Name

A level Biology

Completion date

Your first Biology lesson

Dear Biology Student,

The purpose of this task is to encourage you to refresh your skills and knowledge of GCSE Biology before you start the AS course.

You must bring the completed task with you to your first Biology lesson.

This task is not a test. You can use your previous notes, textbooks or other sources.

If you need any help, Mrs Grech and Miss Quarmby can be found in either G12 or G10 and will be happy to guide you through any issues you have.

Question 1 /7

Question 2 /7

2 The table shows the concentrations of three mineral ions in the roots of a plant and in the water in the surrounding soil.

Mineral ion	Concentration in millimoles per kilogram	
	Plant root	Soil
Calcium	120	2.0
Magnesium	80	3.1
Potassium	250	1.2

1 (a) (i) The plant roots could not have absorbed these mineral ions by diffusion. Explain why. (2)

(ii) Name the process by which the plant roots absorb mineral ions. (1)

(b) How do the following features of plant roots help the plant to absorb minerals

(i) A plant root has thousands of root hairs. (1)

(ii) A root hair cell contains many mitochondria. (2)

(iii) Many of the cells in the root store starch. (1)

Question 2 A student investigated the effect of different sugar solutions on potato tissue.

The table below shows the results.

Concentration of sugar solution in mol dm^{-3}	Starting mass in g	Final mass in g	Change of mass in g	Percentage (%) change
0.0	1.30	1.51	0.21	16.2
0.2	1.35	1.50	0.15	**X**
0.4	1.30	1.35	0.05	3.8
0.6	1.34	1.28	−0.06	−4.5
0.8	1.22	1.11	−0.11	−9.0

(a) Calculate the value of **X** in the table above.

Percentage change in mass at x = ... % (1)

(b) Why did the student calculate the percentage change in mass as well as the change in grams? (1)

(c) use the data to draw a graph of how concentration affects the percentage change in mass.
Choose a suitable scale and labels for the x-axis and Y axis , plot the points ,draw a line of best fit. (4)

(d) using the graph estimate the percentage sugar concentration in the cell (1)