Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Plate Tectonics**

**Learning Objectives:**

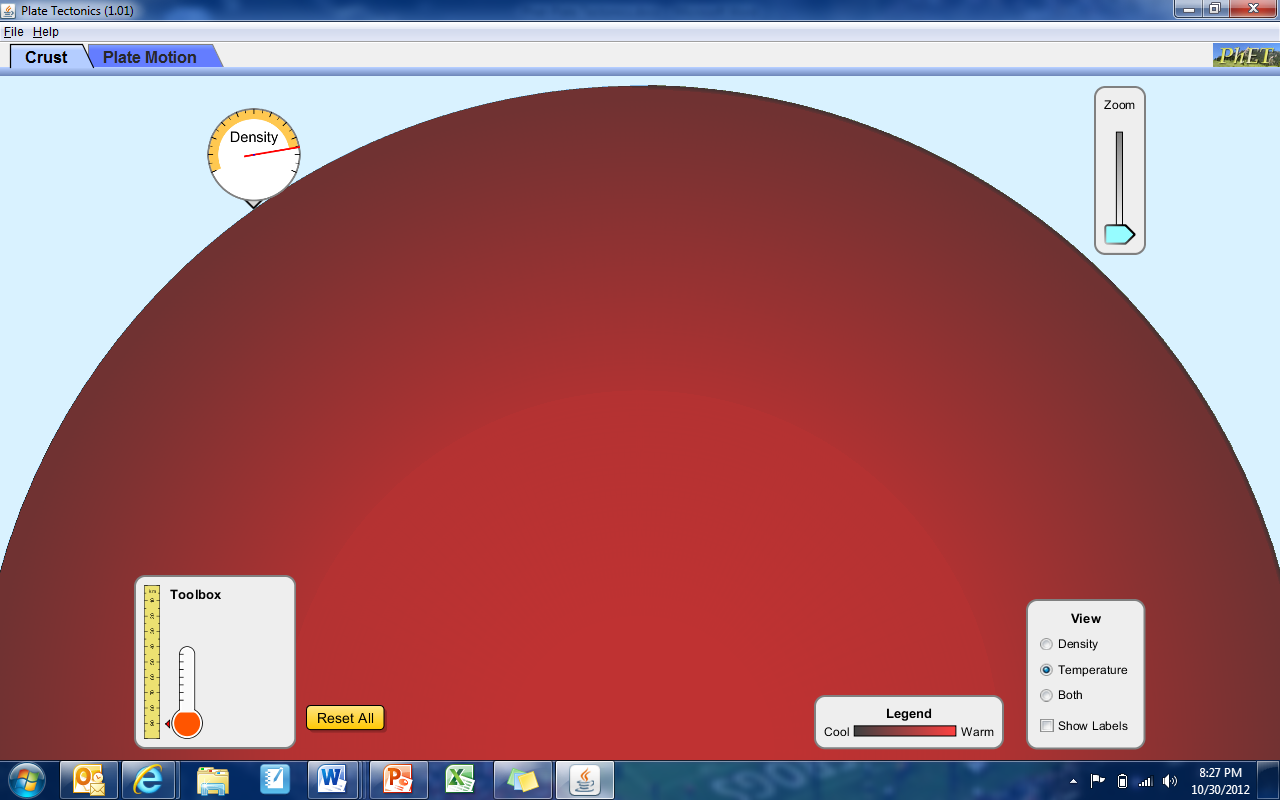
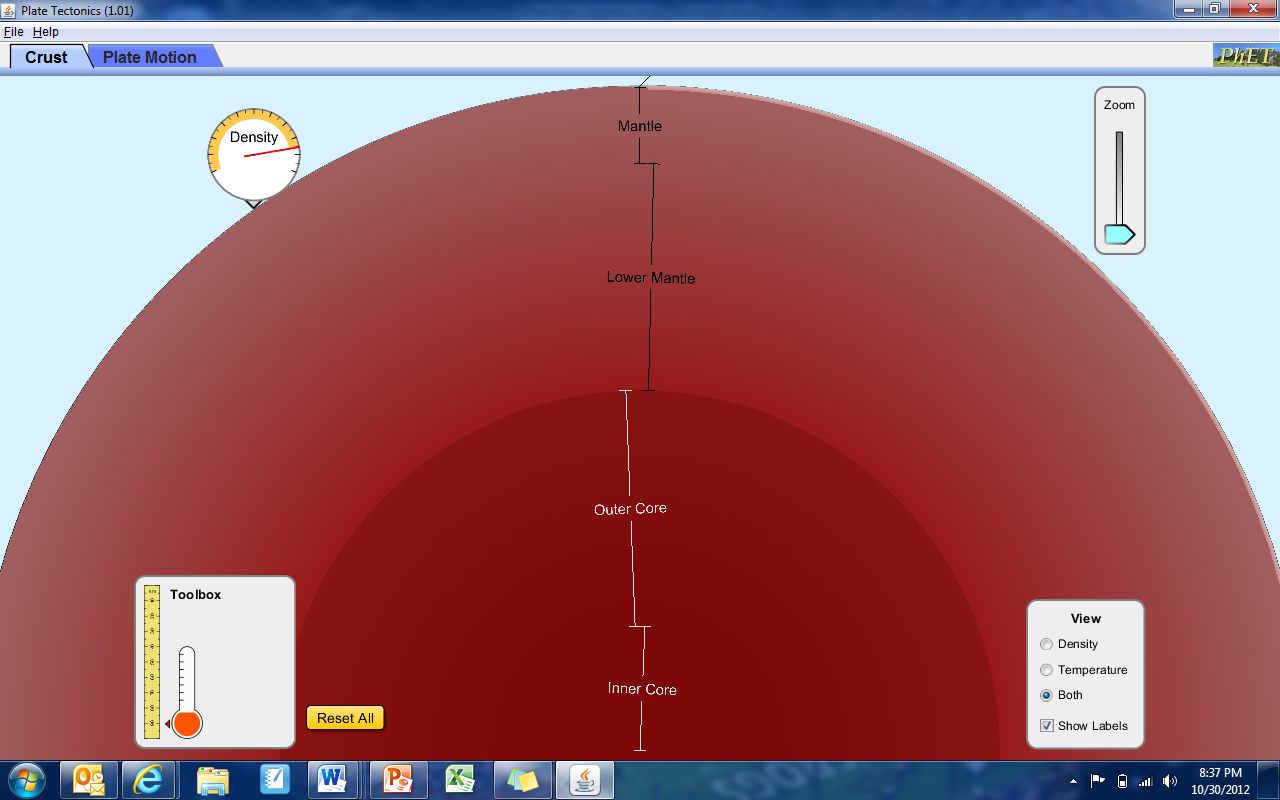
* Describe the differences between oceanic and continental crust, including their respective properties of density, composition, temperature and thickness.
* Predict tectonic movement based upon compositional and physical characteristics of each plate.
* Predict what will happen with different types of plate interactions.

