Osmosis Practical Questions

- A group of students decided to investigate the effect of placing potato chips into different concentrations of sugar solutions.
- A range of potato chips closely matched in size were weighed and their mass recorded.
- Five chips were placed in each of the following sugar solutions: 80% concentrated, 40% concentrated and distilled water. They were then left for several hours.
- The chips were removed from the solutions, blotted with paper to remove surface water and reweighed.

1. State the following variables:

   Independent: _____

   Dependent: _____

   Control: _____

2. Why was it important that the chips were blotted with paper before being reweighed?

   _____

   _____

3. The results are shown in the table below:

	80% Sugar Solution	40% Sugar Solution	Distilled Water
Initial Mass (g)	0.67	0.70	0.65
Final Mass (g)	0.56	0.72	0.73
Percentage Change in Mass			

a) Complete results table by calculating the percentage change in mass using the formula:

$$\% \text{ change in mass} = \frac{\text{end mass - start mass}}{\text{start mass}} \times 100$$

b) What does a positive change in mass show?

   _____

c) What does a negative change in mass show?

   _____

4. Plot a graph with:

- 'Change in Mass (g)' on the Y axis;
- 'Concentration of Sugar Solution' on the X axis.

Osmosis Practical Questions Answers

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1. State the following variables:

   Independent: **Concentration of sugar solutions**

   Dependent: **Change in mass**

   Control: **Size of potato chips and time left in solution**

2. Why was it important that the chips were blotted with paper before being reweighed?

   Surface water would have added to the change in weight and caused the results to be inaccurate.

3. The results are shown in the table below:

	80% Sugar Solution	40% Sugar Solution	Distilled Water
Initial Mass (g)	0.67	0.70	0.65
Final Mass (g)	0.56	0.72	0.73
Percentage Change in Mass	**-16**	**2.8**	**12.3**

b) What does a positive change in mass show?
The potato has gained water via osmosis.

c) What does a negative change in mass show?
The potato has lost water via osmosis.

4. Plot a graph with:

- 'Change in Mass (g)' on the Y axis;
- 'Concentration of Sugar Solution' on the X axis.