

Names: \_\_\_\_\_ and \_\_\_\_\_ Date: \_\_\_\_\_

## Insulation Materials Investigation Worksheet

List the materials being tested in the table.

### Hypothesis

After discussion with your teammate, write below your hypothesis stating which material you believe will perform as the best insulator.

Material	Time to Melt (s)

### Data Gathering

Record in the table how long (in seconds) it took for each ice cube to melt.

### Analysis and Conclusions

Answer the following questions. First, discuss all the questions with your teammate. Then, have one teammate write-up the odd-numbered answers and the other write-up the even-numbered answers. Use additional sheets of paper, as needed.

1. Based on your data, which material turned out to be the best insulator? Why?
2. Based on your data, which material turned out to be the worst insulator? Why?
3. As an engineer, what conclusions might you draw from your data?
4. How did your results differ from the prediction you made before conducting the experiment?
5. What were some controls in this experiment?
6. What method of heat transfer was causing the ice to melt?
7. What heat processes (convection, conduction, radiation) do you think are most prevalent in and around the cup?
8. How does this experiment help us determine the best insulator?
9. How might you improve upon this experiment?
10. What else could your test using this experiment?
11. What are some causes of error from the hot plates?
12. In engineering, why is it useful to know the insulation properties of different materials?
13. List at least three attributes that insulating materials have in common.