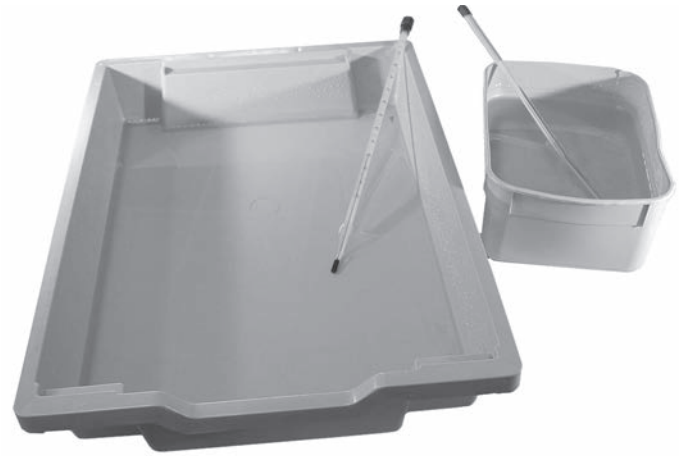
8 A student investigates how the surface area of water affects how quickly it cools down.

He puts warm water into different shaped containers.

The photograph shows two of the containers.



This is the student's plan.

I will use four different containers and work out the surface area of water in each one.

I will heat some water and pour the same volume into each container.

I will put a thermometer into each container and measure the water temperatures.

After 15 minutes I will measure the temperatures again.

(a) State the independent variable in this investigation.

(1)

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(b) (i) State one variable that the student plans to control.

(1)

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(ii) Explain why it is important to control this variable.

(2)

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(c) Suggest a safety precaution for this investigation.

(1)

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(d) The table shows the student's results.

Surface area in cm^2	Starting temperature in °C	Temperature after 15 minutes in °C	Temperature difference in °C
600	85	54	
400	95	55	
300	88	60	
150	85	60	

(i) Complete the table by inserting the missing temperature differences.

(2)

(ii) The student wants to display the data on a graph.

Give suitable labels for the axes of his graph.

(3)

x-axis .....

y-axis .....

(iii) The student realises that it was a mistake to have different starting temperatures.

Suggest how he could change his method to correct this mistake.

(2)

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(Total for Question 8 = 12 marks)