

Summer Independent Learning

Part 1 – Compulsory content	Time: 4-6 hours
At the start of year 13 you will be assessed on the core content from the SIL i.e. unit 1 content	
Complete the following activities using metacognitive techniques, test yourself on the content and use the unit 1 knowledge booklets to mark your answers in a different colour when you have finished, improving any answers where required	
To help prepare you for your progression exam in year 13 you should watch the following videos:	
Video: How Your Memory Works Video: Spaced Practice	Video: Retrieval Practice Video: Interleaved Practice

Biological molecules – carbohydrates

What is a monomer?

What is a polymer?

What is a condensation reaction?

What is a hydrolysis reaction?

The monomers of carbohydrate molecules are called

Two carbohydrates molecules chemically joined are called

Polymers of carbohydrate molecules are called

Monosaccharides

The general formula for a monosaccharide is $C_n(H_2O)_n$

This means that for every 1 carbon, there is 1 H_2O present

1. Write the formula for a monosaccharide with 3 carbons.
2. Write the formula for a monosaccharide with 5 carbons.
3. Write the formula for a monosaccharide with 4 oxygen atoms.

Triose monosaccharides:

Triose monosaccharides are recognisable due to the presence of only carbon atoms.

Triose monosaccharides have the general formula

The example you need to recognise is

Pentose monosaccharides:

Pentose monosaccharides are recognisable due to the presence of only carbon atoms.

Pentose monosaccharides have the general formula

The two examples you need to recognise are and

Hexose monosaccharides:

Hexose monosaccharides are recognisable due to the presence of onlycarbon atoms.

Hexose monosaccharides have the general formula

The four examples you need to recognise are,, and

What is an isomer?

.....
.....
.....

Hexose disaccharides

They are formed when two monosaccharides are chemically joined by a
bond.

The general formula for a hexose disaccharide is

This is because hexose monosaccharides have the formula

So when two hexose monosaccharides are chemically joined, a water molecule is removed (condensation reaction) – leaving

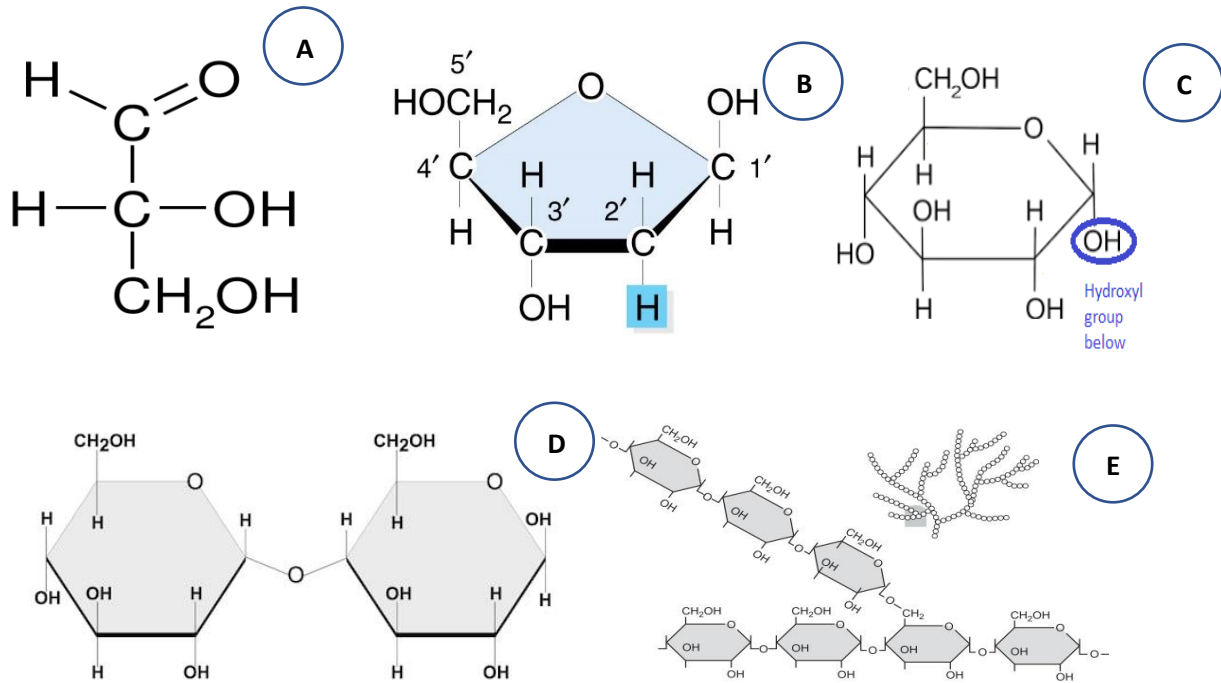
The 3 saccharides you must know are,, and

Using an equation, describe how these 3 disaccharides are formed in a condensation reaction.

.....
.....
.....

Describe the functions on monosaccharides and disaccharides linked to their properties.

.....
.....
.....
.....



The molecules above, A-E, represent different types of carbohydrates. Write the correct letter (s), A-E, to match each of the statements below.

- These three molecules are monosaccharides
- This molecule is a polysaccharide
- This molecule is a pentose monosaccharide
- This molecule is a disaccharide
- These molecules contain glycosidic bonds
- This molecule is a triose monosaccharide
- This molecule is glyceraldehyde
- This molecule is a hexose monosaccharide
- This molecule is made up of two glucose monosaccharides
- This molecule is found in DNA
- This molecule is the monomer of glycogen and starch

Molecule C has a well-known isomer. Name this isomer (1)

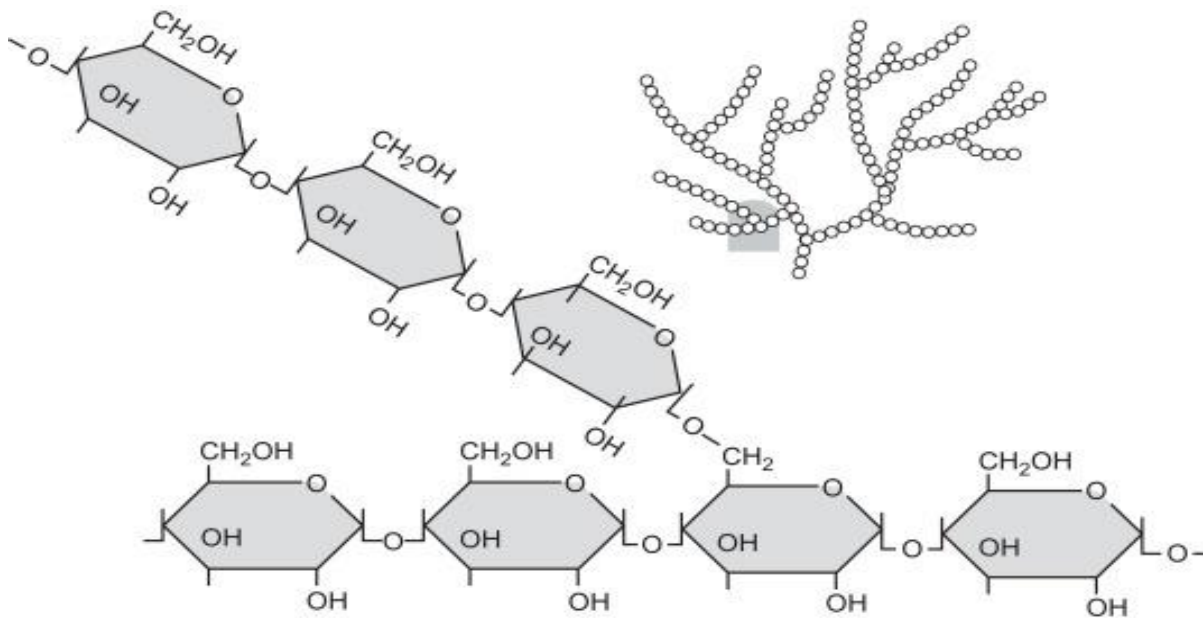
Polysaccharides

A polysaccharide is formed when many monosaccharides are chemically joined together. This means there are many glycosidic bonds present in a polysaccharide.

The example of a polysaccharide you need to know is glycogen.

What is the monomer of glycogen?

Where in the body would glycogen be found?
.....



In mammals, in the early stages of pregnancy, a developing embryo exchanges substances with its mother via cells in the lining of the uterus. At this stage, there is a high concentration of glycogen in cells lining the uterus.

(a) Describe the structure of glycogen.

(2)

(b) What is the function of glycogen?

(1)

(c) Explain why it is an advantage for glycogen to be helical in shape

(1)

d) Explain why it is an advantage for glycogen to be insoluble

(1)

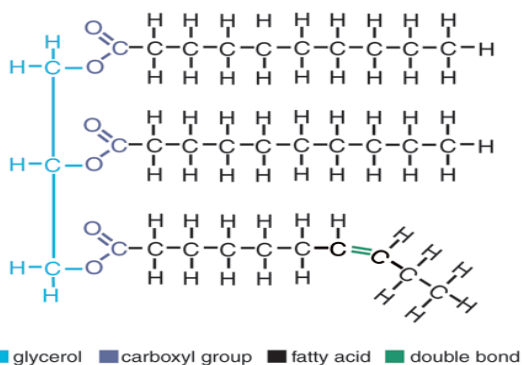
e) Explain why it is an advantage for glycogen to be highly branched

(1)

f) Explain why it is an advantage for glycogen to be large

(1)

Triglycerides



Draw the simplified box diagram to represent a triglyceride:

Describe the structure of triglycerides

.....

