

Plate Tectonics - online simulation assignment

Learning Objectives:

- I can describe the differences between oceanic and continental crust, including their respective properties of density, composition, temperature and thickness.
- I can describe tectonic plate boundaries, including transform boundaries, divergent boundaries, convergent boundaries (oceanic-oceanic crust, oceanic- continental crust, and continental-continental crust) and identify the matching tectonic mapping symbols

Procedure

1. Open phet.colorado.edu and push **Play with Simulations**
2. Push **Earth Science** in the menu on the left and open the **Plate Tectonics simulation**.
3. Play with the sim (**both tabs**) for 5 minutes. Move **all** dials and buttons!

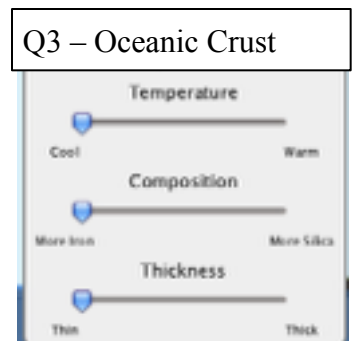
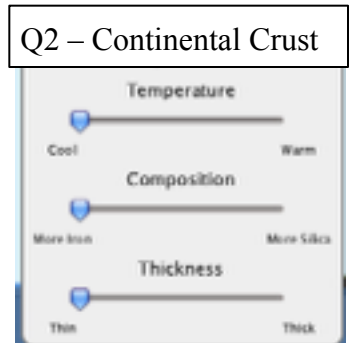
Crust Tab

- 1) What are the 3 **variables** that can be changed in this simulation? (Scale or zoom is a nice feature, but not a variable.)
 - 1.
 - 2.
 - 3.
- 2) Try to duplicate the continental crust as accurately as possible. Show on the diagram where you set each variable. (In other words, draw where you must move the slides.)
- 3) Try to duplicate the oceanic crust as accurately as possible. Show on the diagram where you set each variable.
- 4) In terms of the three variables you have investigated, describe how continental crust differs from oceanic crust in full sentences.

a. Temperature:

b. Composition:

c. Thickness:



Example 2: Drag a **young oceanic crust** and an **old oceanic crust** onto the screen. Drag the plate in the direction of the GREEN arrow.

Draw it!

Type of Boundary?

- Convergent
- Divergent
- Transform

What is the effect/outcome of this plate movement?

Label the direction of the plates, the trench, the subduction zone, the ocean, and the volcanos

Follow Up Question:

1. On p. 7 in the data booklet find an example of oceanic-oceanic convergent plate boundary.

Example 3: Drag two **continental crusts** onto the screen. Drag the plate in the direction of the GREEN arrow.

Draw it!

Type of Boundary?

- Convergent
- Divergent
- Transform

What is the effect/outcome of this plate movement?

Label the mountains, the lithosphere, and the asthenosphere

Follow Up Questions:

1. Why are no volcanos formed?

2. On p. 7 in the data booklet find an example of continental-continental convergent plate boundary.

