**EARTH SCIENCE** **NAME:** _____

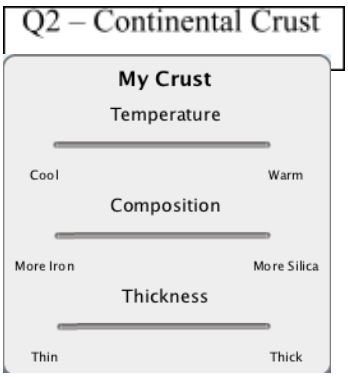
**PHET: PLATE TECTONICS** **PER:** _____ **DATE:** _____

*Go to the PhET website (PHET.colorado.edu)*
*Or follow this link: [http://phet.colorado.edu/en/simulation/plate-tectonics](http://phet.colorado.edu/en/simulation/plate-tectonics)*

*Select the Plate Tectonics Simulation under Play with sims-->Earth Science*

***Spend a few minutes exploring the simulation.***

*Select the "Crust" tab at the top of the simulation. Under view select "Both".*




1) What are the 3 **variables** that can be changed in this simulation? (Scale or zoom is a nice feature, but not a variable.)
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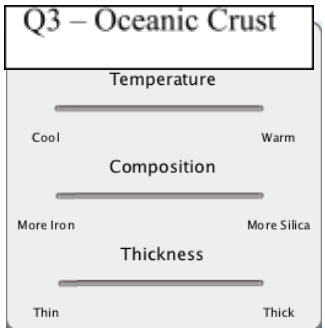
2) Try to duplicate the continental crust as accurately as possible. **Show on the diagram to the right** where you set each variable. (In other words, draw where you must move the slides.)

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.

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*Select the "Plate Motion" tab at the top of the screen. Under view select "Both".*

8) Investigate convergent boundaries (green arrows). Report your findings in the following table:

| Left Side Crust | Right Side Crust | Which Crust is Denser? | Which Crust Subducts? | Do non-volcanic Mountains Form? | Does a Trench Form? | On Which Crust Do Volcanoes Form? |
|---|---|---|---|---|---|---|
| Continental | Continental | | | | | |
| Continental | Ocean (either) | | | | | |
| Old Ocean | Young Ocean | | | | | |

9) Describe the relative motion of the plates at ALL convergent plate boundaries. _____

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10) Three times you used the same two types of crust, but switched left and right sides. What do you observe about the results? Is the side the crust is placed on important?

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11) Look for patterns in density, subduction, and volcanoes in the table. When volcanoes form, on which plate do they always form?

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_____

12) Explore how a continental-young oceanic crust collision differs from a continental-old oceanic crust collision.

- Describe the difference in the angle of subduction between old and new plates.

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- How does the distance between the volcanoes and the plate boundary differ between old and new plates? _____

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13) Investigate divergent boundaries (red arrows). Click show labels. Describe the relative motion of ALL plates at divergent boundaries.

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_____W

hat is generated at ALL divergent plate boundaries? _____

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14) Investigate transform fault boundaries (blue arrows). Describe the relative motion of ALL plates at transform fault

boundaries._____

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