.....

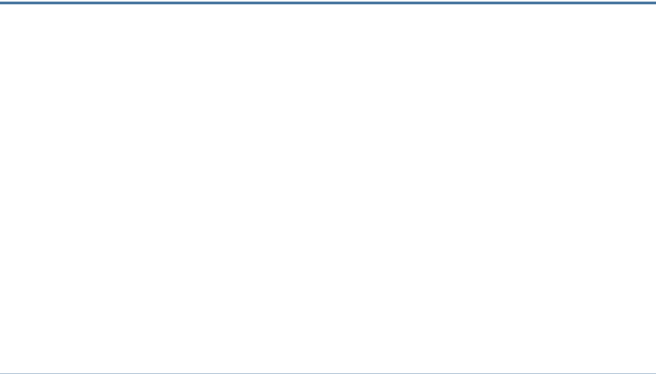
Why are triglycerides not polymers?

.....

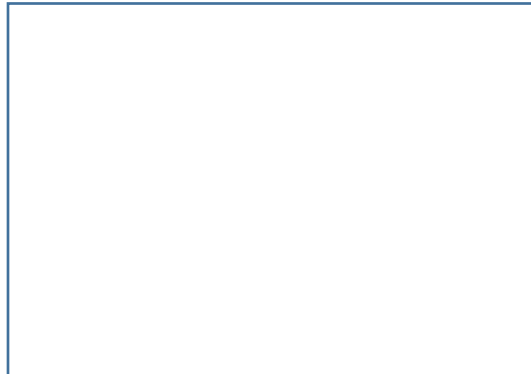
Triglycerides are hydrophobic molecules. What does this mean?

.....

Draw the structure of glycerol
acid



Draw the general formula for a fatty



Define the following terms:

Saturated fatty acid

.....

Monounsaturated fatty acid

.....

Polyunsaturated fatty acid

.....

Describe and explain the role/ function of triglycerides within cells

.....

.....

.....

Phospholipids

Draw and label the phospholipid structure

Simplified box diagram:

Describe the structure of a phospholipid

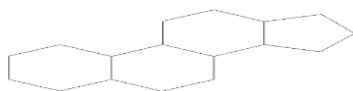
.....
.....
.....
.....

Fatty acids on phospholipids may also be or

What is the function of phospholipids?

Draw and label the arrangement of phospholipids in the membrane bilayer:

Steroids



What are steroids?

Give 3 examples of steroids

.....
.....

Proteins

The monomers of protein molecules are called.....

Two protein monomers chemically joined are called.....

Polymers of protein molecules are called.....

Draw and label the structure of an amino acid



Explain how the 20 amino acids differ

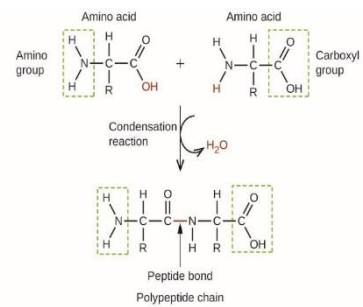
.....

How does a dipeptide form?

.....

How does a dipeptide break down?

.....



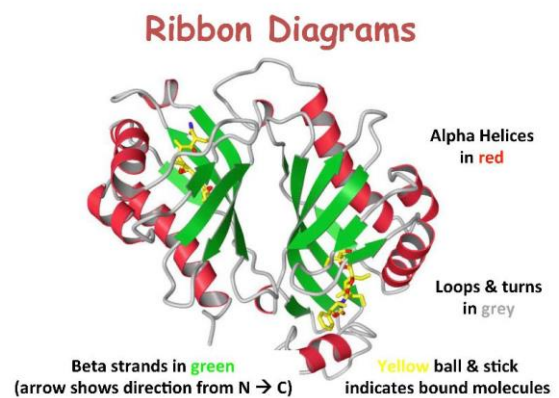
Describe the primary structure of a protein

Describe the secondary structure of a protein

Describe the tertiary structure of a protein

Describe the quaternary structure of a protein

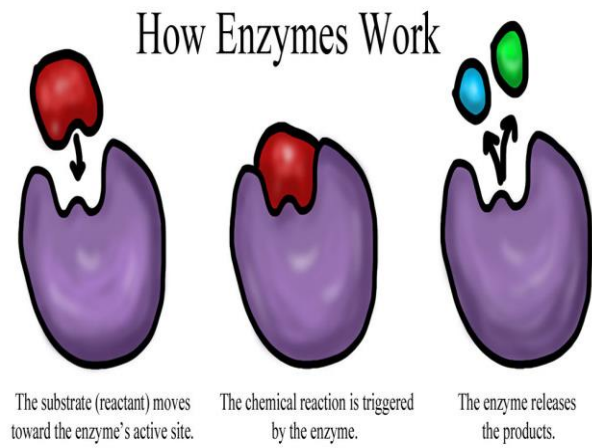
Describe how a ribbon diagram can represent protein structure



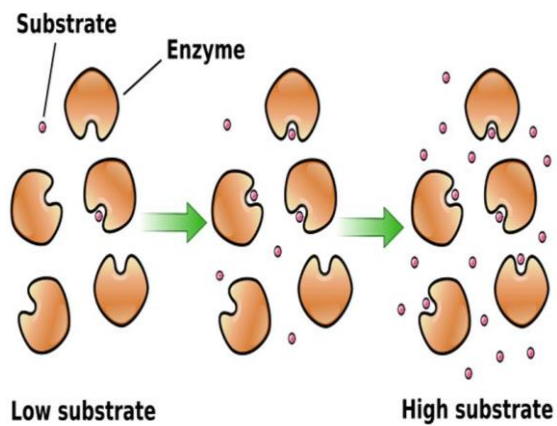
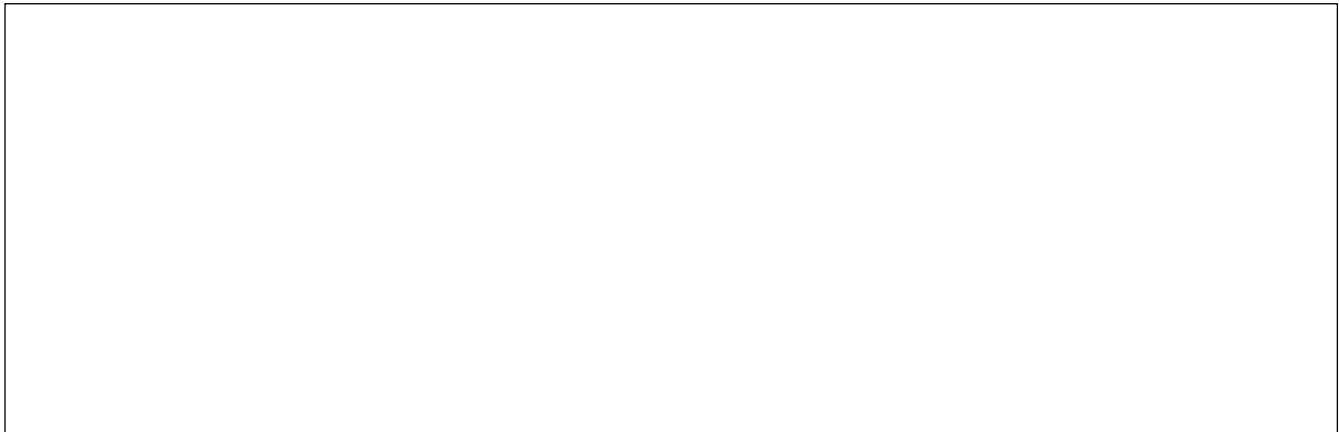
Describe the functions of proteins, using 2 examples.

Enzymes

What are enzymes?



