

Hot and Cold Colors

Student Worksheet

Does Heating Water Make the Color Change Faster?

Name:

Date:

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.

Materials:

- red food coloring
- 3 same size containers
- cold water
- hot water
- room temperature water
- stopwatch
- student worksheets (1 for each student)

Procedure:

1. Assign roles to group members:
 - 2 people will gather and return materials (“Material Managers”)
 - 1 person will drop the food coloring (“Dropper”)
 - 1 person will use the stopwatch to measure the time (“Timer”)
2. Material Managers gather materials and set up.
3. Cold water test:
 - a. one of the “Material Managers” pours cold water into a container
 - 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:

Repeat the steps for the cold water test, but use hot water instead of cold.

5. Room temperature test:
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 Temperature	Time (seconds)	Observations
Cold		
Hot		
Room Temperature		

1. Compare your predictions to what actually happened in the activity. How were your predictions the same or different?

2. What do you think caused the color to change faster? Why?

3. What do you think would happen if you used different colors (for example, blue or yellow instead of red)?

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Summary/Assessment

Name:

Date:

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.).