**Activity 14.1** - **Experiment to investigate the effect of size on rate of cooling**

**Skills**

**A03.3** Observing, measuring and recording

**A03.4** Interpreting and evaluating observations and data

Temperature regulation is an important part of homeostasis. We lose heat from our bodies to the air around us. Cells produce more heat to prevent the body temperature from dropping. In this investigation, you will use containers jf hot water to represent a human body. The experiment will test this hypothesis:

A large body cools more slowly than a small one.

1. Take two test tubes or other containers, identical except that one is large and one is small. You will also need two thermometers.
2. Read through what you are going to do. Draw a results chart in which you can write your results as you go along. Remember to put the units in your table headings.
3. Now collect some hot water. Pour water into each of your containers until they are almost full. Immediately take the temperature of each one and record your results for time 0.
4. Take readings every 2 minutes for at least 14 minutes.
5. Draw a line graph to display your results.

**A1 a** State two variables that are kept constant in this experiment.  
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**b** Why is it important to keep these variables constant?  
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A2 **a** Calculate the number of °C by which the large container cooled during your experiment.  
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**b** Calculate the number of °C by which the small container cooled during your experiment.  
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A3 Do your results support the hypothesis that you were testing? Explain your answer.  
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