

Diffusion

Describe diffusion.

Diffusion

Do substances cross the cell membrane by diffusion?

Diffusion

Give two examples of why diffusion is important in living organisms.

Diffusion **Supplement**

What four factors affect the rate of diffusion?

Diffusion **Supplement**

Why does a smaller agar cube change colour faster?

Diffusion **Supplement**

Surface area to volume ratio of a 2 cm cube?

Osmosis

What moves by osmosis?

Osmosis

How does water move into and out of cells?

Yes. Some substances move into and out of cells by diffusion through the cell membrane.

The net movement of particles from a region of their higher concentration to a region of their lower concentration (i.e. down a concentration gradient), as a result of their random movement.

Surface area, temperature, concentration gradient and distance.

Oxygen enters cells for respiration; carbon dioxide enters leaf cells for photosynthesis; digested food diffuses into the blood; urea leaves cells.

Surface area $24 \text{ cm}^2 \div \text{volume } 8 \text{ cm}^3 = 3 : 1$.

It has a larger surface area to volume ratio and a shorter distance for the acid to travel.

By osmosis through the cell membrane.

Water, through a partially permeable membrane.

Osmosis

Percentage change in mass formula?

Osmosis

What does a potato cylinder in a concentrated solution do?

Osmosis **Supplement**

Define osmosis using water potential.

Osmosis **Supplement**

Which has the higher water potential: a dilute or concentrated solution?

Osmosis **Supplement**

What is a turgid cell?

Osmosis **Supplement**

What is a flaccid cell?

Osmosis **Supplement**

What is plasmolysis?

Osmosis **Supplement**

Why do plant cells not burst in pure water?

Loses mass, because water leaves its cells by osmosis.

$$(\text{final mass} - \text{initial mass}) \div \text{initial mass} \times 100.$$

A dilute solution. Pure water has the highest water potential.

The net movement of water molecules from a region of higher water potential (dilute solution) to a region of lower water potential (concentrated solution), through a partially permeable membrane.

A plant cell that has lost water and turgor pressure, so it is soft.

A plant cell full of water, with the cell contents pressing on the cell wall (turgor pressure).

The cell wall resists the expansion, so the cell becomes turgid.

The cell membrane and cytoplasm pulling away from the cell wall after water leaves the cell by osmosis.

Active transport **Supplement**

Define active transport.

Active transport **Supplement**

What is the energy source for active transport?

Active transport **Supplement**

Give an example of active transport in plants.

Active transport **Supplement**

Why do root hair cells have many mitochondria?

Respiration.

The movement of particles through a cell membrane from a region of lower concentration to a region of higher concentration (i.e. against a concentration gradient), using energy from respiration.

To release the energy from respiration needed for active transport of ions.

Ion uptake by root hairs from very dilute soil solutions.