Temperature Affects Density

Binder Page

Question to Investigate:

- Is there a density difference between hot and cold water?

Demonstration:

- Do you think the hot and cold water will mix or stay separate?
- Why do you think the hot water stayed on top of the cold water?
- What might happen if you place the blue cold water on top of the hot yellow water and then remove the card?
- Why do you think the hot and cold water mixed when the cold water was placed on top?

Answer questions 1 and 2 on your Lab Activity Sheet

Activity:

- You will work with your partner to complete the lab activity. (15 minutes)
- Draw pictures and answer all questions.

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Objective:

- To be able to explain, on the molecular level, how heating and cooling affect the density of water.

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Key Concepts:

- Heating a substance causes molecules to speed up and spread slightly further apart, occupying a larger volume that results in a decrease in density.
- Cooling a substance causes molecules to slow down and get slightly closer together, occupying a smaller volume that results in an increase in density.
- Hot water is less dense and will float on room-temperature water.
- Cold water is more dense and will sink in room-temperature water.

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Processing Activity

- Work on the processing activity in your Interactive Notebook.