmag.com/history/seeing-believing-how-marie-tharp-changed-geology-forever-180960192/>
6. [https://www.e-education.psu.edu/earth520/content/l2\\_p14.html](https://www.e-education.psu.edu/earth520/content/l2_p14.html)
7. <https://www.britannica.com/biography/J-Tuzo-Wilson>
8. <https://www.earth-prints.org/bitstream/2122/2017/1/MANTOVANI.pdf>
9. <https://www.geolsoc.org.uk/Plate-Tectonics/Chap1-Pioneers-of-Plate-Tectonics/Vine-and-Matthews>



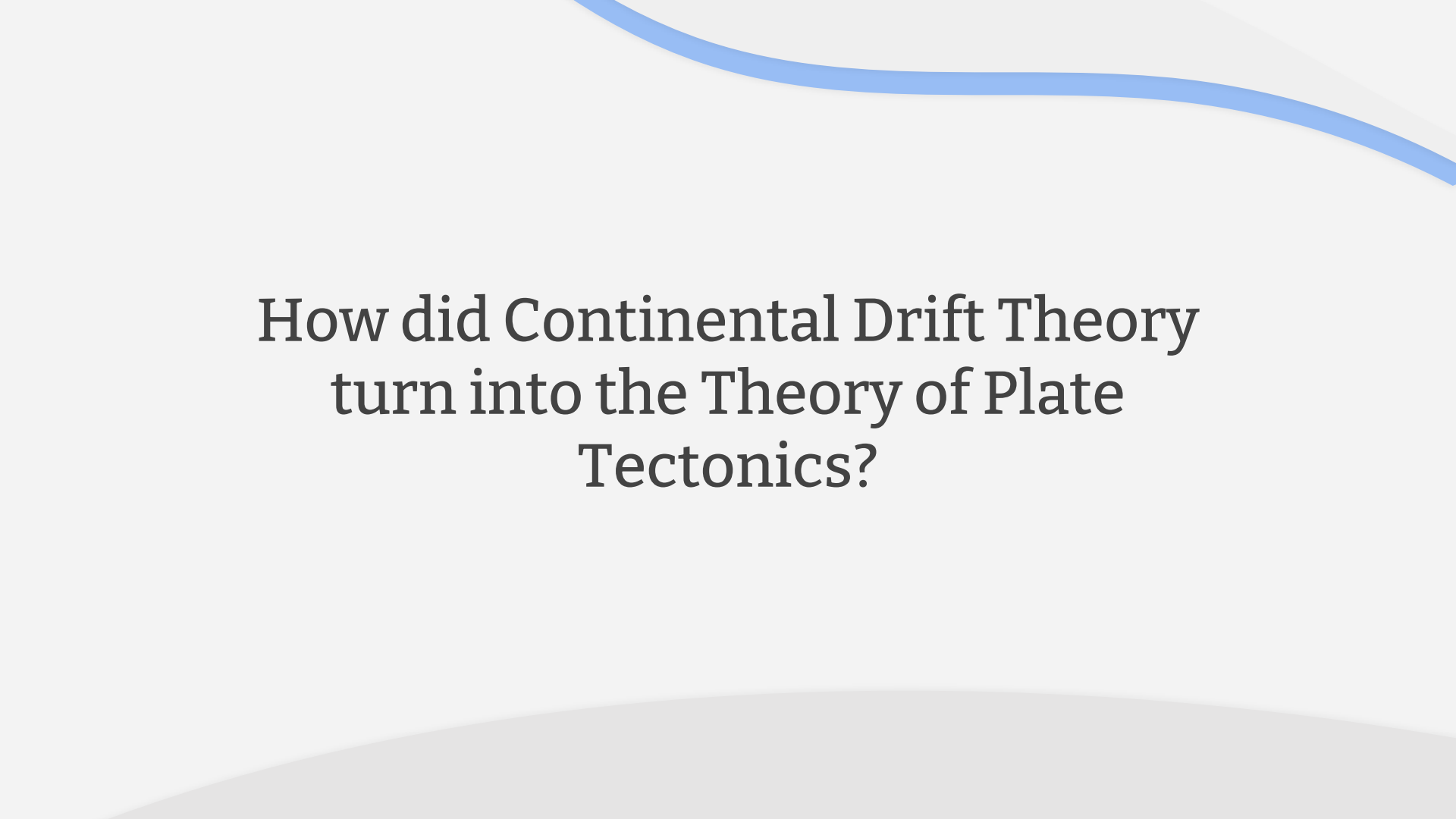
How did scientists help create our understanding of what is happening to the plates and their movements?

Alfred Wegener, Harry Hess, and Marie Tharp all helped further our understanding of Continental Drift Theory and seafloor spreading.

- Alfred Wegener came up with the fact that the continents moved
- Harry Hess came up with the idea that the mid-ocean ridges helped with that movement
- Marie Tharp did the map work to help Harry Hess prove Alfred Wegener right

# Review Questions

1. Who came up with continental drift?
2. What evidence is there for the Theory of Continental Drift?
3. How do mid-ocean ridges and seafloor spreading help explain the Theory of Continental Drift?
4. What is subduction?
5. If the lithosphere is always expanding why isn't the diameter of the Earth getting bigger?



# How did Continental Drift Theory turn into the Theory of Plate Tectonics?





**Time for the  
fun stuff!**

# Shape of the Land

Look through these websites for background information:

- <https://www.nationalgeographic.org/encyclopedia/plate-tectonics/>
- <https://www.nps.gov/subjects/geology/plate-tectonics.htm>
- <https://www.gtansw.org.au/wp-content/uploads/2020/07/GTA-Bulletin-Issue-2-2020-3-104-8-12.pdf>
- <https://oceanexplorer.noaa.gov/facts/tectonic-features.html>
- <https://platetectonicsalvin.weebly.com/landforms-created-at-plate-boundaries.html>

Now that you know what to look for, go on Google Earth or Google Maps and find examples of these landforms that are caused by plate tectonics!