Describe the collision theory of enzyme action:

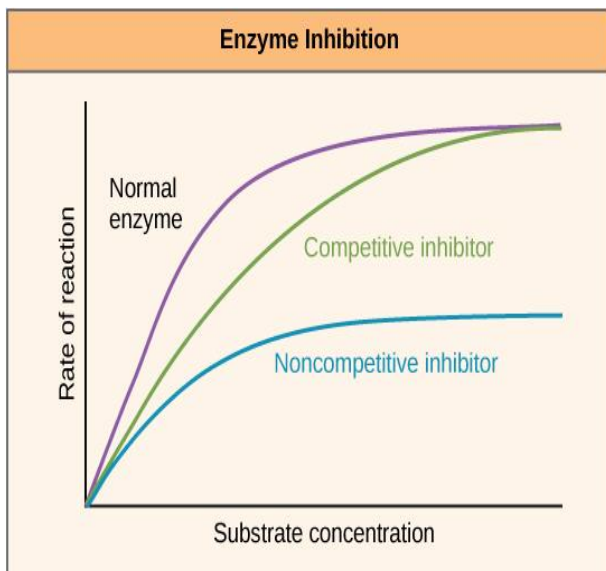


Describe the lock and key model of enzyme action

Describe the induced fit model

Describe the effect of competitive and non-competitive inhibitors on the rate of an enzyme-controlled reaction:

Describe and explain the effect of increasing substrate concentration in the presence of inhibitors:

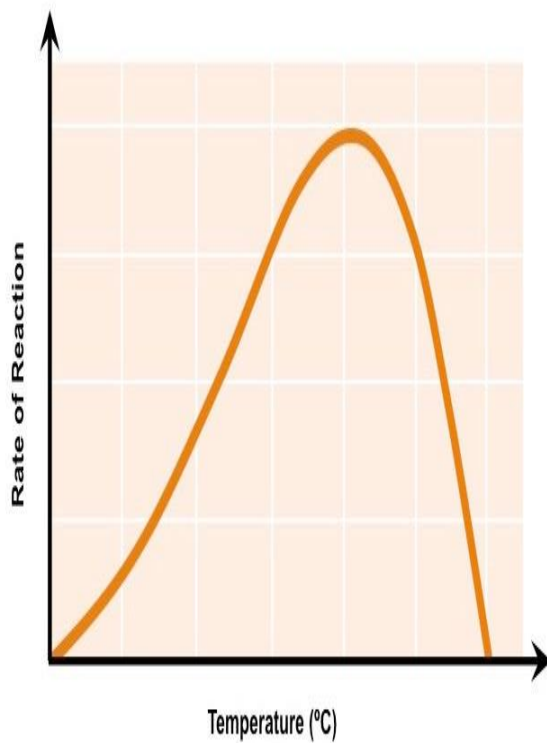


Describe how reversible enzyme inhibitor occurs:

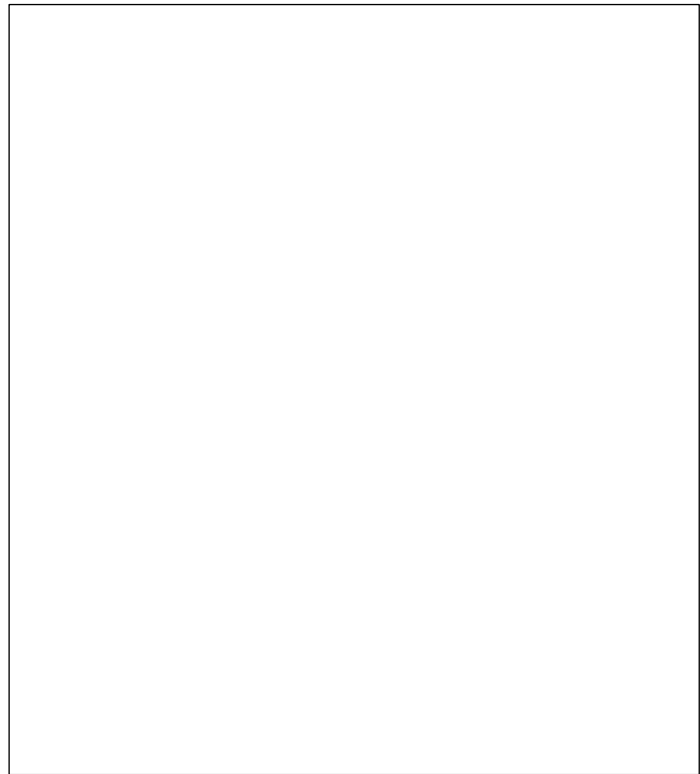
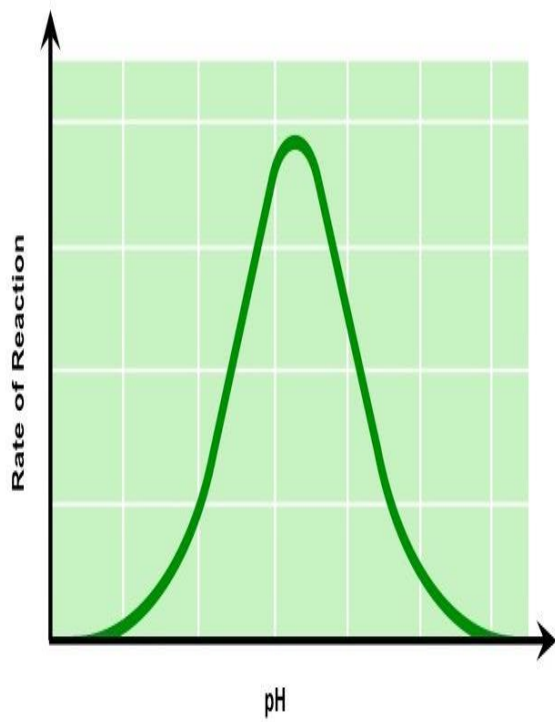
Describe how irreversible enzyme inhibition occurs:

Factors affecting enzymes

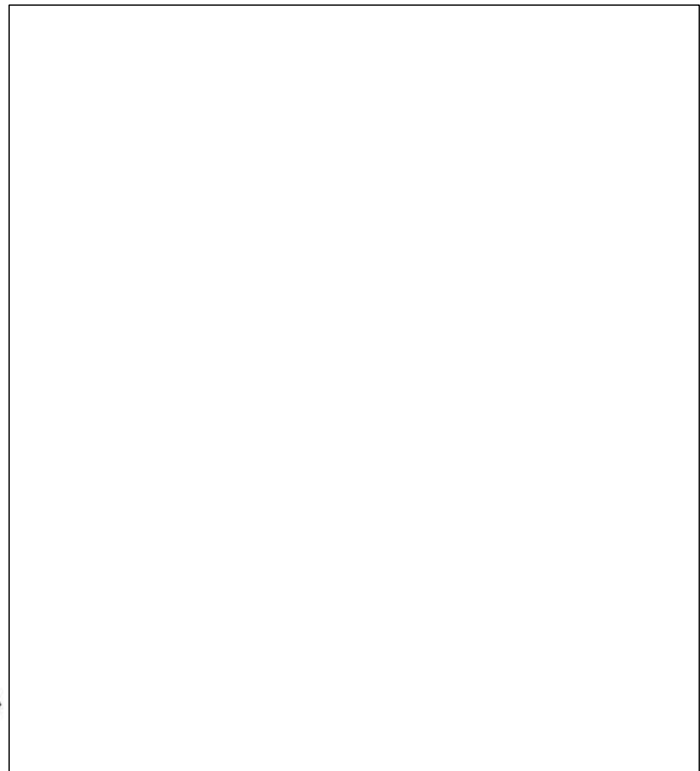
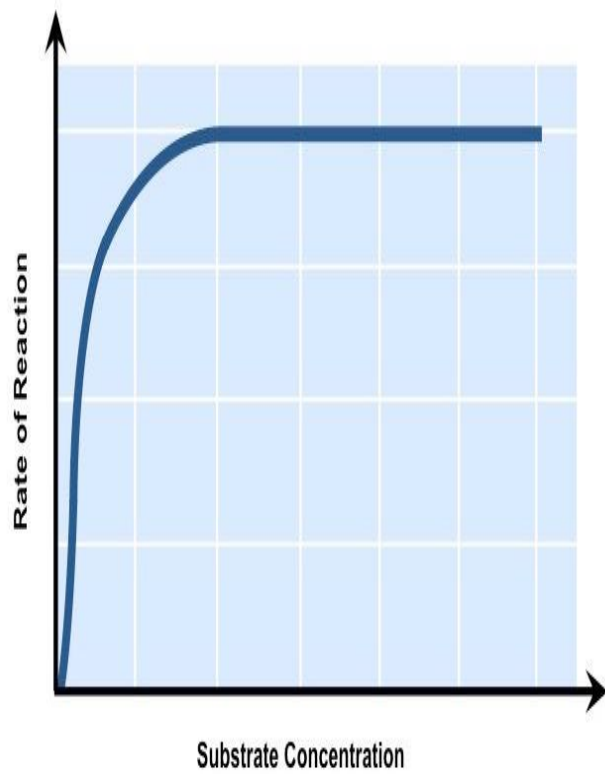
Effect of temperature on the rate of an enzyme controlled reaction:



