Hot and Cold Colors
Student Worksheet

Does Heating Water Make the Color Change Faster?

Name: Mary Jane Woody Date: 12-16-22

Prediction: Which will change color faster when a drop of food coloring is added: cold water, hot water, or room temperature water? Explain your answer.

The hot Water will change color faster

Materials Needed:

- Food coloring
- 3 plastic cups
- Stopwatch
- 1 worksheets per student

Procedure:

1. Pick two people who to get the materials and return them ("Material Managers")
2. Pick one person who will drop the food coloring ("Dropper")
3. Pick one person who will use the stopwatch to measure the time ("Timer")
4. Material Managers gather materials and set up.
5. When all ready, raise your hands so the teacher can bring your group the water.
3. Cold water test:
    a. The teacher pours cold water into a cup
    b. The "Dropper" drops 1 drop of food coloring into the cold water
    c. The "Timer" starts the stopwatch as soon as the food coloring hits the water, and stops the stopwatch when the color is spread throughout the water
    d. In the data table, each student records the time (in seconds) for the food coloring to spread throughout the water, along with observations
4. Hot water test:
    a. Repeat the steps for the cold water test, but use hot water instead of cold.
5. Room temperature test:
    a. Repeat the above procedure using room temperature water.
6. Material Managers return lab materials and clean up.
7. Complete questions 1-3 at the end of this worksheet.

Data Table

Water	Time	Observation
Cold	1.23.67	The water wasnt as fast so the Coloring wasnt fast to mix
Hot	53.85	Water turned green when we put the green food coloring in
Room Temperature	35.46	Water turned green when we put the food coloring in

1. Compare your predictions to what actually happened in the activity. How were your predictions the same or different? My predictions were way different because the cold mixed the fastest.

2. What do you think caused the color to change faster? Why?
Differences in temperature can create currents

3. What do you think would happen if you used a different food coloring than you used (for example, blue or yellow instead of red)? There would be no difference if you used a different color because it is based on the temperature

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Summary/Assessment

Name: Mary Jane Woody Date: 12-16-22

Write a paragraph describing something you witnessed in the last week that demonstrates how heating or cooling affected a material (consider what happened in your kitchen, backyard, etc.).

Something I witnessed in the last week that demonstrated how heating was affected was when we warmed up chili. Before we heated it it was kinda chunky. After we warmed it up it became smoother. This was a physical change.