

Hot and Cold Colors Student Worksheet

Does Heating Water Make the Color Change Faster?

Name: Ian Black Date: 12-16-2022

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.

I think that the hot water will change it faster. Because i think it is easier.

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	3.4 seconds	The green almost immediately spread across all the water — faster
Hot	33.3 seconds	The green just spread and clouded up in the water — slower
Room Temperature	7.25	The water fastly spread and it was darker — normal

1. Compare your predictions to what actually happened in the activity. How were your predictions the same or different? wrong. the coldest was the fastest water.

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

The degree of the difference 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)?

I do not think that it would make a difference.

**Hot and Cold Colors
Summary/Assessment**

Name: Ian Black 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.).

This week i saw our pool loose some water due to evaporation. This was heat.