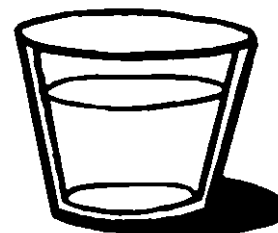


**Student activity sheet****Activity 7.5****Changing the density of a liquid—Heating and cooling****Is there a difference in density between hot and cold water?****Hot and cold just beneath the surface***Procedure*

1. Fill 2 clear plastic cups about  $\frac{2}{3}$  of the way with room-temperature water.
2. Fill one dropper with cold water colored blue. Poke the end of the dropper a little beneath the surface of the colorless room-temperature water.
3. While observing from the side, gently squeeze the dropper so that the cold water slowly flows into the room-temperature water.
4. Fill another dropper with hot water colored yellow. Poke the end of the dropper a little beneath the surface of this same cup of room-temperature water.
5. While observing from the side, gently squeeze the dropper so that the hot water slowly flows into the room-temperature water.



1. Color in and label areas of this cup to show where the colored hot and cold water ended up after you released them into the room-temperature water.
2. Describe the movement of the hot and cold water after each liquid was released.



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Activity 7.5

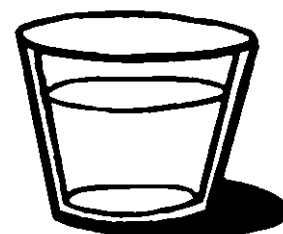
**Changing the density of a liquid—Heating and cooling** (*continued*)

**Hot and cold at the bottom of the cup**

*Procedure*

1. In a separate cup of room-temperature water, push a dropper filled with yellow hot water to the bottom of the cup.
2. While observing from the side, gently squeeze so that the hot water slowly flows into the room-temperature water.
3. Push a dropper filled with blue cold water to the bottom of this same cup of room-temperature water.
4. While observing from the side, gently squeeze so that the cold water slowly flows into the room-temperature water.

3. Color in and label areas of this cup to show where the colored hot and cold water ended up after you released them into the room-temperature water.



4. Describe the movement of the hot and cold water after each liquid was released.

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\_\_\_\_\_

5. Which temperature of water is the *most* dense? \_\_\_\_\_

Which is the *least* dense? \_\_\_\_\_

## Student activity sheet

### Activity 7.5

## Changing the density of a liquid—Heating and cooling (*continued*)

6. If you went scuba diving, would you expect the water temperature to get warmer or colder as you dove deeper beneath the surface? \_\_\_\_\_

What evidence do you have from your experiment to support this?

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7. During late fall and early winter, the water at the surface of a lake may suddenly get colder than the water below it. What do you think happens to this water?

Use the word “density” to explain why this happens.

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