**Part 1: Describing differences between oceanic and continental plates**

1. Open the Plate Tectonics simulation by clicking on the icon on your desktop.
2. Play with the sim (**both tabs**) for 5 minutes. Move **all** dials and buttons!

**Crust Tab**

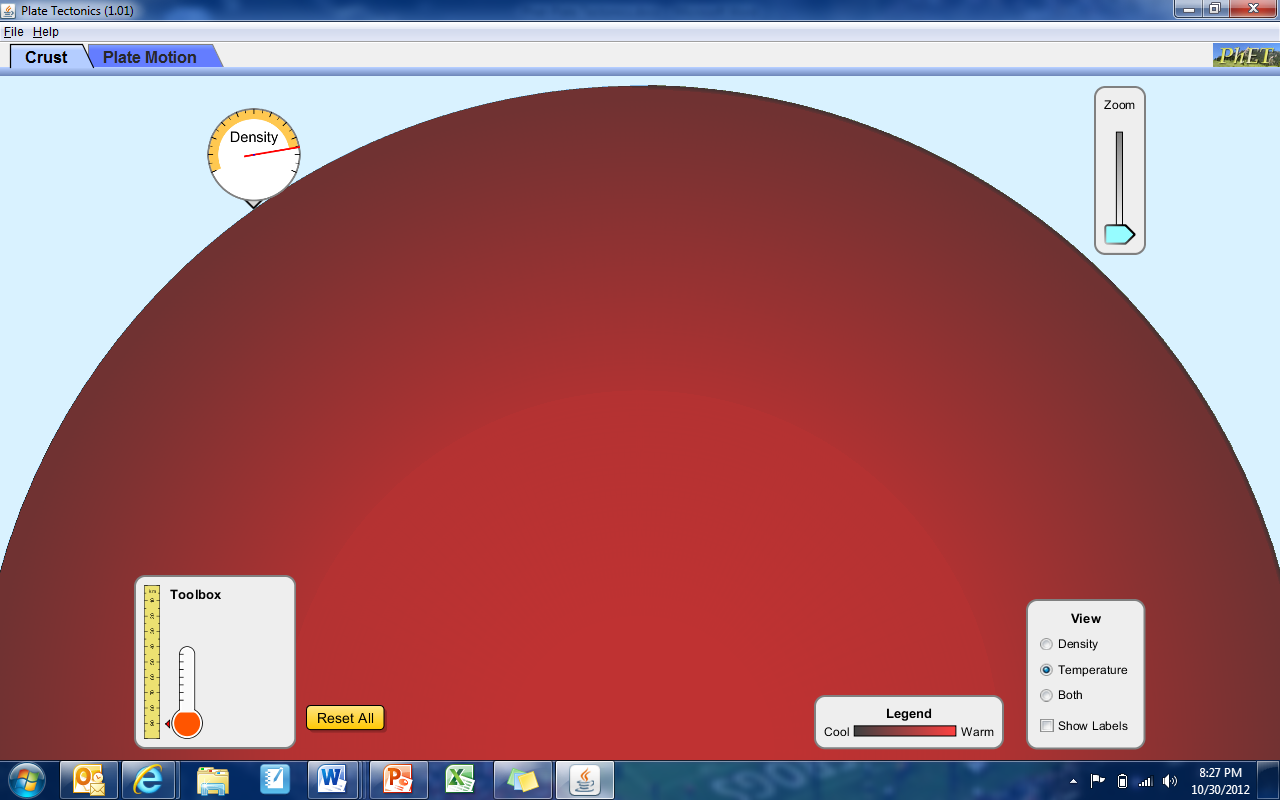
a. Change the thickness and composition levels and watch what happens to your crust. What makes it sink more? What makes it float more? What are some differences between oceanic crust and continental crust?



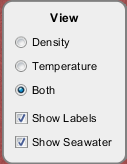
b. Zoom all the way out like this… and make your View Box look like this.

c. Draw and label the layers.

d. Use the ruler to find the distance from the core of the Earth to the surface and the thickness of each layer.

