



OBSERVING CONVECTION CURRENTS with Food Coloring in Hot Water

Convection currents are the movement of a fluid (like water) caused by differences in temperature. Warmer, less dense fluid rises, while cooler, more dense fluid sinks.



QUESTION

How do convection currents move in hot water?

HYPOTHESIS

What do you think will happen when food coloring is added to hot water? Write your prediction below.

MATERIALS

- Clear glass or heat-safe container
- Hot water (not boiling)
- Food coloring (2 different colors work best)
- Dropper or spoon
- (Optional) Thermometer

PROCEDURE

1. Fill the clear glass or container about 3/4 full with hot water.
2. Let the water sit for 1–2 minutes so the temperature is even throughout.
3. Using a dropper, gently add a few drops of food coloring to the center of the water surface.
(Try one color at a time, or two different colors.)
4. Watch carefully as the coloring moves.
5. Do not stir the water.

OBSERVATIONS

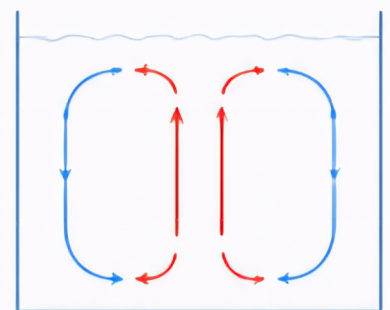
What did you see? Describe the movement of the food coloring in the water.

ANALYSIS

1. Why do you think the food coloring moved the way it did?
2. Where was the warmest water? Where was the coolest water?
3. How do convection currents help transfer heat in nature?

CONCLUSION

Summarize what you learned from this experiment.



Red = warm water rises
Blue = cool water sinks