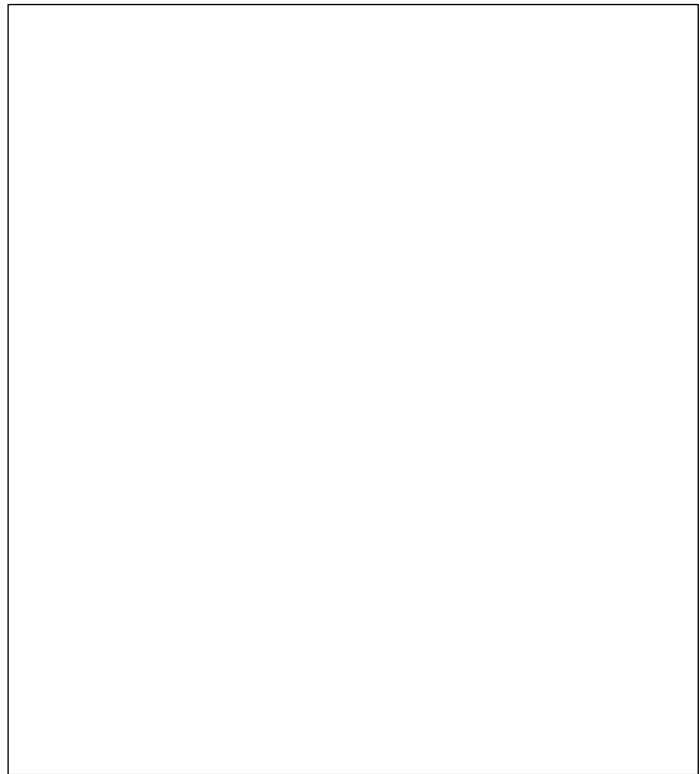
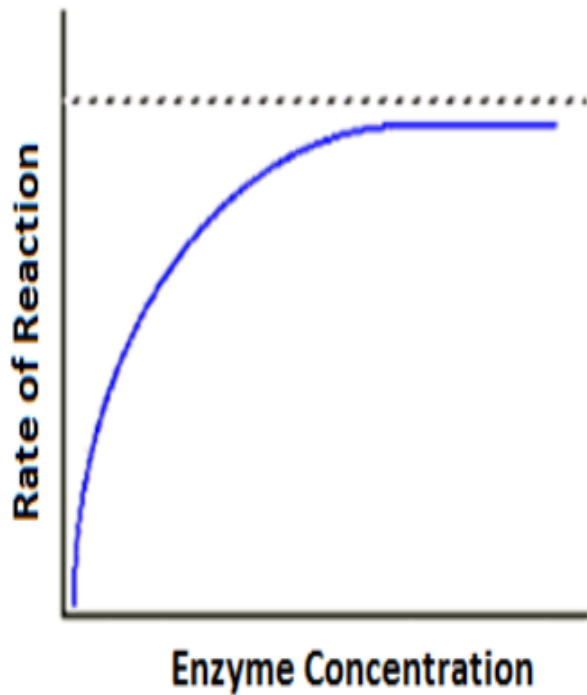
Effect of pH on the rate of an enzyme controlled reaction:



Effect of substrate concentration on the rate of an enzyme controlled reaction:



Effect of enzyme concentration of the rate of enzyme controlled reaction:



Nucleic acids – DNA and RNA

A monomer of a nucleic acid is called a

Two monomers chemically joined together is called a

Many monomers chemically joined together is called a

What does DNA stand for?

Draw a labelled DNA nucleotide

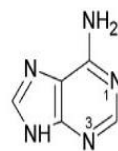


Name the 4 possible DNA bases:

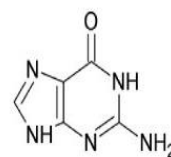
Draw a labelled DNA polynucleotide strand Draw a labelled DNA double strand

The four DNA bases can be separated into 2 categories: purines and pyrimidines.

What is a purine and which bases are these?

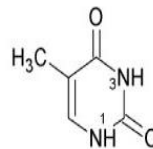


Adenine

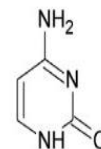


Guanine

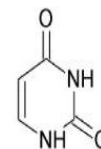
What is a pyrimidine and which bases are these?



Thymine



Cytosine



Uracil

What does RNA stand for?

Draw a labelled RNA nucleotide

Name the 4 possible RNA bases:

Draw a labelled RNA polynucleotide strand

Describe the 3 types of RNA



Messenger RNA (mRNA)



Ribosomal RNA (rRNA)



Transfer RNA (tRNA)

Type of RNA	Messenger RNA (mRNA)	Transfer RNA (tRNA)	Ribosomal RNA (rRNA)
Size			
Where found?			
Shape			
Stability			

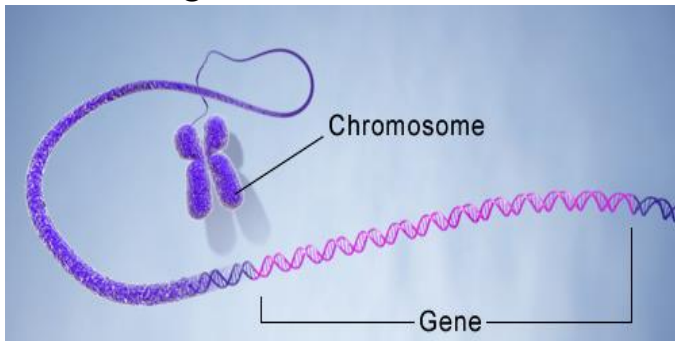
Compare and contrast the structure of DNA and RNA (5)

DNA replication - semi-conservative replication

Use the spaces underneath to illustrate the five stages in the semi-conservative replication of DNA. Draw diagrams of the five stages on the left, and describe what is happening during each stage on the right.

The genetic code

What is a gene?



What is a locus?

How many different genes do humans have?

What is a chromosome?

How many chromosomes do humans have?

What is the genetic code?

	T	C	A	G	
T	TTT } phe	TCT } ser	TAT } tyr	TGT } cys	T
	TTC } leu	TCC } ser	TAC } stop	TGC } stop	C
	TTA } leu	TCA } ser	TAA } stop	TGA } stop	A
	TTG } leu	TCG } ser	TAG } stop	TGG } trp	G
C	CTT } leu	CCT } pro	CAT } his	CGT } arg	T
	CTC } leu	CCC } pro	CAC } his	CGC } arg	C
	CTA } leu	CCA } pro	CAA } gln	CGA } arg	A
	CTG } leu	CCG } pro	CAG } gln	CGG } arg	G
A	ATT } ile	ACT } thr	AAT } asn	AGT } ser	T
	ATC } ile	ACC } thr	AAC } asn	AGC } ser	C
	ATA } ile	ACA } thr	AAA } lys	AGA } arg	A
	ATG } met	ACG } thr	AAG } lys	AGG } arg	G
G	GTT } val	GCT } ala	GAT } asp	GGT } gly	T
	GTC } val	GCC } ala	GAC } asp	GGC } gly	C
	GTA } val	GCA } ala	GAA } glu	GGA } gly	A
	GTG } val	GCG } ala	GAG } glu	GGG } gly	G

- Use the genetic code above to write out the amino acid sequence if the DNA base sequence reads ATG GCA CAG ACG CCC CAT TCG TAG
- Write out the amino acid sequence if the DNA base sequence reads ATG AGG GGG ATT CCT CAG TGT TAG

Describe the 5 key features of the genetic code:

	T	C	A	G	
T	TTT } phe	TCT } ser	TAT } tyr	TGT } cys	T
	TTC } phe	TCC } ser	TAC } stop	TGC } cys	C
	TTA } leu	TCA } ser	TAA } stop	TGA } stop	A
	TTG } leu	TCG } ser	TAG } stop	TGG } trp	G
C	CTT } leu	CCT } pro	CAT } his	CGT } arg	T
	CTC } leu	CCC } pro	CAC } his	CGC } arg	C
	CTA } leu	CCA } pro	CAA } gln	CGA } arg	A
	CTG } leu	CCG } pro	CAG } gln	CGG } arg	G
A	ATT } ile	ACT } thr	AAT } asn	AGT } ser	T
	ATC } ile	ACC } thr	AAC } asn	AGC } ser	C
	ATA } ile	ACA } thr	AAA } lys	AGA } arg	A
	ATG } met	ACG } thr	AAG } lys	AGG } arg	G
G	GTT } val	GCT } ala	GAT } asp	GGT } gly	T
	GTC } val	GCC } ala	GAC } asp	GGC } gly	C
	GTA } val	GCA } ala	GAA } glu	GGA } gly	A
	GTG } val	GCG } ala	GAG } glu	GGG } gly	G

Degenerate:

Non-overlapping:

Universal:

Unambiguous:

Linear:

Protein synthesis

Messenger RNA recap

What does RNA stand for?	
Describe the 3 components of an RNA nucleotide	
Name the 4 bases found in RNA	
Is RNA single or double stranded?	
Is RNA longer or shorter than DNA?	
What shape is mRNA?	
How stable is mRNA?	
How big is mRNA compared to the other RNA types?	
Where is mRNA found in the cell?	

Write the mRNA sequence complementary to the DNA sequence is CGGTAAATGCCA

Write the mRNA sequence complementary to the DNA sequence is AATAGATACAT

Write the amino acid sequence if the mRNA sequence is AUG CCG AGU ACC UA

Write the amino acid sequence of the mRNA sequence is AUG GGU GUC UAU ACG UGA

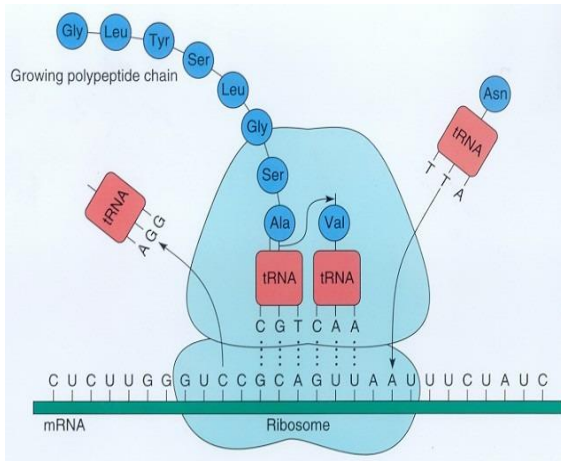
		Second letter					
		U	C	A	G		
First letter	U	UUU } Phe UUC } UUA } Leu UUG }	UCU } UCC } Ser UCA } UCG }	UAU } Tyr UAC } UAA } STOP UAG } STOP/Pyl	UGU } Cys UGC } UGA } STOP/Sec UGG } Trp	U	C
	C	CUU } CUC } Leu CUA } CUG }	CCU } CCC } Pro CCA } CCG }	CAU } His CAC } CAA } Gln CAG }	CGU } CGC } Arg CGA } CGG }	U	C
	A	AUU } AUC } Ile AUA } AUG } Met	ACU } ACC } Thr ACA } ACG }	AAU } Asn AAC } AAA } Lys AAG }	AGU } Ser AGC } AGA } Arg AGG }	U	C
	G	GUU } GUC } Val GUA } GUG }	GCU } GCC } Ala GCA } GCG }	GAU } Asp GAC } GAA } Lys GAG }	GGU } GGC } Gly GGA } GGG }	U	C
						A	G

Transcription

Draw a diagram to illustrate the stages of transcription on the left, and describe the stages on the right.

