

Name: _____

Convection Current

Testable Question:

When water is heated, does convection occur?

Background Information:

Convection currents occur when temperature differences cause fluid material to move. The heat in Earth's core powers convection currents inside Earth. Because material close to Earth's surface is cool and heavy, it sinks. When this sinking material gets close to Earth's core, high temperatures heat it up again. This hot material is pushed back up to the surface because heat rises. This cycle of sinking and rising creates convection current.

Hypothesis:

Place a check next to your hypothesis:

_____ Convection will occur when water is heated.

_____ Convection will not occur when water is heated.

Materials:

- Clear shoeboxes
- Cups
- Water (cold and hot)
- Food coloring (red and blue)
- Safety goggles

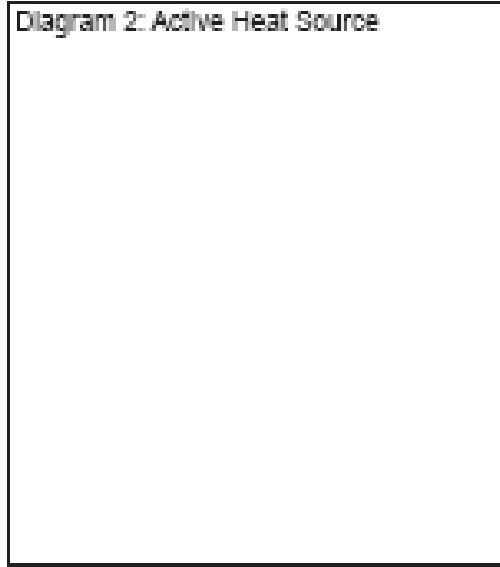
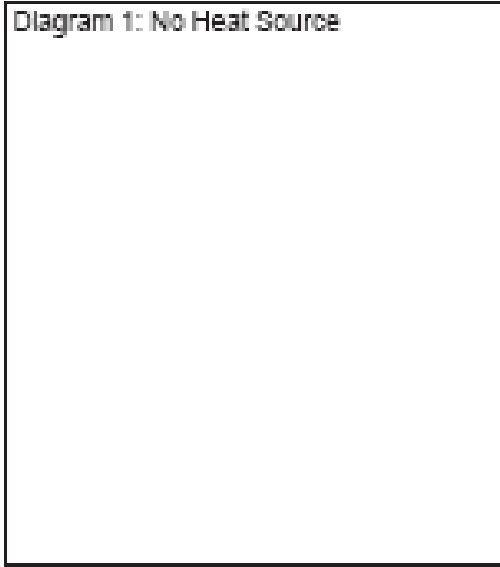
Procedure:

Using the materials given, design your own experiment to demonstrate convection current. Use this worksheet as your guide and record your observations and answer the analysis and conclusion questions.

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Data:

In the boxes below, draw your observations



Analysis of Data:

Describe the differences between your observations for Diagram 1 and Diagram 2?

Conclusion:

Place a check next to your conclusion:

_____ Convection will occur when water is heated.

_____ Convection will not occur when water is heated.

Was your hypothesis proved or disproved? Use a complete sentence.

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Briefly explain how you came to your conclusion.

Further Questions:

1. What did the path of food dye represent?
2. What powers convection current in Earth?
3. This experiment is a model for processes that occur within Earth's mantle. What is the heat source driving convection current in Earth's mantle?
4. Can convection current occur within all fluids? Explain using a complete sentence.