Name: **\_\_\_\_**

List everything you know about the types of plate boundaries (provide as much detail as possible).

* Plate Separation (Divergent)
* Plates Sliding Past One another (Transform)
* Plate Collision (Convergent) (ocean-to-ocean)
* Plate Collision (Convergent) (ocean-to-continent)
* Plate Collision (Convergent) (continent-to-continent)

**Directions**: Go to <http://phet.colorado.edu/en/simulation/plate-tectonics> or use [**http://tinyurl.com/inquiryboundaries**](http://tinyurl.com/inquiryboundaries). Click on “run now” or play the simulation.

1. Click on “crust” tab. Click on “density” and “show labels” in the **view box** in the lower right corner. Move “composition” slider all the way to left.

* What are you *INCREASING* by doing this? \_\_\_\_
* What are you *DECREASING* by doing this? \_\_\_\_
* What happens to the crust on the screen? \_\_\_\_\_
* Is this oceanic or continental crust? \_\_\_\_\_

2. Move “composition” slider all the way to right.

* What are you *INCREASING* by doing this? \_\_\_\_\_
* What are you *DECREASING* by doing this? \_\_\_\_\_
* What happens to the crust on the screen? \_\_\_\_\_\_
* Is this oceanic or continental crust? \_\_\_\_\_

3. Locate the density tool in the toolbox. Click and drag the density tool on to the oceanic crust (make sure pointer on bottom is pointing at crust). Now, drag the density tool and position it so that the pointer is pointing at the continental crust.

* Compare the differences in density between these two crust types?

**Directions**: Using the internet and/or your notes, determine the type of plate boundary (divergent, transform, convergent *(ocean-ocean)*, convergent *(ocean-continent)*, or convergent *(continent-continent)*)that generates the features listed below. Then simulate those plate boundary diagrams (on the computer program) by clicking on the “plate motion” tab (you will have to familiarize yourself with the program before simulating boundary types). Finally, draw the boundary type diagrams in the space provided.

|  |  |
| --- | --- |
| ***Features Formed*** | ***Plate Boundary Type*** |
| ***San Andreas Fault*** |  |
| ***Mid-Atlantic Ridge*** |  |
| ***Cascade Mountain Range*** |  |
| ***Himalayan Mountain Range*** |  |
| ***Aleutian Islands*** |  |

\* Click on “plate motion” tab. Click on “show labels” and “both” in the view box on the lower left/center portion of screen. Diagram each of the 5 boundary types in the spaces below.

Provide as much detail as possible by including arrows to show direction of motion, type of crust involved, features formed, etc. Visit the following website to assist you in providing these details.

[**https://sepup.lawrencehallofscience.org/geology-unit-plate-boundaries/**](https://sepup.lawrencehallofscience.org/geology-unit-plate-boundaries/)

***1) San Andreas Fault*** (boundary type: \_\_\_\_\_)

***2) Mid-Atlantic Ridge*** (boundary type: \_\_\_\_\_)

***3) Cascade Mountain Range*** (boundary type: \_\_\_\_\_ (o-c))

***4) Himalayan Mountain Range*** (boundary type: \_\_\_\_\_ (c-c))

***5) Aleutian Islands*** (boundary type: \_\_\_\_\_ (o-o))

**ANSWERS**

**Directions**: Go to <http://phet.colorado.edu/en/simulation/plate-tectonics> or use [**http://tinyurl.com/inquiryboundaries**](http://tinyurl.com/inquiryboundaries). Click on “run now.”

1. Click on “crust” tab. Click on “density” and “show labels” in the **view box** in the lower right corner. Move “composition” slider all the way to left.

* What are you *INCREASING* by doing this? iron
* What are you *DECREASING* by doing this? silica
* What happens to the crust on the screen? sinks with more iron
* Is this oceanic or continental crust? oceanic

2. Move “composition” slider all the way to right.

* What are you *INCREASING* by doing this? silica
* What are you *DECREASING* by doing this? iron
* What happens to the crust on the screen? goes up
* Is this oceanic or continental crust? continental

3. Locate the density tool in the toolbox. Click and drag the density tool on to the oceanic crust (make sure pointer on bottom is pointing at crust). Now, drag the density tool and position it so that the pointer is pointing at the continental crust.

* Compare the differences in density between these two crust types?

Oceanic crust is more dense than continental

**Directions**: Using the internet and/or your notes, determine the type of plate boundary (divergent, transform, convergent *(ocean-ocean)*, convergent *(ocean-continent)*, or convergent *(continent-continent)*)that generates the features listed below. Then simulate those plate boundary diagrams (on the computer program) by clicking on the “plate motion” tab (you will have to familiarize yourself with the program before simulating boundary types). Finally, draw the boundary type diagrams in the space provided.

|  |  |
| --- | --- |
| ***Features Formed*** | ***Plate Boundary Type*** |
| ***San Andreas Fault*** | *Plates Sliding Past One another (Transform)* |
| ***Mid-Atlantic Ridge*** | *Plate Separation (Divergent)* |
| ***Cascade Mountain Range*** | Plate Collision (Convergent) *(ocean-continent)* |
| ***Himalayan Mountain Range*** | Plate Collision (Convergent) *(continent-continent)* |
| ***Aleutian Islands*** | Plate Collision (Convergent) *(ocean-ocean)* |

\* Click on “plate motion” tab. Click on “show labels” and “both” in the view box on the lower left/center portion of screen. Diagram each of the 5 boundary types in the spaces below.

Provide as much detail as possible by including arrows to show direction of motion, type of crust involved, features formed, etc. Visit the following website to assist you in providing these details.

[**http://tinyurl.com/boundaryinfo**](http://tinyurl.com/boundaryinfo) or [**http://web.gccaz.edu/~lnewman/gph111/topic\_units/plates/plates2.html**](http://web.gccaz.edu/~lnewman/gph111/topic_units/plates/plates2.html)

***1) San Andreas Fault*** (boundary type: *Plates Sliding Past One another (Transform)*)



***2) Mid-Atlantic Ridge*** (boundary type: *Plate Separation (Divergent)*)



***3) Cascade Mountain Range*** (boundary type: Plate Collision (Convergent) (o-c))



***4) Himalayan Mountain Range*** (boundary type: Plate Collision (Convergent) (c-c))



***5) Aleutian Islands*** (boundary type: Plate Collision (Convergent) (o-o))