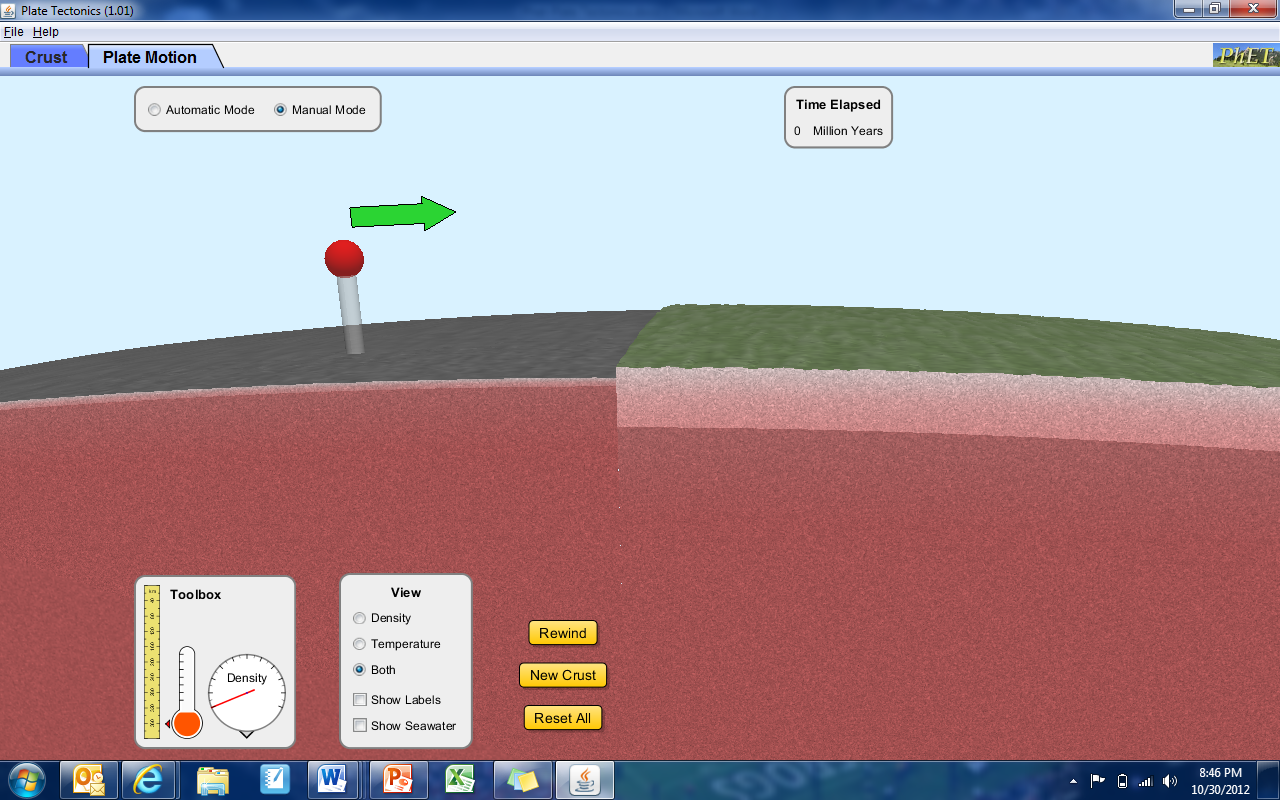


Use the density guage to check the density of each layer. What happens to the density as you go towards the core? Why do you think this is?



**Plate Motion Tab**

Now switch to the “Plate Motion” Tab. ***Always view “Both”, “Show Labels”, and “Show Seawater” (when possible).***

Click on “Manual Mode”. Complete the table below using Manual Mode. You can also click on automatic mode to learn the type of plate interaction.

\*Note: To see the same action happen again click “Rewind” to change the plates completely click “New Crust”.

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| --- | --- | --- | --- | --- |
| **Example 1:** Drag 1 oceanic crust (either young or old) & 1 continental 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? | |
| **Follow Up Question:** What causes the oceanic crust to subduct, or go under the continental crust? (Hint: look at the density of each plate) | | | | |
| **Example 2:** Drag 2 old oceanic crusts onto the screen. Drag the plate in the direction of the RED arrow. | | | | |
| Draw it! | **Type of Boundary?**   * Convergent * Divergent * Transform | | What is the effect/outcome of this plate movement? | |
| **Follow Up Question:** Where does the “New Crust” come from? Where does the “old crust” go? | | | | |
| **Example 3:** Drag two continental crusts on the screen. Drag the plate in the GREEN direction. | | | | |
| Draw it! | | **Type of Boundary**   * Convergent * Divergent * Transform | | What is the effect/outcome of this plate movement? |
| **Follow Up Question:** Why does one plate not subduct (dive under) the other? | | | | |

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| **Example 4:** Drag two continental crusts on the screen. Drag the plate in the BLUE direction. | | |
| Draw it! | **Type of Boundary**   * Convergent * Divergent * Transform | What is the effect/outcome of this plate movement? |
| **Follow Up Question:** What do you think would happen to a city that was built near this type of plate boundary? | | |

* **Click “Automatic Mode”. Create as many plate boundaries and timelines as you wish!   
  Record any interesting observations here:**