

## **Science Investigation - Insulation**

1. What is temperature? Work through the slides to answer this question. Stop when you get the answer. Write a few sentences explaining what temperature is.
2. What do you think would happen to the temperature of the hot chocolate liquid if it was left in a room for one hour? On the next slide, look at the statements and tell me which one do you agree with, and why.

### **Science Fact.**

3. Heat always travels from warmer to cooler places, so it is likely that the temperature of the liquid would drop. Is there any way we could slow down this loss of heat? List your ideas.
4. One way we could do this would be to wrap some material around the container that the liquid is in. How could we carry out an investigation to compare which of these materials keeps the liquid warm the longest?
5. We could measure the temperature of the liquid every five minutes for half an hour, and then compare the results of the different materials.
6. We also need to make sure that we are conducting a fair test – this means that we only change what we are testing, and keep everything else the same. What will we change? What will we keep the same?

7. Look at the slides again - Read the ones that talk about a fair test. Why is it so important that it is a fair test? Write a paragraph explaining why a fair test is important.
8. Now plan your investigation – Use the template below as a model. You are going to choose 4 different materials to test. We will conduct the investigation in school next week.

You are going to test four different materials. Plan your investigation by answering the questions below:

Fill in the missing word in this sentence:

We are investigating which \_\_\_\_\_ keeps hot drinks hot for the longest amount of time.

What will you change?

- the type of material ☐
- the size of material ☐
- the size of the container ☐
- the amount of liquid ☐
- the starting temperature ☐
- the location of the container ☐

Which material do you think will keep the liquid the hottest for the longest amount of time?

What will you keep the same?

- the type of material ☐
- the size of material ☐
- the size of the container ☐
- the amount of liquid ☐
- the starting temperature ☐
- the location of the container ☐

Which material do you think will keep the liquid the hottest for the shortest amount of time?

Material	Starting temp.	Temp. after 5 mins	Temp. after 10 mins	Temp. after 15 mins	Temp. after 20 mins	Temp. after 25 mins	Temp. after 30 mins
	°C	°C	°C	°C	°C	°C	°C
	°C	°C	°C	°C	°C	°C	°C
	°C	°C	°C	°C	°C	°C	°C
	°C	°C	°C	°C	°C	°C	°C

The material that was the best at keeping the liquid the hottest for the longest amount of time was \_\_\_\_\_.

The material that was the worst at keeping the liquid the hottest for the longest amount of time was \_\_\_\_\_.

Why do you think these materials were the best and worst at keeping the liquid hot?