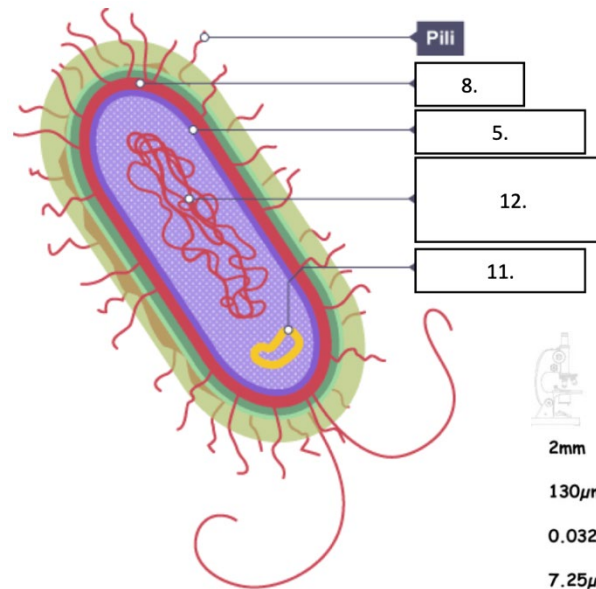
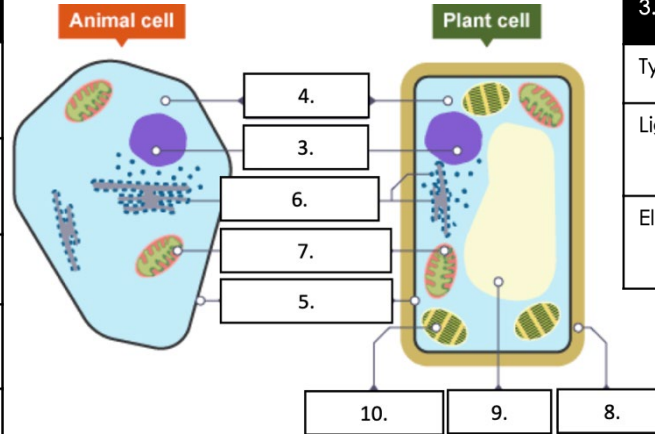




Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 1:

Keywords	
1. Eukaryotic	A complex cell with a nucleus (e.g. animal or plant cells).
2. Prokaryotic	A smaller cell without a nucleus (e.g. bacterial cell).
3. Nucleus	Contains genetic material.
4. Cytoplasm	Where a cells chemical reactions happen.
5. Cell membrane	Controls what goes into and out of a cell.
6. Ribosome	Part of a cell where proteins are made.
7. Mitochondria	Where aerobic respiration takes place.
8. Cell wall	Only found in plant cells. Made of cellulose and supports the cell.
9. Vacuole	Only found in plant cells. Contains cell sap.
10. Chloroplasts	Only found in plant cells. Where photosynthesis takes place.
11. Plasmid	Only found in bacterial cells. A small loop of DNA.
12. Genetic material	Long strands of genes not tightly pack in a nucleus.



3. Comparing types of microscope		
Type of microscope	Advantages	Disadvantages
Light microscope	1. Cheaper 2. Can see colours 3. Can see live specimen	1. Lower magnification
Electron microscope	1. Expensive 2. Higher magnification (x1000 more)	1. Can only see dead specimen 2. No colour

Keywords	
Differentiation	A stem cell turning into a specialised cell
Stem cell	A special type of cell which can turn into other specialised cells
Adult stem cells	Can only produce certain types of cell -found in bone marrow
Embryonic stem cells	Can produce all types of cells - controversial
Meristems	Where plant stem cells are found

	(mm)	(μ m)	(nm)
2mm	2	2000 (2×10^3)	2000000 (2×10^6)
130 μ m	0.13	130	130000 (1.3×10^5)
0.032m	32	32000 (3.2×10^4)	32000000 (3.2×10^7)
7.25 μ m	0.00725	7.25	7250 (7.25×10^3)

Conversion factors: $\times 1000$ (mm to μ m), $\times 1000$ (μ m to nm), $\div 1000$ (nm to μ m), $\div 1000$ (mm to nm)

