

# Insulation Experimentation Planning Sheet

You will need:

1. Your science journal and a pencil
2. One or two baby food jars for each member of your group, plus an extra
3. One thermometer for each jar
4. One type of insulation for each jar
5. Tape, scissors, or other to secure your insulator
6. Plastic wrap
7. A stopwatch, timer, or watch with a second hand

Consider the following as you plan your experiment. Write your responses in your journal.

1. Write down the question: Which insulator will keep a jar of warm water warmest the longest?
2. What background knowledge do you have to answer this question? Think about conduction, convection, and radiation.
3. Based on your background knowledge, what is your hypothesis? You may use the classroom resources to do some research if you choose.
4. Identify the variables in your experiment.
5. Identify the controls.
6. Obtain one jar and one type of insulation for each person in your group. Will you put the insulation around the bottom of each container or just the sides?
7. Each jar should contain the same amount of water. Test the temperature immediately after adding the water to each glass. Seal quickly with plastic wrap. Leave one jar of water with no insulation as a control.
8. Record the temperature every one to three minutes. When will you stop recording the temperature?

Consider the following during your experiment. Write your responses in your journal. You may want to use pictures, graphs, or tables to help.

1. How does the temperature change over time?
2. Record your data. How did you make sure all results are accurate?
3. While recording your data, begin a table and graph to show your results.
4. Write a conclusion based on your results. Which was the best insulator and which was the worst? How do you know? Don't forget to state whether or not your hypothesis was correct.