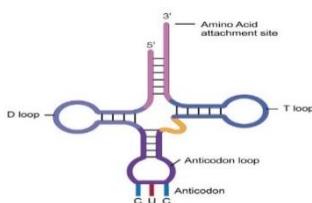
Translation

Describe the structure of a ribosome:



Transfer RNA recap

What does RNA stand for?	
Describe the 3 components of an RNA nucleotide	
Name the 4 bases found in RNA	
Is RNA single or double stranded?	
Is RNA longer or shorter than DNA?	
What shape is tRNA?	
How stable is tRNA?	
How big is tRNA compared to the other RNA types?	
Where is tRNA found in the cell?	
Which molecule binds to tRNA at the top?	



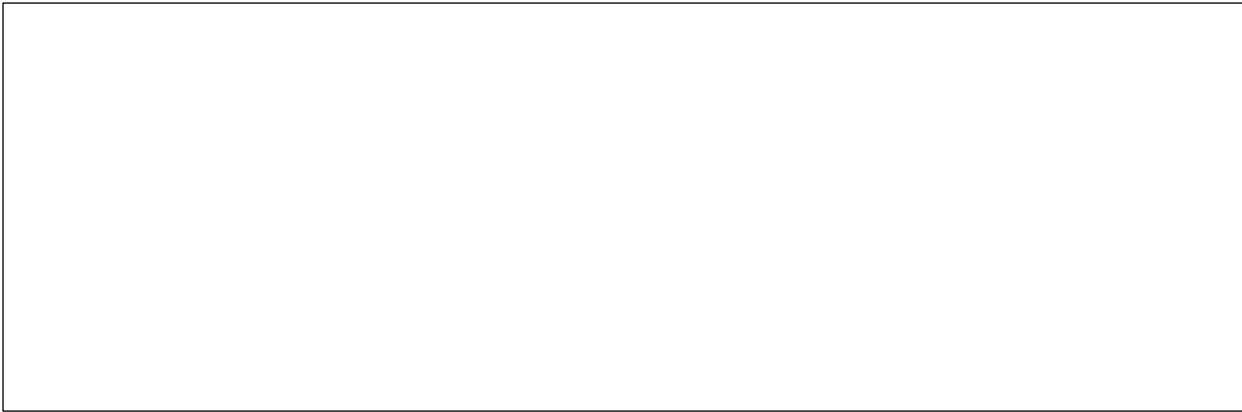
Describe the process of translation:

ATP

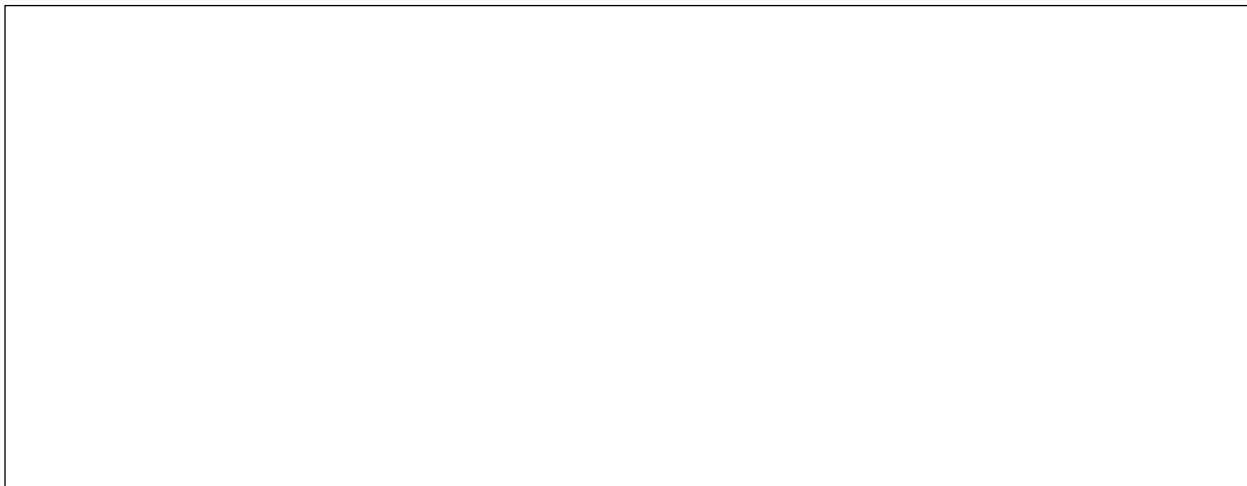
What does ATP stand for?

What is ATP?

Draw a labelled diagram to represent the structure of ATP



Draw a diagram to represent the ATP cycle



What does ADP stand for?

What does Pi stand for?

Describe the formation of ATP

What is the energy from ATP hydrolysis used for in cells?

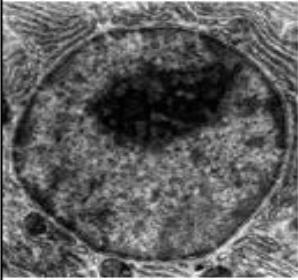
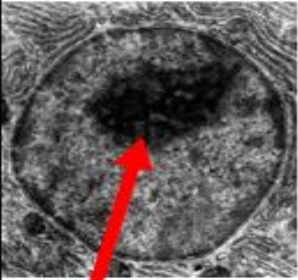
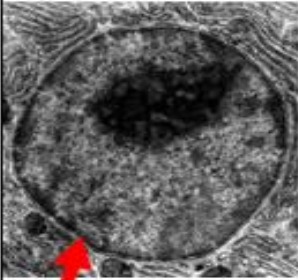
1. –
2. –
3. –
4. –

Explain how the structure and properties of ATP are related to its function.


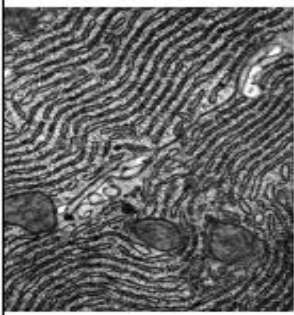
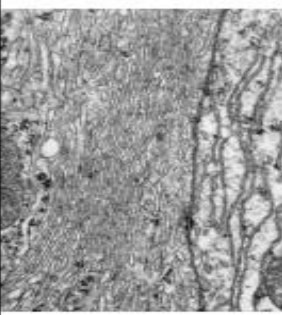

1. –
2. –
3. –
4. –
5. –

Structure of human cells

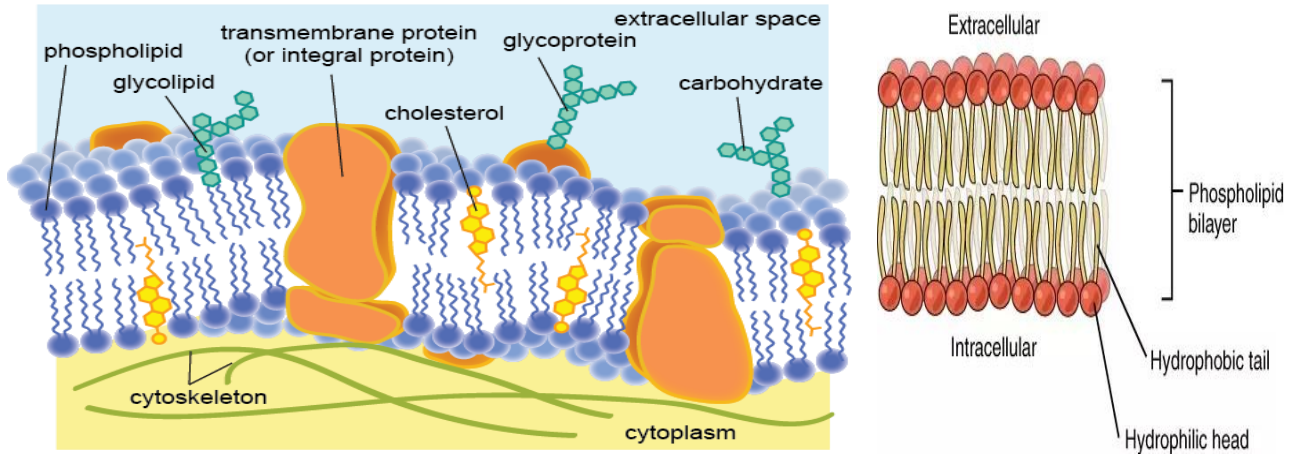
+

Name of organelle	Electron micrograph	Draw a diagram to represent the organelle	Structure	Function
Nucleus				
Nucleolus				
Nuclear envelope				

□

			
Mitochondria	Rough endoplasmic reticulum (rough ER)	Smooth endoplasmic reticulum (smooth ER)	Golgi apparatus

The plasma membrane

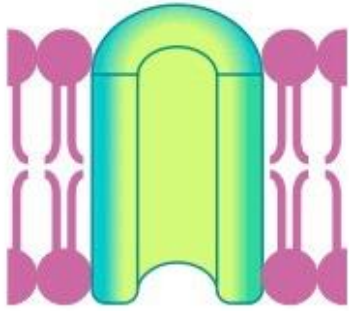



What is the plasma membrane?

