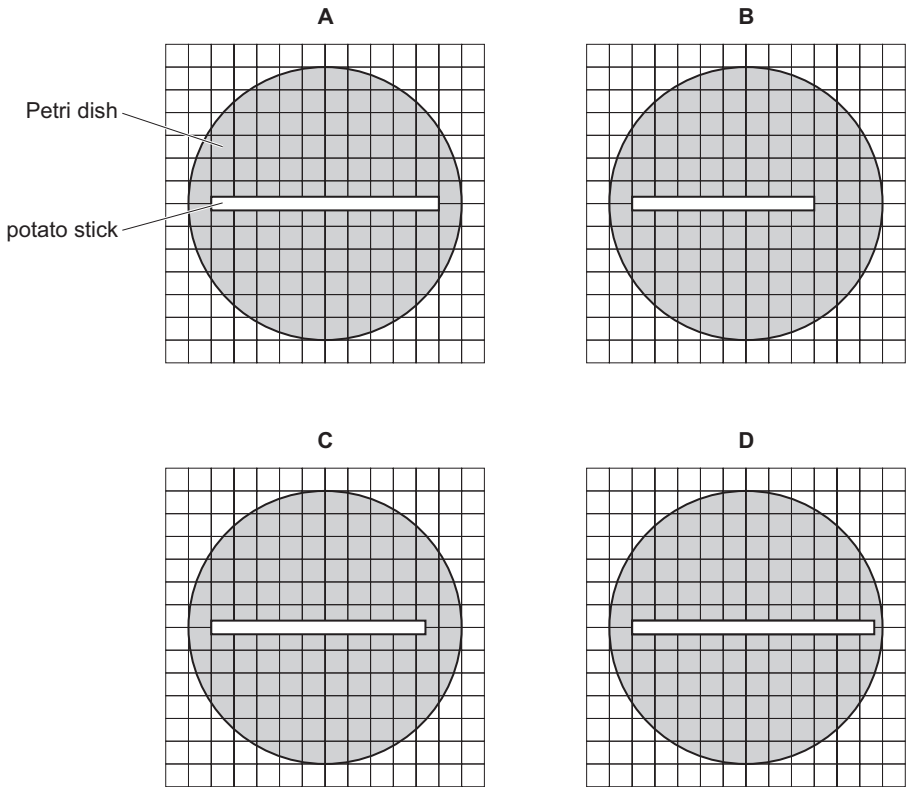


5 A potato was used as a source of plant tissue. Four potato sticks of identical size were cut from the same potato. At the start of the investigation, each potato stick was 10 squares long. The potato sticks were put into four separate Petri dishes. Each Petri dish contained a different concentration of sugar solution.

The diagram shows the four Petri dishes after 24 hours.

Which dish contains a sugar solution that has a higher water potential than the potato tissue?



6 Which row shows correct statements about active transport?

	direction of movement	requires a partially permeable membrane
A	down a concentration gradient	no
B	down a concentration gradient	yes
C	against a concentration gradient	no
D	against a concentration gradient	yes

18 Which process requires energy from respiration?

- A diffusion
- B osmosis
- C protein synthesis
- D transpiration

5 Diffusion may be defined as the net movement of particles from a region of their1..... concentration, to a region of their2..... concentration, where movement is3..... a concentration gradient.

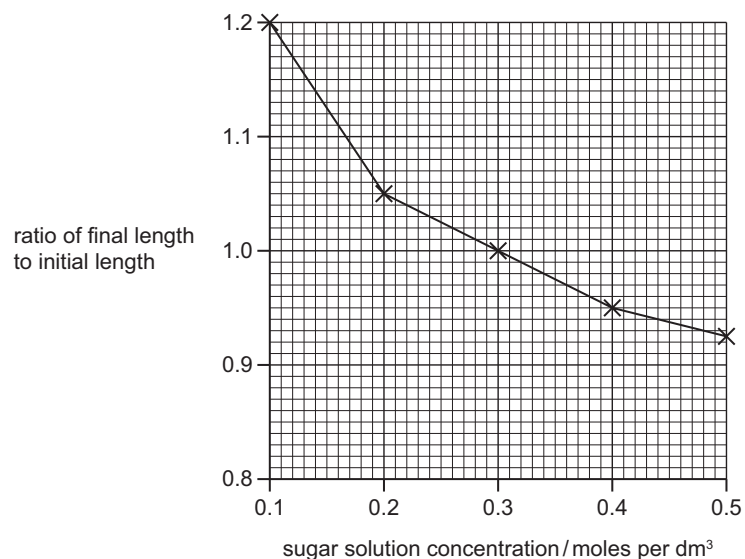
Which words complete gaps 1, 2 and 3?

	1	2	3
A	higher	lower	down
B	higher	lower	up
C	lower	higher	down
D	lower	higher	up

- 6** Cylinders of potato tissue were placed in sugar solutions of different concentrations and left overnight.

The lengths of the potato cylinders were measured before and after they were placed in the sugar solutions.

The graph shows the results of the investigation.



In which sugar solution concentrations did the potato cells gain water?

- A** 0.1 moles per dm³ and 0.2 moles per dm³
B 0.1 moles per dm³ only
C 0.2 moles per dm³ and 0.3 moles per dm³
D 0.4 moles per dm³ and 0.5 moles per dm³

- 4** A student made the following statements about the movement of ions by active transport.

- 1 It is the net movement of particles from a low concentration to a high concentration.
- 2 It is the net movement of particles from a high concentration to a low concentration.
- 3 It requires the use of energy from respiration.
- 4 It can only take place in living cells.

Which statements are correct?

- A** 1, 3 and 4 **B** 1 and 4 only **C** 2 and 4 **D** 2 only

- 7** Uncooked potato cylinders of identical size were placed in four different liquids for two hours.

The different liquids are listed.

- 1 pure water
- 2 a sugar solution that was less concentrated than the contents of the potato cells
- 3 a sugar solution that was more concentrated than the contents of the potato cells
- 4 a sugar solution that was the same concentration as the contents of the potato cells

In which liquids will the potato cylinders increase in length?

- A** 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

- 3** What happens when plant cells are placed in a sugar solution that has a lower water potential than the cytoplasm of the cells?

- A** The cells gain water and become flaccid.
B The cells gain water and become turgid.
C The cells lose water and become flaccid.
D The cells lose water and become turgid.

- 7** A potato was removed from a potato plant. A 5 g cube of potato was cut and put into a beaker of distilled water.

What is the most likely mass of the cube of potato after two hours?

- A** 2 g **B** 4 g **C** 5 g **D** 7 g

- 19** Which process in plants uses energy from respiration?

- A** cell division
B osmosis
C photosynthesis
D transpiration