Extra time? Check out this article about finding a missing tectonic plate <https://phys.org/news/2020-10-geologists-resurrect-tectonic-plate.html> or play a game about the plates here <https://www.geoguessr.com/seterra/en/vgp/3253!>

# Simulations and Activities

## Information sites:

- information about tectonic plates: <https://www.worldatlas.com/articles/major-tectonic-plates-on-earth.html>
- Evidence of Plate Tectonics: <https://www.calacademy.org/explore-science/evidence-of-plate-tectonics>
- Good visualizations of these concepts:  
<https://serc.carleton.edu/NAGTWorkshops/geophysics/visualizations/PTMovements.html>
- Plate motions explained: <https://pubs.usgs.gov/gip/dynamic/understanding.html>
- Plate boundary map: <https://geology.com/plate-tectonics.shtml>

## Simulation or interactive sites:

- Dynamic Earth: <https://www.learner.org/series/interactive-dynamic-earth/>
- Create your own plates and mess with them: <https://tectonic-explorer.concord.org/?planetWizard=true>
- Phet simulation about plate tectonics (only works by download sadly):  
<https://phet.colorado.edu/en/simulations/plate-tectonics>
- See the world as it was in the past: <https://dinosaurpictures.org/ancient-earth#0>
- Plate Boundary simulations: [https://sepuplhs.org/middle/third-edition/simulations/plate\\_motion\\_sim.html](https://sepuplhs.org/middle/third-edition/simulations/plate_motion_sim.html)
- Plate boundary map:  
<https://mapmaker.nationalgeographic.org/map/692b3ff1cd60449da2e882085f631c4e>

# Which link do you like the most

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**Which links did you  
like the most? Why?**

**What did you learn  
about plate tectonics?**

**IF THE EARTH WAS FLAT**

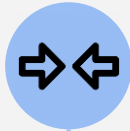


**CATS WOULD HAVE PUSHED EVERYTHING OFF IT BY NOW**



**BrainPOP**  
**video: Plate**  
**Tectonics**

# Three Types of Plate Boundaries



## Convergent

Two plates come together



## Divergent

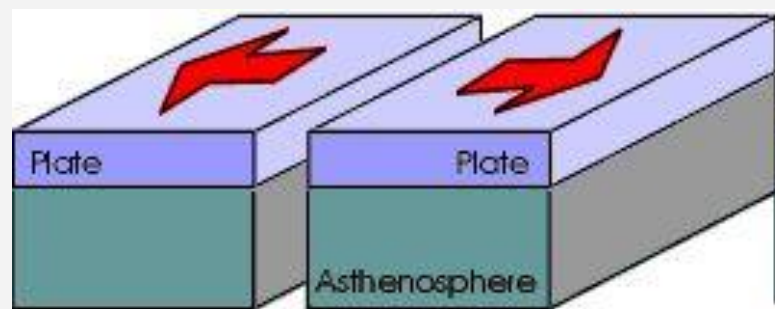
Two plates go away from each other



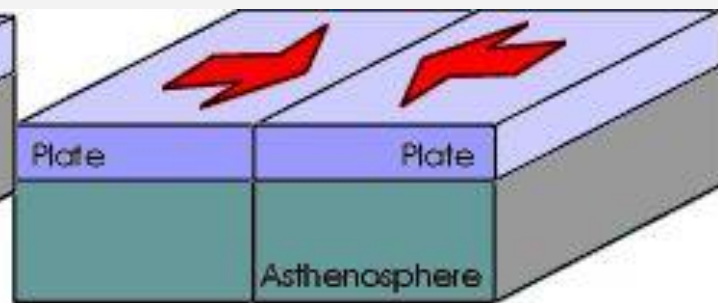
## Transform

Two plates slide past each other

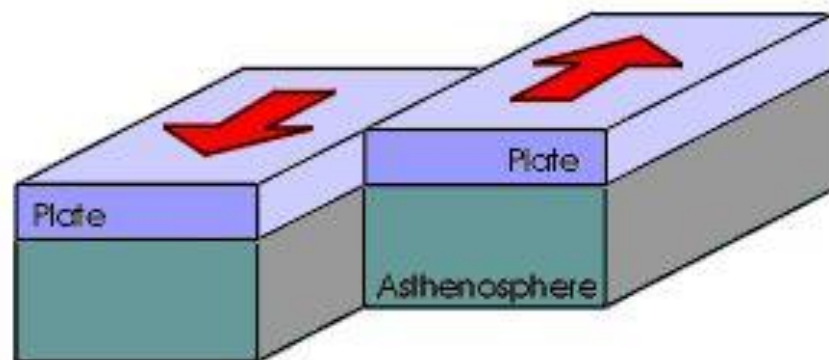




Divergent



Convergent



Transform

# Model the Plate Boundaries

Grab the following materials:

- Two paperback books with about the same amount of pages
- The sponge from our lab supply bag
- Scissors

I will wait while you go get them.

What is accurate about these models?

What is not accurate about these models?

How else could we have modeled the three types of plate boundaries?

**Now make  
your own!**

# Create your own model of how the plate move in three ways

01

## Plan

Decide how you are going to show the three plate movements

02

## Design

Look around at supplies available and gather them

03

## Create

Make your model showing the plate movements

04

## Share

Take a picture of what you created and share on our [Padlet!](#)