

### 3.3 Investigating insulating materials for cups

#### Equipment

*Plastic, foam, glass and metal cups, , measuring cup, hot water (<50°C) thermometers, stopwatch*

*Datalogging: Use temperature sensors and data logger.*

#### Investigate Question

What material for cups should we use to keep our drinks hot?

In this experiment we will try different cups and investigate if they keep the water hot after 5 minutes.

What do you think will happen?

#### Method

1. Warm the cups first by adding some warm water and then empty them.
2. Get some hot water (must be less than 50°C)
3. Measure out 100mls of warm water for each cup (if you have enough thermometers, otherwise do one at a time)
4. Put in the thermometer and start the stopwatch or press start on your data logger if using a sensor.
5. Measure and record the temperature after each minute.
6. After 5 minutes stop the watch and measure the temperature

#### Results

Cup	Temperature				
	After 1 minute	After 2 minutes	After 3 minutes	After 4 minutes	After 5 minutes
plastic					
foam					
glass					
metal					

#### Conclusion

1. What cup was the best for keeping the drink hot?
2. Did your results prove your guess right?

3. The best cup material is called a heat insulator. So what is the best heat insulator for drinks?
4. What other things could you test that help to keep drinks hot?