

## **Knowledge organiser for KS4 Biology Transport in Cells at Saint Ambrose College 2020+**

### **What is covered in this unit?**

Diffusion; oxygen and carbon dioxide as gas exchange; urea as a waste product; different factors affect rate of diffusion; surface area to volume ratio; adaptations for exchanging materials; specialised organisms; osmosis; rate of water uptake; percentage gain and loss of mass of plant tissue; active transport; absorption of mineral ions; absorption sugar molecules; differences between three processes

### **Key vocabulary**

Diffusion – The net movement of particles from an area of high concentration to an area of low concentration

Osmosis – The movement of water from a dilute solution to a concentrated solution through a partially permeable membrane

Active Transport – Movement of particles against the concentration gradient, requires energy

### **Key facts-**

Structure	Effect on Rate of Diffusion	Calculating % Change	
Thin membrane e.g. alveoli	Faster – less distance for particles to travel	Percentage increase = $\frac{\text{actual increase}}{\text{original amount}} \times 100\%$	Only active transport uses energy, 'active'.
Efficient blood supply (animals)	Maintains the concentration gradient.	Percentage decrease = $\frac{\text{actual decrease}}{\text{original amount}} \times 100\%$	Diffusion and osmosis do not use energy, 'passive'.
Ventilation (in animals)	Maintains the concentration gradient.		Osmosis and Diffusion move particles from a high to low concentration.
			Active transport moves particles from a low to high concentration.

### **Possible homework tasks**

H/W: including project, Kerboodle, Kahoot, Exam Pro

### **Stretch & challenge (wider reading/independent work)**

Stretch: modelling tasks, Biological Science Review research, Oxford Uni