Describe and explain the main constituents of the plasma membrane

Describe how the polarity of intrinsic membrane protein molecules affects their position in the membrane

Channel protein



 Non-Polar  Polar

The extracellular surface of extrinsic membrane proteins can be glycosylated. What does this mean?

State the term used to describe the plasma membrane structure.

Why is this term used to describe the structure of the plasma membrane?

Transport across cell membranes

List the 6 methods in which molecules can be transported across a cell membrane

The polarity of a molecule is important when a molecule is being transported across a cell membrane.

What is a polar molecule?

What is a non-polar molecule?

List the 5 factors which affect how a molecule is transported across a cell membrane.

Explain how the size of the concentration gradient affects transport across a membrane.

Explain how temperature affects transport across a membrane.

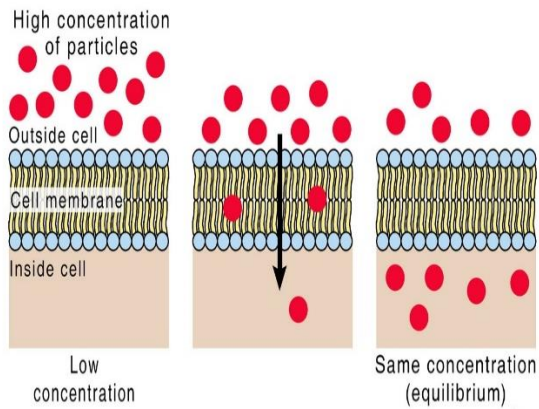
Explain how the size of a molecule affects transport across a membrane.

Explain how lipid solubility affects transport across a membrane.

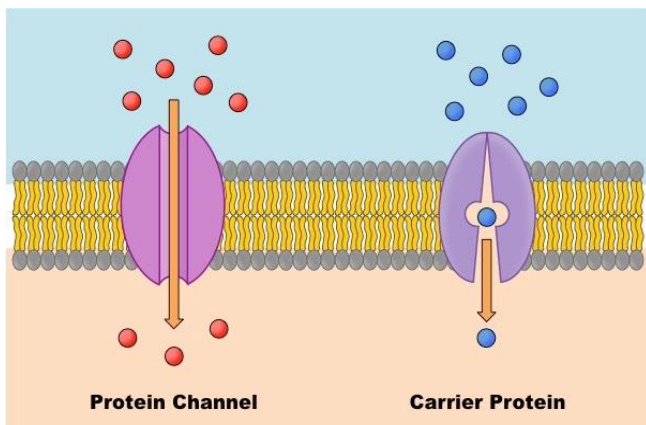
Explain how the thickness of the membrane affects transport across a membrane.

Methods of membrane transport

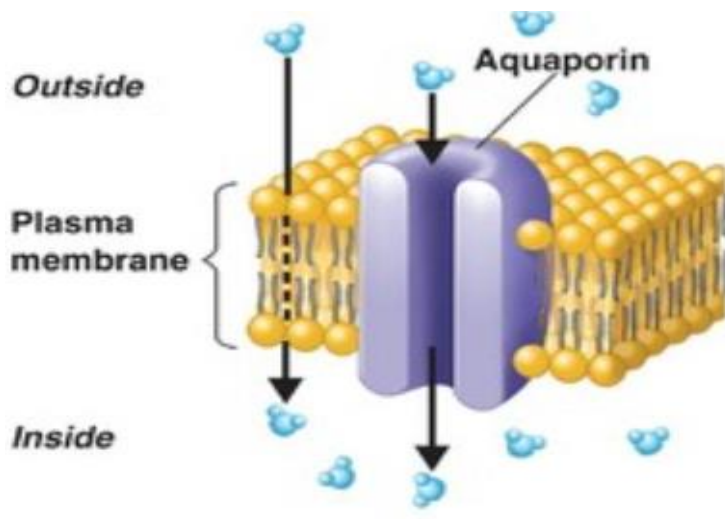
Describe what simple diffusion is and explain which types of molecules move by simple diffusion.



Describe what facilitated diffusion is and explain which types of molecules move by simple diffusion.

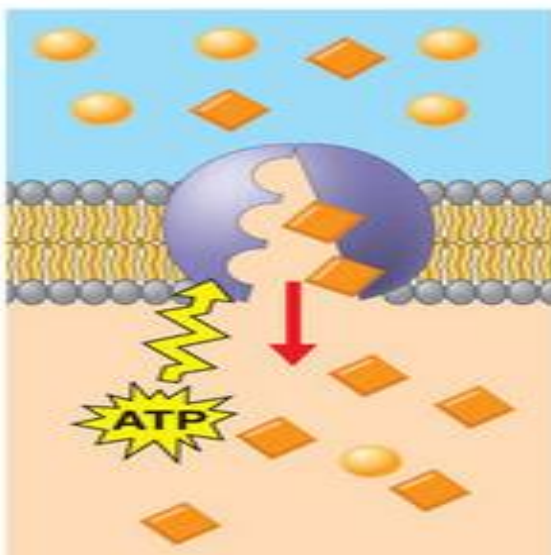


Describe what osmosis is.

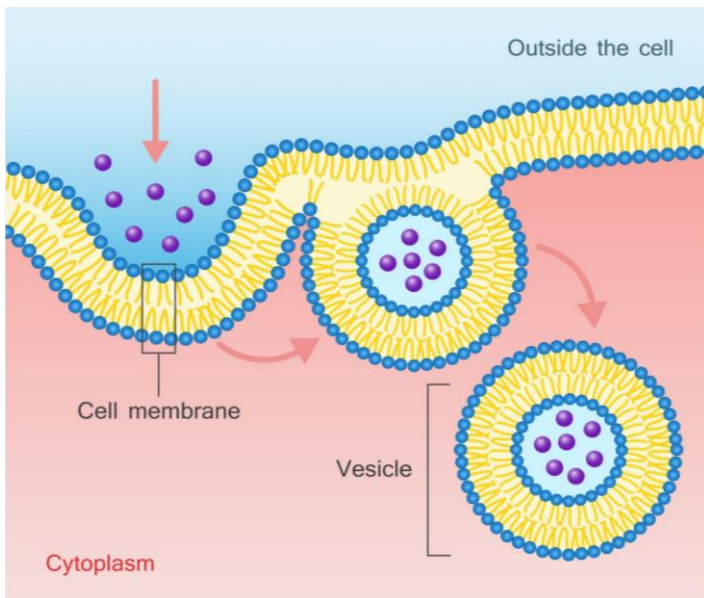


Describe what active transport is.

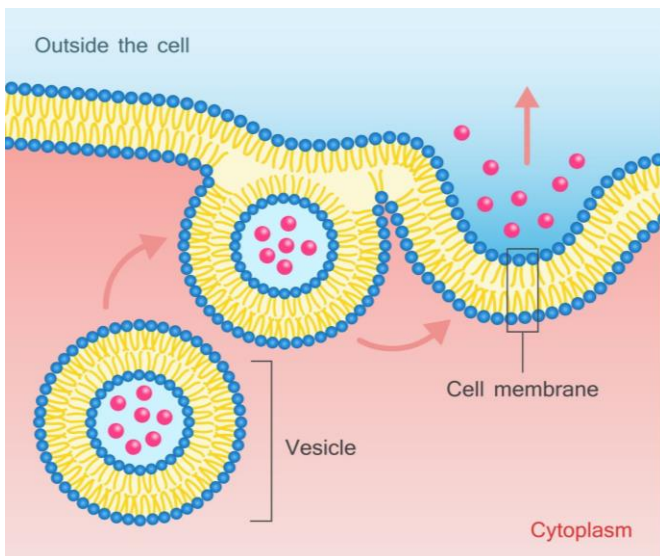
Active transport



Describe what endocytosis is.



Describe what exocytosis is.



Control of blood glucose by the endocrine system

What is the purpose of the endocrine system?

