



# GCSE BIOLOGY: CELL TRANSPORT

## ★ HOW SUBSTANCES MOVE IN AND OUT OF CELLS ★

### DIFFUSION

Particles move from a region of **HIGH** concentration to **LOW** concentration.

**HIGH CONCENTRATION**      **LOW CONCENTRATION**

✓ No energy required

### OSMOSIS

Movement of **WATER** through a partially permeable membrane from **HIGH** water potential to **LOW** water potential.

**HIGH WATER POTENTIAL**      **LOW WATER POTENTIAL**

✓ No energy required

### ACTIVE TRANSPORT

Particles move from **LOW** concentration to **HIGH** concentration against the concentration gradient using energy.

**ATP**

⚡ Energy (ATP) required

FEATURE	DIFFUSION	OSMOSIS	ACTIVE TRANSPORT
CONCENTRATION GRADIENT	High → Low (down gradient)	High water potential → Low (down gradient)	Low → High (against gradient)
ENERGY NEEDED	No	No	Yes (ATP)
WHAT MOVES?	Any particles e.g. gases	<b>WATER ONLY</b>	Ions & molecules e.g. glucose, amino acids, ions

### ⚠ EXAM TRAP

Do NOT say osmosis is the movement of salt/sugar. It is **WATER ONLY**.

### 🧠 QUICK RECALL

- Which process needs energy?
- Which process involves water only?
- What direction does diffusion go?