3 Diffusion and osmosis – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
cell membrane	细胞膜			
Diffusion	扩散			
net movement	净移动			
higher concentration	高浓度			
concentration gradient	浓度梯度			
oxygen	氧气			
carbon dioxide	二氧化碳			
surface area	表面积			
temperature	温度			
Osmosis	渗透			
partially permeable membrane	半透膜			
solute	溶质			

Recall

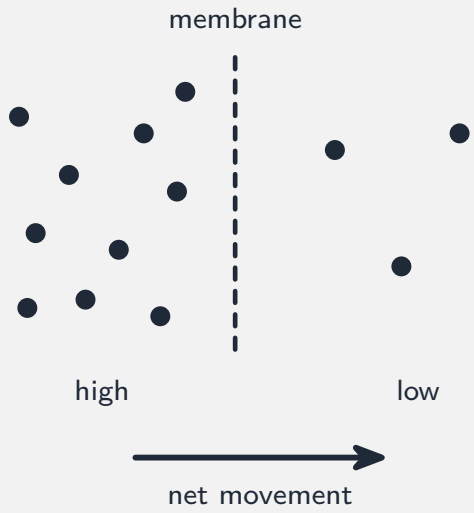
Substances move into and out of cells through the **cell membrane** 细胞膜, which controls what passes. Some movement needs no energy.

New ideas

Read these first, then do the Practice.

1 Diffusion

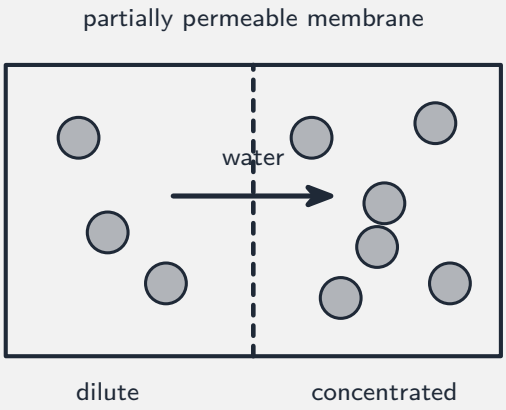
Diffusion 扩散 is the **net movement** 净移动 of particles from a **higher concentration** 高浓度 to a lower concentration —down the **concentration gradient** 浓度梯度. It needs **no** energy.



For example, **oxygen** 氧气 diffuses into cells and **carbon dioxide** 二氧化碳 diffuses out. Diffusion is faster with a larger **surface area** 表面积, a higher **temperature** 温度, a steeper gradient and a shorter distance.

2 Osmosis

Osmosis 渗透 is a special kind of diffusion: the net movement of **water** across a **partially permeable membrane** 半透膜 (it lets small water molecules through but holds back larger **solute** 溶质 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]