



Testing the Heat Retention of Different Colored Containers



QUESTION: Do containers of different colors keep hot water warm for different amounts of time?

HYPOTHESIS:

I think _____

because _____

VARIABLES:

- **Independent Variable (what I change):**
Color of the container
- **Dependent Variable (what I measure):**
Temperature of the water over time
- **Controlled Variables (what I keep the same):**
Amount of water, starting temperature of water, size and material of containers, lids on, location (same room)

MATERIALS:

- 4 containers or cups with lids (same size and same material)
- 4 different colors (example: white, black, red, blue)
- Hot water (same temperature for each cup)
- Thermometer
- Measuring cup
- Timer or clock
- Notebook and pencil



PROCEDURE:

1. Label each container with its color.
2. Add the same amount of hot water (e.g., 1 cup or 240 mL) to each container.
3. Place the lids on all containers.
4. Measure and record the starting temperature of the water in each container (time = 0 minutes).
5. Place all containers in the same spot, away from direct sunlight and drafts.
6. Measure and record the temperature in each container at 10-minute intervals for 60 minutes.
7. Record all your data in the table below.

DATA TABLE:

Time (minutes)	Temperature (°C or °F)			
	White	Black	Red	Blue
0 (start)				
10				
20				
30				
40				
50				
60				

ANALYSIS QUESTIONS:

1. Which color container kept the water the warmest after 60 minutes? _____
2. Which color container cooled down the fastest?

3. What do your results tell you about how color affects heat retention?

CONCLUSION:

My conclusion is _____



THINK FURTHER: Why do you think darker colors may keep things warmer? Research how color and heat are related in nature and everyday life.