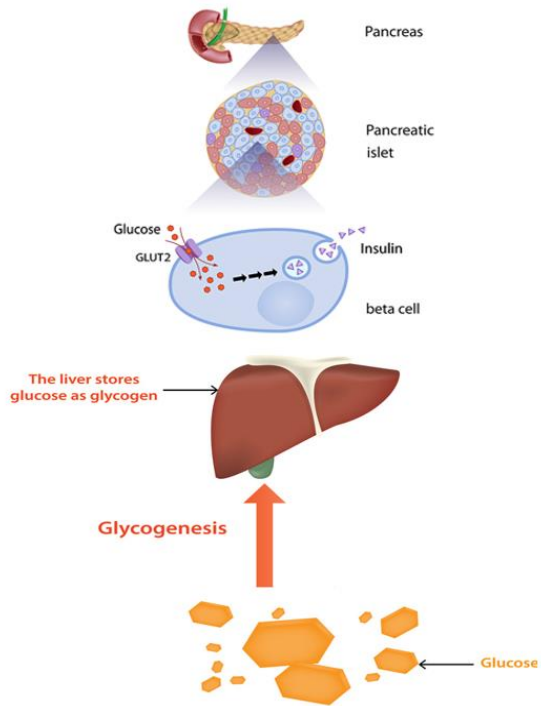
Which cells are involved in the regulation of blood glucose?

Why is it important that blood glucose is regulated?

Define the term 'glycogenesis'.

Define the term 'glycogenolysis'.

Explain how the endocrine system responds when blood glucose is too high.

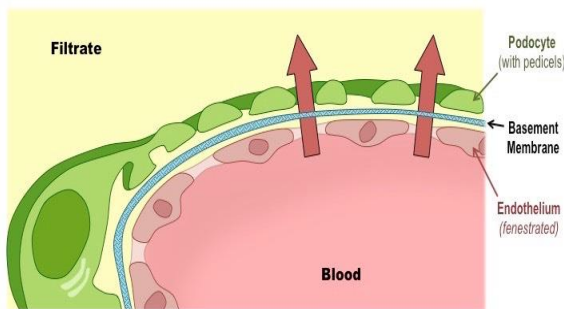
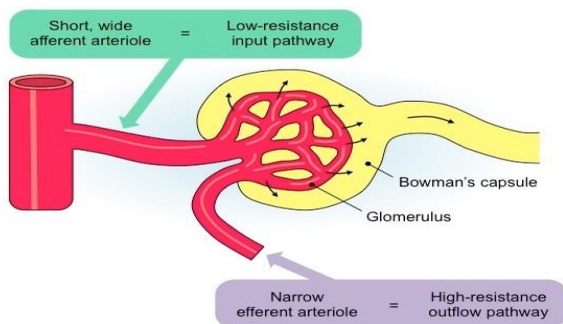


Explain how the endocrine system responds when blood glucose is too low.

Role of the kidney in the endocrine system – ultrafiltration and selective reabsorption

Why is it important that the concentration of water in the blood is regulated?

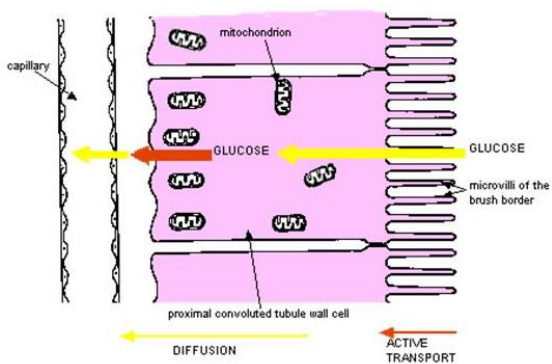
Describe the process of ultrafiltration in the nephron.



Describe which molecules are part of the glomerular filtrate, and which are not.

Describe the process of selective reabsorption in the nephron.

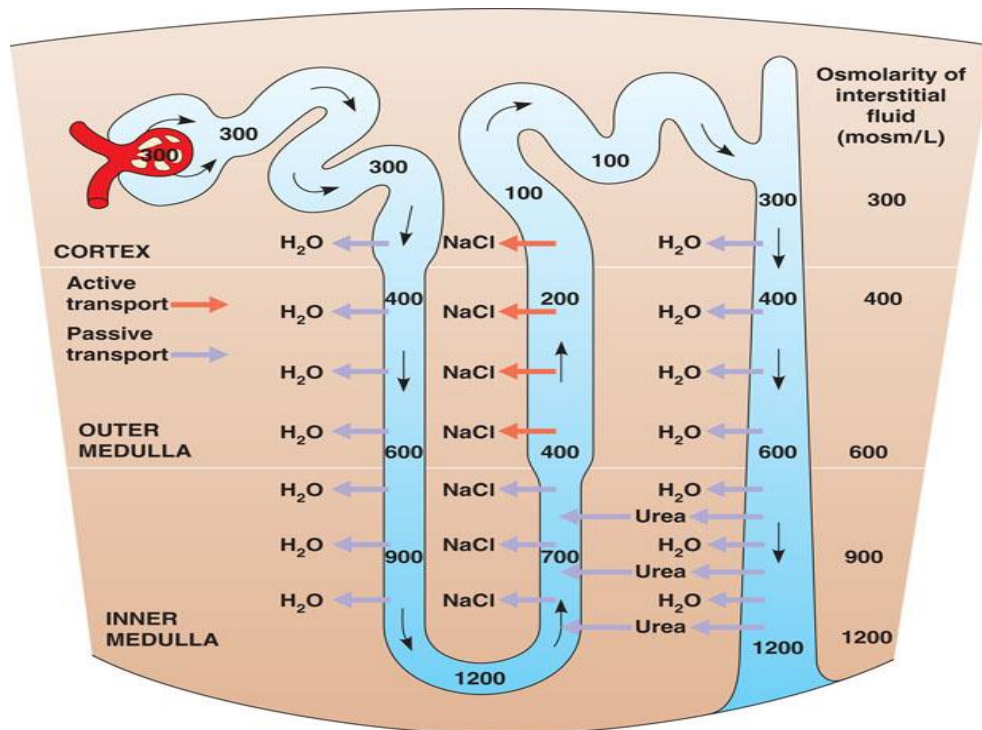
Explain the adaptations proximal convoluted tubule (PCT) cells have for selective reabsorption



Osmoregulation

What does osmoregulation mean?

Describe how osmoregulation occurs in the loop of Henle.



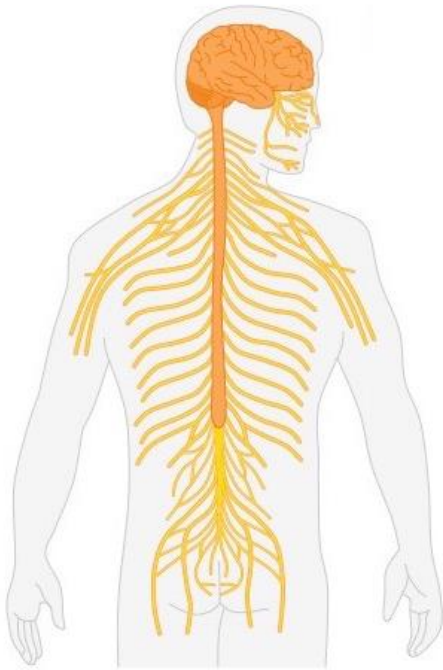
What is ADH and what does it do?

Describe how ADH enables more concentrated urine to be formed

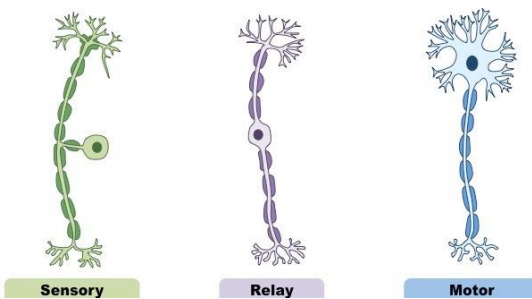
The structure of the nervous system

Describe the role of the nervous system

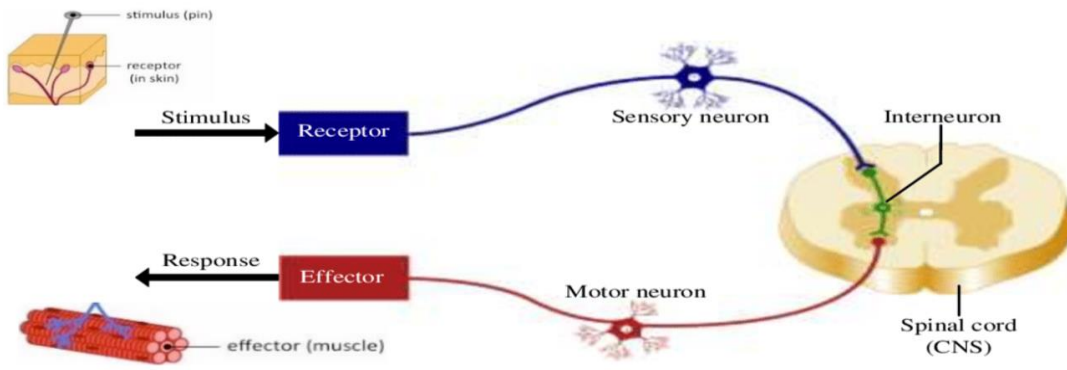
Describe the general structure of the nervous system



