

CELL BIOLOGY

QUESTIONS - TRANSPORT IN CELLS



Give these questions a try, you may want to print them out for your notes.
The answers will follow, try not to cheat!

1. Which of the following options **is not** used as a method of transport in or out of cells?

Osmosis

Diffusion

Active Transport

Pumping

2. Name 1 method of transport from the list above which takes place without using any energy

3. Which method of transport only moves water molecules across a cell membrane?

4. What will happen to a cell placed in a hypertonic solution? Underline the correct answer.

Loose water and shrink in size

Gain water and swell

Remain the same size

5. Peeling the skin off an apple exposes its soft cells. When a piece of peeled apple is placed in a beaker of pure water for 15 minutes and then weighed, it's mass increases.

Explain why this will **not happen** if the apple is blanched in boiling water for a few minutes before the experiment begins:

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6. The lungs and capillaries have an important role in ensuring the rapid diffusion of substances in and out of cells. Which of the following options describes their importance to cell transport?

- The lungs and capillaries keep body temperature warm and this speeds up diffusion
- The lungs and capillaries maintain concentration gradients across cell membranes
- The lungs and capillaries have a large surface area for diffusion

7. Name 2 substances which must be continually supplied to a cell so that it can make energy. Where does each substance come from in the body?

Substance = _____ Comes from = _____

Substance = _____ Comes from = _____

8. Explain how the wall structure of capillaries helps speed up diffusion.

9. We know capillaries are very small. Think about why capillaries can't get any smaller and still work efficiently.

10. Which of the following waste substances listed below must be removed from body cells?

- Oxygen and Carbon Dioxide
- Urea and Water
- Urea and Carbon dioxide

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ANSWERS - TRANSPORT IN CELLS



1. Pumping
2. Osmosis **OR** Diffusion
3. Osmosis
4. Loose water and shrink in size
5. The cell membranes of the apple cells are broken down by the boiling water. This stops any movement of water by osmosis into the cells
6. The lungs and capillaries have a large surface area for diffusion
7. Substance = Oxygen Comes from = The lungs or the air
Substance = Glucose Comes from = Food or digestive system
8. Capillaries have a wall that is only 1 cell thick. This means there is only a short distance for substances to diffuse between the blood and the body's cells.

You could also mention that there are gaps between the cells in the capillary wall so plasma can leak out. This also reduces the distance that some substances have to diffuse between the plasma and the body cells.
9. They have to be big enough for red blood cells (and other blood cells) to pass through.
10. Urea and Carbon dioxide