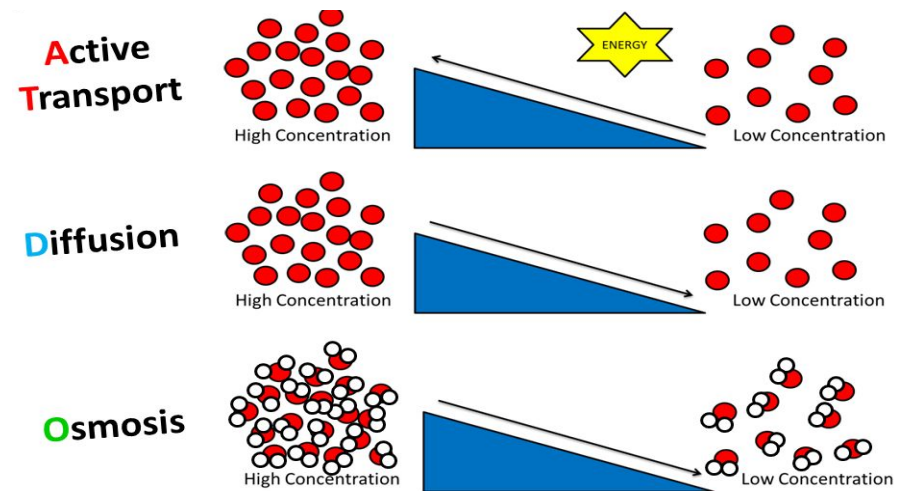
4. Calculating magnification	
$\text{magnification} = \frac{\text{size of image}}{\text{actual size of object}}$	
$\text{actual size of object} = \frac{\text{size of image}}{\text{magnification}}$	



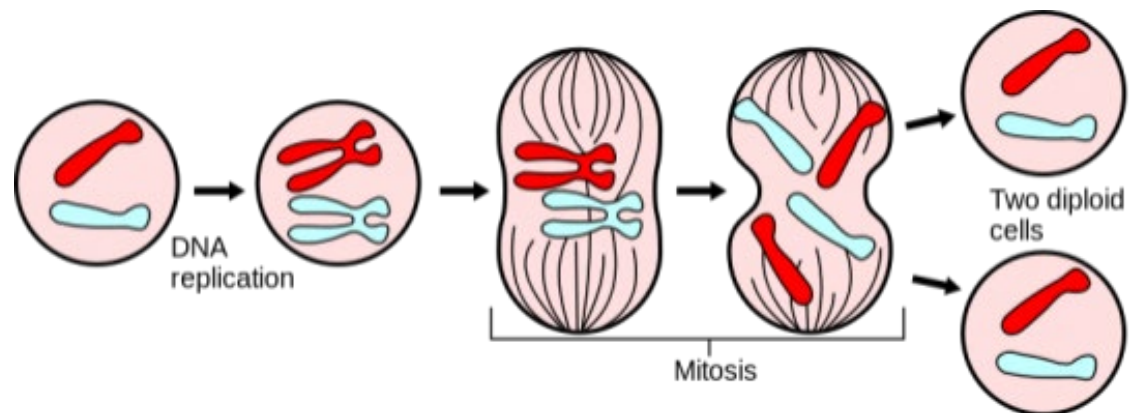
Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 2:

8. Transport in cells		
Keywords	Definition	Examples
Diffusion	The passive movement of a substance from an areas of high concentration to an area of low concentration	<ul style="list-style-type: none"> Oxygen and carbon dioxide in the lungs Perfume in a room
Osmosis	The movement of water molecules across a partially permeable membrane from a less concentrated solution to a more concentrated solution.	<ul style="list-style-type: none"> Water uptake in plants Water absorption in the intestine
Active transport	Movement of a substance from a lower concentration to a higher concentration, against the concentration gradient. Uses energy.	<ul style="list-style-type: none"> Mineral absorption by roots Glucose absorption by the intestine
Surface area to volume ratio	The surface area divided by the volume expressed as a ratio	All high <ul style="list-style-type: none"> Unicellular organisms Alveoli in the lungs Villi in the intestines



9. Factors that effect the rate of diffusion/osmosis	
Speed up	Slow down
High concentration gradient	Low concentration gradient
High temperature	Low temperature
High surface area of membrane	Low surface area of membrane





Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

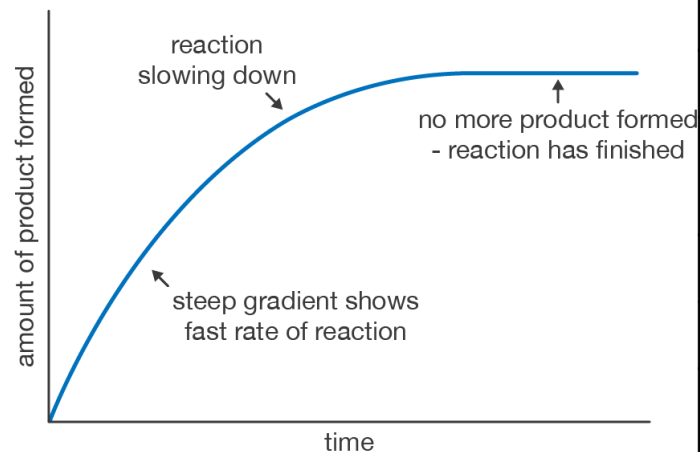
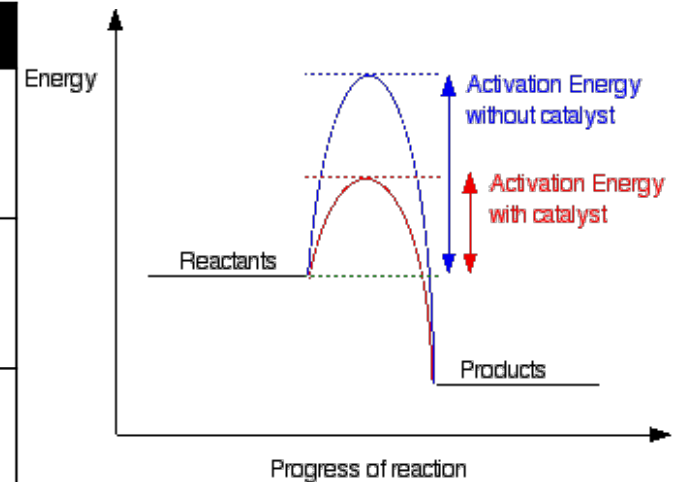
Topic 3:

