

4 Cell membranes – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

4.1 Active transport.

4.2 Simple diffusion passes straight through the bilayer; facilitated diffusion goes through a channel or carrier protein.

4.3 Active transport goes against the gradient and uses ATP; facilitated diffusion goes down the gradient and uses no energy.

4.4 The ratio gets smaller, because the volume increases faster than the surface area as the cell grows.

4.5 A small cell has a larger surface area : volume ratio, so it has more surface for exchange per unit of volume, and substances have a shorter distance to diffuse.

4.6 The animal cell takes in water and may burst; the plant cell takes in water and becomes turgid (its wall stops it bursting).

4.7 The microvilli greatly increase the cell's surface area. A larger surface area means more room for diffusion and transport proteins, so the cell can absorb far more substance per second than a flat surface could.