



TESTING THE INSULATION PROPERTIES OF DIFFERENT MATERIALS



How well do different materials keep heat from escaping?

Name: _____

Date: _____

Experiment #: _____



QUESTION

Which material is the best insulator (keeps heat in the best)?



HYPOTHESIS

I think _____
will be the best insulator because _____



MATERIALS

- 2 identical cups or jars with lids (foam cups or mason jars work well)
- Thermometer (digital or probe)
- Hot water (about 70–80 °C / 158–176 °F)
- Different materials to test (see examples below)
- Rubber bands or tape
- Timer or clock
- Notebook and pen

Examples of materials to test:

- Bubble wrap
- Cotton fabric
- Aluminum foil
- Felt
- Cardboard
- Newspaper



PROCEDURE

1. Pour the same amount of hot water into each cup or jar. Put the lid on each.
2. Wrap each cup with a different material. Secure it with tape or a rubber band.
3. Leave one cup unwrapped. This is your control.
4. Measure and record the starting temperature (Time 0).
5. Let the cups sit undisturbed.
6. Record the temperature in each cup at 10-minute intervals for 40 minutes.
7. Keep everything the same for each cup (amount of water, lid, starting temperature, and location).



DATA TABLE

Material	Temperature (°C / °F)				
	Time 0 (Start)	10 min	20 min	30 min	40 min
No Wrap (Control)					
Bubble Wrap					
Cotton Fabric					
Aluminum Foil					
Felt					
Cardboard					
Newspaper					
Other: _____					



ANALYSIS QUESTIONS

1. Which material kept the water warmest after 40 minutes?

2. Which material cooled down the fastest?

3. Why do you think some materials are better insulators than others?

4. How could you make this experiment even better?



CONCLUSION

The best insulator in this experiment was _____.

This shows that _____



Think Further: Where are insulators used in everyday life? Give at least two examples.

