



Insulation Investigation Planning Guide

Consider the following as you plan your investigation. Record your investigation plan in your scientists' notebook.

- 1** Write down the investigation question: Which insulator will keep the container of hot tap water hot the longest?
- 2** What prior knowledge do you have about insulators that will help you answer this question? Remember what you have learned about how heat moves and how heat transfers occur (conduction, convection, and radiation).
- 3** Make a prediction based on your prior knowledge.
I think because
- 4** What are the variables in this investigation?
- 5** What is the control?
- 6** How will you “insulate” your container with the materials you have chosen to test?
- 7** Each container should contain the same amount of hot tap water. Why is it important to take the temperature immediately after filling each insulated container? Is it important that the containers are sealed with a cover? Why or why not?
- 8** How often should the temperature be recorded for each of the containers? When will you stop recording the temperature?

Consider the following during your investigation. Record your ideas in your scientists' notebook. Use words, pictures, graphs, or tables to help explain your ideas and findings.

- 1** How does the temperature change over time?
- 2** Record your data. How did you make sure all results are accurate?
- 3** Write a conclusion based on your results. Which material has the best insulating properties and which was the worst? How do you know? What is your evidence?