1. Keywords	
Rate of reaction	Amount of reactant used or product formed ÷ time
Collision theory	Idea that for a reaction to occur the particles have to hit each other with enough energy
Activation energy	The minimum energy needed for a collision to cause a reaction
Catalyst	A substance which speeds up a chemical reaction by lowering the activation energy
Reversible reaction	A chemical reaction that can go in either direction
Equilibrium	When the forwards and backwards reactions happen at the same rate

2. Ways to measure the rate of reaction

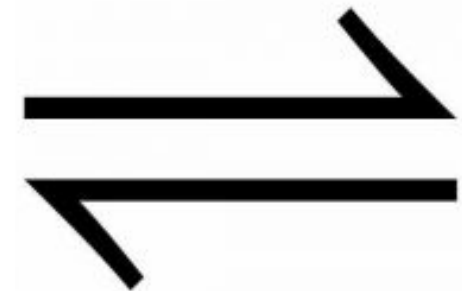
Volume of gas produced	
Formation of a solid product	
Change in mass	

Figure 2: Investigating the rate of the reaction between sodium thiosulfate and hydrochloric acid.



4. Factors affecting rate of reaction

Factor	Change	Effect on rate	Reason
Temperature	Increase	Increase	The particles are moving faster so collide more often and with a greater proportion of successful collisions
Concentration	Increase	Increase	There are more particles so collisions are more frequent
Surface area	Increase	Increase	There are more particles available so more collisions
Catalyst	add	increase	The lower activation energy means more particles can successfully collide





Vocabulary	Wider Research	Apply
<ol style="list-style-type: none">1. Eukaryotic2. Prokaryotic3. Nucleus4. Cytoplasm5. Cell Membrane6. Ribosome7. Mitochondria8. Cell Wall9. Vacuole10. Chloroplasts11. Stem Cell12. Differentiation13. Resolution14. Diffusion15. Osmosis16. Active Transport17. Mitosis18. Meiosis19. Collision Theory20. Activation Energy21. Catalyst22. Reversible Reaction23. Equilibrium24. Reactants25. Products	<p>Cells in animals and plants/Cell division & transport in cells:</p> <p>https://www.bbc.co.uk/bitesize/guides/zwnp7p3/revision/1</p> <p>https://www.youtube.com/watch?v=HBZcpzr5B2g&list=PL9louNCPbCxVU74eQtCcqbaQdYmwzAnlC</p> <p>Rates of reaction:</p> <p>https://www.bbc.co.uk/bitesize/guides/zp6xdxs/revision/1</p> <p>https://www.youtube.com/watch?v=UkrBJ6-uGFA&list=PL9louNCPbCxW8AN0t0py7LaKdKSwfL3fP</p>	<ol style="list-style-type: none">1. State one advantage and one disadvantage of using:<ol style="list-style-type: none">a. A light microscope (2 marks)b. An electron microscope (2 marks)2. A cell's image has a diameter of $800\mu\text{m}$. The actual cell diameter is $20\mu\text{m}$. At what magnification is the cell observed? (3 marks)3. Suggest why the nucleus and the mitochondria are so important in cells. (4 marks)4. Describe how active transport differs from diffusion and osmosis (3 marks)5. Explain why cell division by mitosis is so important in the body (2 marks)6. Explain the difference between embryonic stem cells and adult stem cells (2 marks)7. State how many chromosomes are in a normal human body cell, and also a human sperm cell (2 marks)8. List the factors that can affect the rate of a chemical reaction (4 marks)9. Explain why the idea of activation energy is an important part of collision theory (2 marks)10. Explain why food takes longer to cook in a pan than it does a pressure cooker (2 marks)11. What do chemists mean by the term reversible reaction? (1 mark)