

Activity 3.6

Osmosis and potato strips

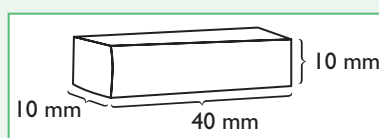
Skills

A03.1 Using techniques, apparatus and materials
A03.3 Observing, measuring and recording
A03.4 Interpreting and evaluating observations and data

Safety

Take care when using a sharp blade to cut the potato.

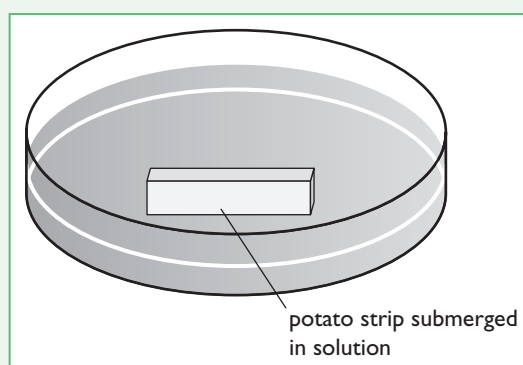
- 1 Peel a potato or other plant tuber or root. Very carefully cut five strips from it, each exactly 40 mm long, 10 mm wide and 10 mm deep.



- 2 Make a copy of the results table below.

Container	A	B	C	D	E
Concentration of solution					
Initial length of strip in mm					
Final length of strip in mm					
Change in length of strip in mm					

- 3 Take five containers and label them A, B, C, D and E. Pour a different solution into each one, as provided by your teacher. Write down the concentration of each solution in the results table.
- 4 Place one potato strip into each container, so that it is completely covered by the liquid, as in the diagram. Leave all the strips for a least half an hour.



- 5 Remove the strip from container A and measure it. Write the results in the table.
- 6 Repeat for all the other strips.
- 7 Now calculate the change in length of each strip.
If it got smaller, show this with a minus sign.

Questions

A1 Which strips, if any, got shorter?

A2 Copy and complete these sentences to explain why these strips got shorter.

Potato strips are made of plant cells. Each cell is surrounded by a partially permeable cell When the strip is in a solution that is more concentrated than the cytoplasm in the cells, water moves the potato cells by osmosis. This makes the cells get , so the whole strip becomes smaller.

A3 Which strips, if any, got longer?

A4 Write some sentences, like the ones in question A2, to explain why these strips got longer.

A5 Describe how you could use this technique to find out the concentration of the cell contents in a potato strip.