Question 1

use only

(a) Bobbing for apples is a traditional Hallowe'en game. A large basin is filled with water and apples are put into the water. Players try to catch the floating apples with their teeth. (18)

(1) (2)

(i) Why do the apples float in the water?

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(ii) Describe, with the aid of a labelled diagram, an experiment to measure the density of an apple.

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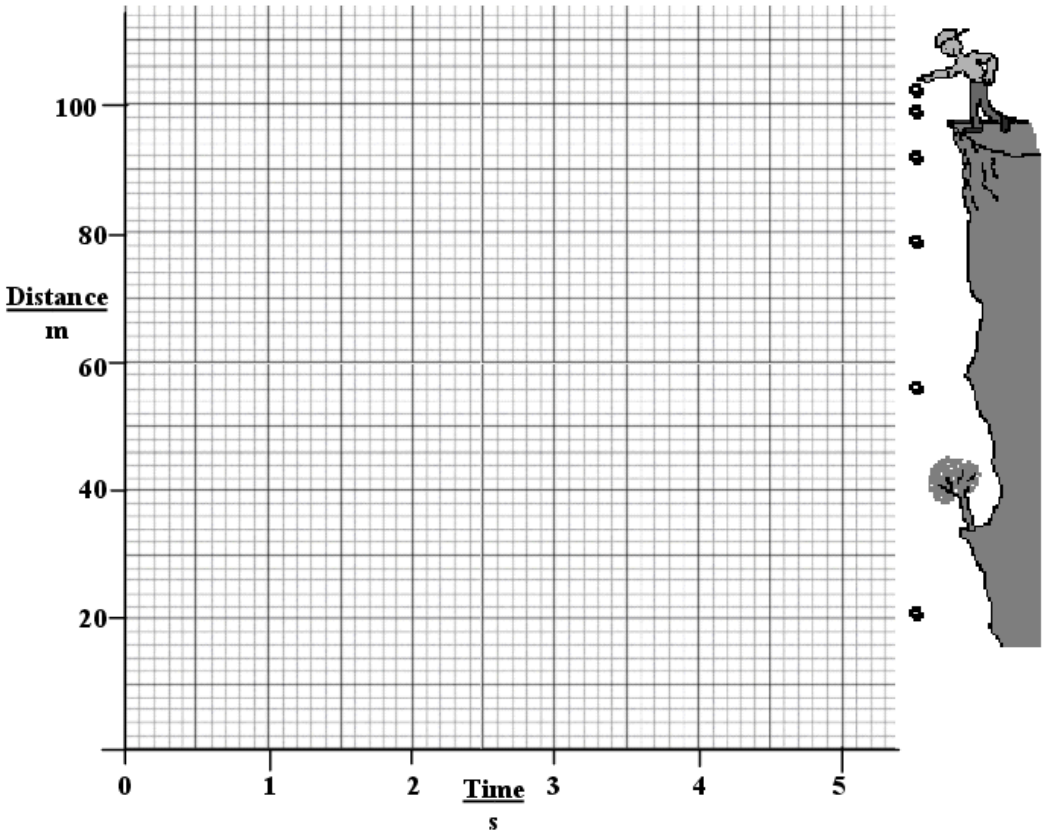
Question 2

(*a*) A stone was dropped from the top of a cliff and the distance that it fell was measured at the intervals of time as given in the table below.

Distance (m)	0	5	20	45	80	**100**
Time (s)	0	1	2	3	4	**4.5**

(*i*) Draw a graph of distance against time in the grid below.
A smooth curve through the plotted points is required. (9)



(*ii*) Use the graph to find how far the stone had fallen in 3.5 s. (3)

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(*iii*) Calculate the average speed of the falling stone between the second and the fourth second. Give the unit with your answer. (6)

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(*iv*) In this experiment is distance fallen directly proportional to time?
Justify your answer. (6)

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