

Molecules in Motion

Name _____

Date _____

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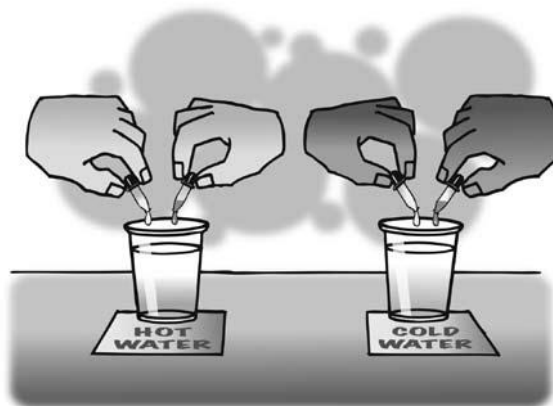
Question to Investigate:

Materials for each group:

- Hot water in a beaker
- Cold water in a beaker
- Food coloring (yellow and blue)
- 4 droppers (if necessary)

Procedure:

1. With the help of your partners, use droppers to carefully place 1 drop of yellow and 1 drop of blue food coloring into the hot and cold water at the same time.
2. Allow the colors to mix on their own as you watch them for a couple of minutes.



WHAT DID YOU OBSERVE?

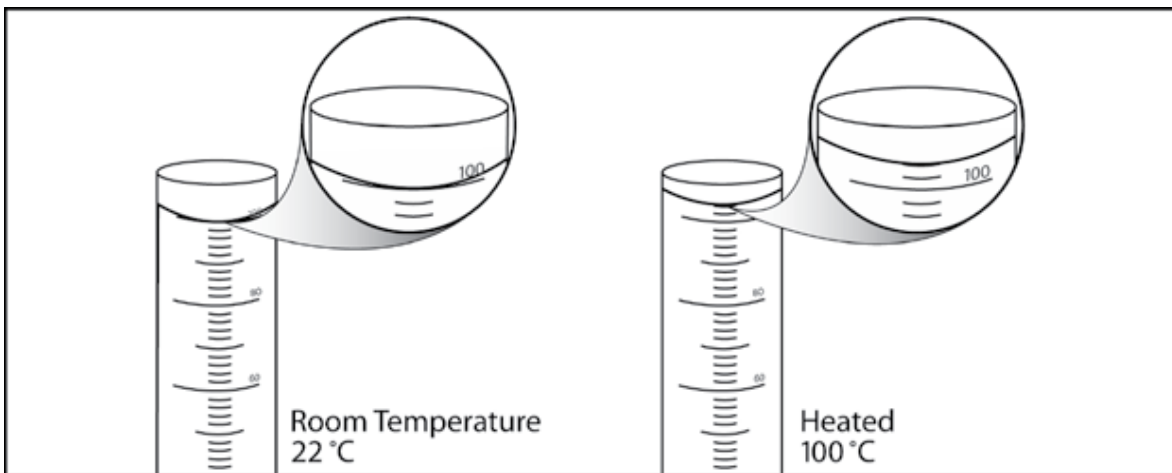
1. Describe what the colors looked like and how they moved and mixed in the cold water. (use sentences!)
2. Describe what the colors looked like and how they moved and mixed in the hot water. (use sentences!)
3. What does the speed of the mixing colors tell you about the speed of the molecules in hot and cold water? (use sentences)

4. There were several variables in this experiment:

- Amount of water in each beaker
- Type of beaker used
- Number of drops of food coloring
- When the color was added to the water

Pick one of these variables and explain why you made sure it was kept the same in the two beakers.

Let's say that you measure exactly 100 milliliters of water in a graduated cylinder. You heat the water to 100°C and notice that the volume increases to 104 milliliters.



Using what you know about the attraction between water molecules and the way heat affects molecular motion, explain why the volume of water in the cylinder increases when it is heated. _____
