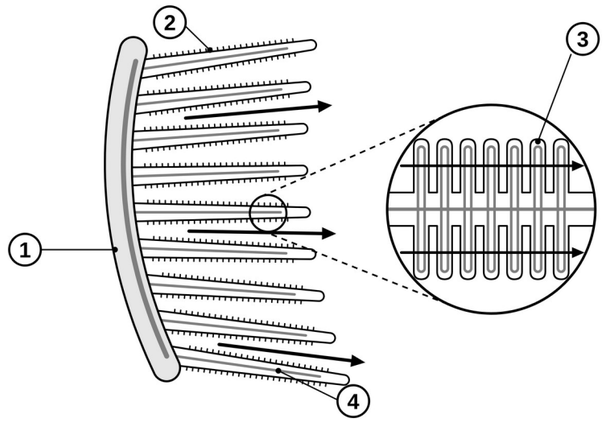
B1 L10 Mandatory worksheet: Active transport and exchange surfaces

Name: _____ Class: _____

A. Label the gill

Help: online screens 1 and 2 [5]

Name the parts labelled 1 to 4. Then answer the question under them.



1 _____

2 _____

3 _____

4 _____

5. Part 3 is drawn big in the diagram. Why can you not see it on a real gill? [1]

_____

B. Fill in the gaps

Help: online screen 3 [5]

Use words from the box. Use each word once. One word is not needed.

diffusion	**energy**	**higher**	**lower**	**mineral ions**	**osmosis**

1. Active transport moves substances from a _____ concentration to a _____ concentration.

2. Active transport needs _____ from respiration.

3. Root hair cells take in _____ by active transport.

4. Root hair cells take in water by _____.

C. Diffusion, osmosis or active transport?

[6]

Tick (✓) one box in each row.

Help: online screens 3, 4 and 6

Movement	Diffusion	Osmosis	Active transport
1. Oxygen moves from the water into the blood in a fish's gills.			
2. Water moves from the soil into a root hair cell.			
3. Mineral ions move from the soil into a root hair cell.			
4. Sugar moves from the gut into the blood, when the gut has less sugar than the blood.			
5. Carbon dioxide moves from a respiring cell into the blood.			
6. Water moves out of a plant cell into a concentrated sugar solution.			

B1 L10 Mandatory worksheet: Active transport and exchange surfaces

Name: _____ Class: _____

D. Short answers

Help: online screens 3, 4, 9, 10 and 11 [8]

1. Name the process in cells that releases the energy for active transport. [1]

_____

2. Name the structures in a cell where this process happens. [1]

_____

3. Give one example of active transport in animals. [1]

_____

4. Name the exchange surface in the lungs and the exchange surface in the small intestine. [2]

_____

_____

5. Name the tiny holes in the surface of a leaf that let gases diffuse in and out. [1]

_____

6. Which has the larger surface area to volume ratio: a single-celled organism or a fish? [1]

_____

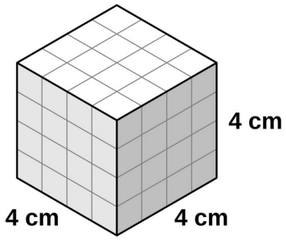
7. Why is a thin exchange surface better than a thick one? [1]

_____

E. Surface area to volume ratio

Help: online screen 7 [5]

The diagram shows a cube with sides of 4 cm.



surface area of a cube = 6 × side × side
volume of a cube = side × side × side

(a) Calculate the surface area of the cube. [1]

_____ cm^2

(b) Calculate the volume of the cube. [1]

_____ cm^3

(c) Write the surface area to volume ratio of the cube in the form ___ : 1. [2]

_____ : 1

(d) A cube with 1 cm sides has a ratio of 6 : 1. Which cube has the larger surface area to volume ratio? [1]

_____

F. Explain

Help: online screen 3 [3]

A field is flooded. The soil is waterlogged, so there is very little oxygen in it. Explain why the root hair cells of the crop plants take in fewer mineral ions. [3]

_____

_____

_____

_____