

3 Diffusion and osmosis – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)		
cell membrane	_____	_____	_____
Diffusion	_____	_____	_____
net movement	_____	_____	_____
higher concentra- tion	_____	_____	_____
concentration gra- dient	_____	_____	_____
oxygen	_____	_____	_____
carbon dioxide	_____	_____	_____
surface area	_____	_____	_____
temperature	_____	_____	_____
Osmosis	_____	_____	_____
partially perme- able membrane	_____	_____	_____
solute	_____	_____	_____

Recall

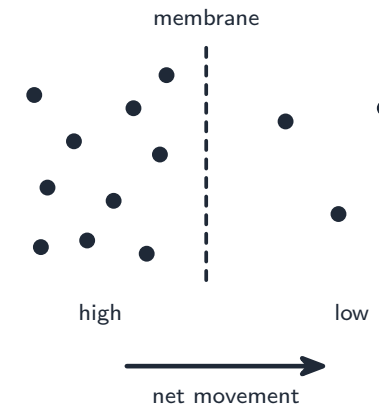
Substances move into and out of cells through the **cell membrane**, which controls what passes. Some movement needs no energy.

New ideas

Read these first, then do the Practice.

■ 1 Diffusion

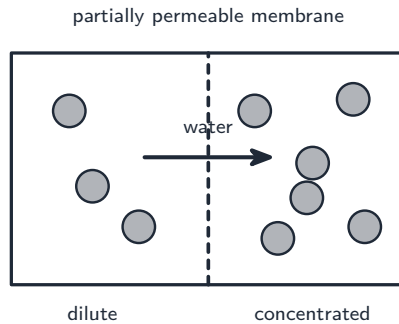
Diffusion is the **net movement** of particles from a **higher concentration** to a lower concentration – down the **concentration gradient**. It needs **no** energy.



For example, **oxygen** diffuses into cells and **carbon dioxide** diffuses out. Diffusion is faster with a larger **surface area**, a higher **temperature**, a steeper gradient and a shorter distance.

■ 2 Osmosis

Osmosis is a special kind of diffusion: the net movement of **water** across a **partially permeable membrane** (it lets small water molecules through but holds back larger **solute** particles).



Water moves from a **dilute** solution (lots of water) to a **concentrated** solution (little water).

Watch out: **osmosis** moves *water only*, across a partially permeable membrane; **diffusion** moves any particle down its gradient. Water moves *to* the more **concentrated** solution (the side with less water).

Practice

Try these in order.

3.1 Define *diffusion*. [2]

3.2 Does diffusion need energy from respiration? [1]

3.3 Name two things that make diffusion faster. [2]

3.4 What is *osmosis*? [2]

3.5 In osmosis, does water move to the dilute or the concentrated solution? [1]

3.6 Challenge. A piece of potato is left in pure water and gains mass. Explain why, using osmosis. [2]