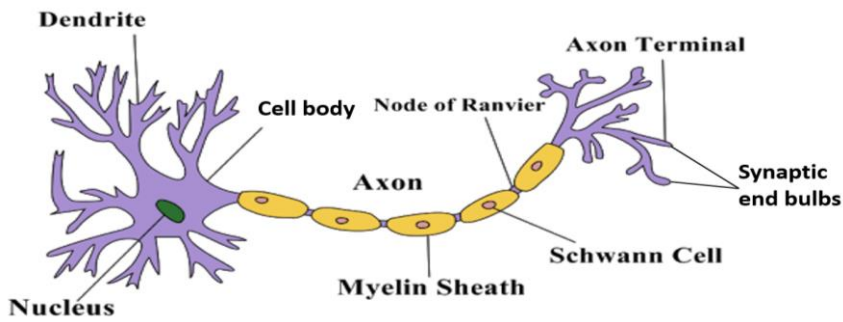
Describe the 3 types of neurones involved in the nervous system



Describe the reflex arc

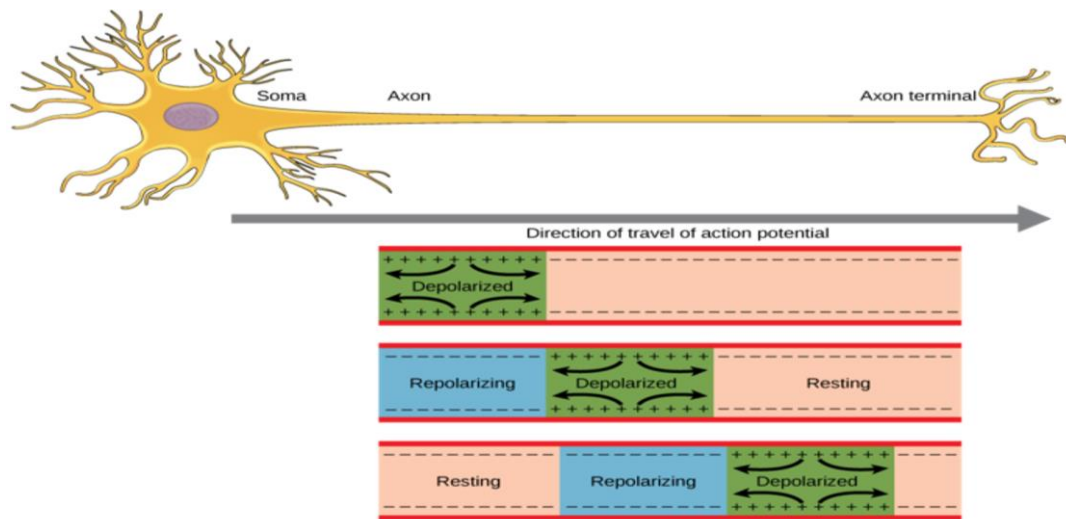


Describe the structure and function of a motor neurone

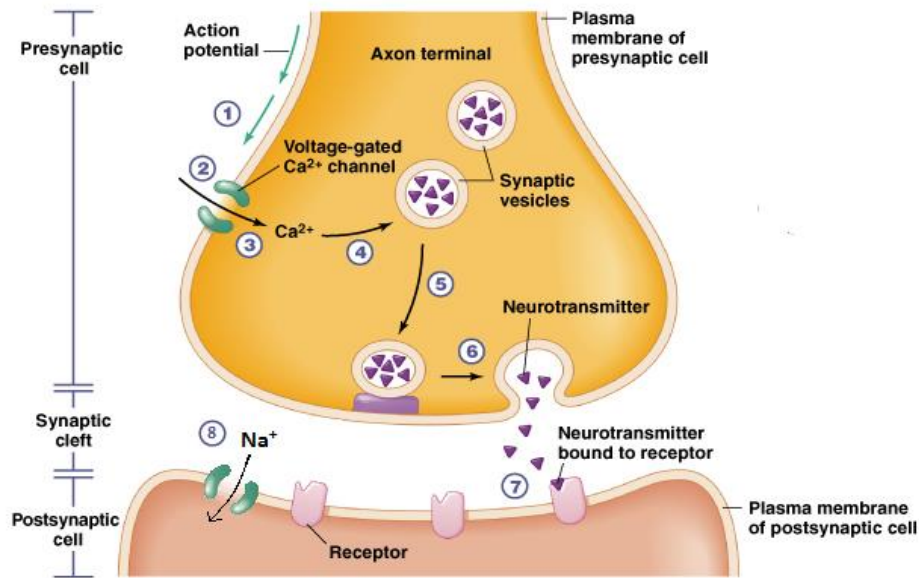


Transmission of a nerve impulse along an axon

Describe how a nerve impulse is transmitted across an axon

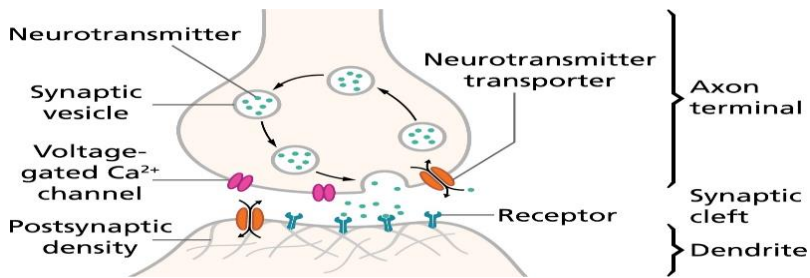


Synaptic transmission



Describe how the formation of a synapse leads to depolarisation in the post-synaptic neurone:

Describe how the merging of nerve impulses is prevented:



A synapse ensures one-way flow of nerve impulses. Describe how.

Explain the role of the following in synaptic transmission:

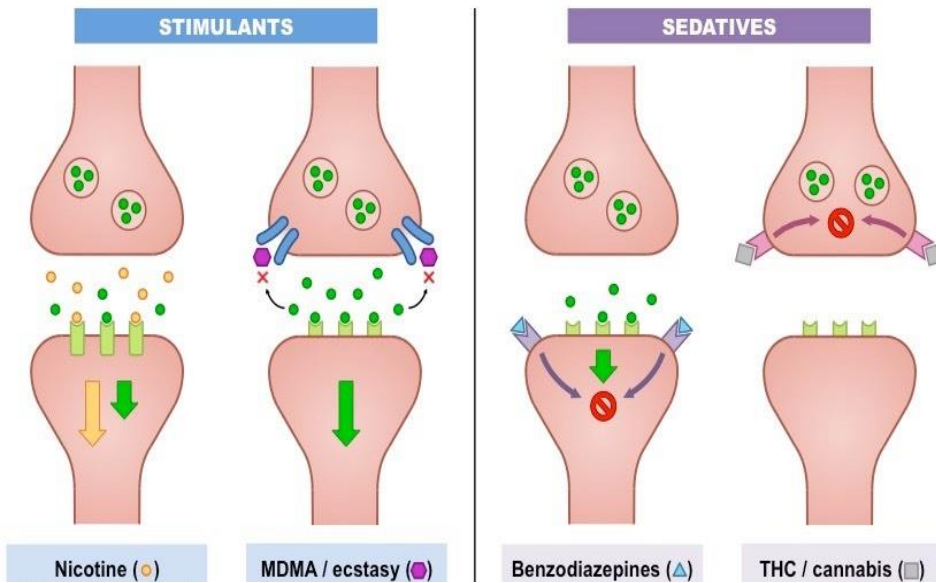
Synaptic vesicles

Neurotransmitters (e.g. acetylcholine)

Synaptic cleft

Receptors on post-synaptic membrane

Describe the effects of chemicals on synaptic transmission

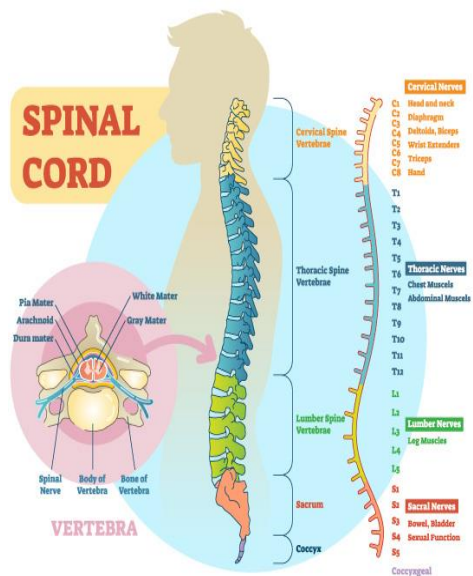


The Musculoskeletal System

What is the purpose of the musculoskeletal system?

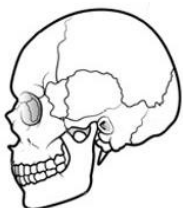


Describe what the spinal column is

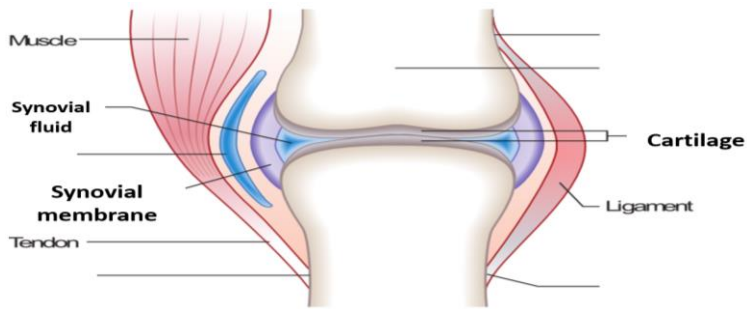


Joints

Name the 3 categories that joints can be classified by, giving an example for each.



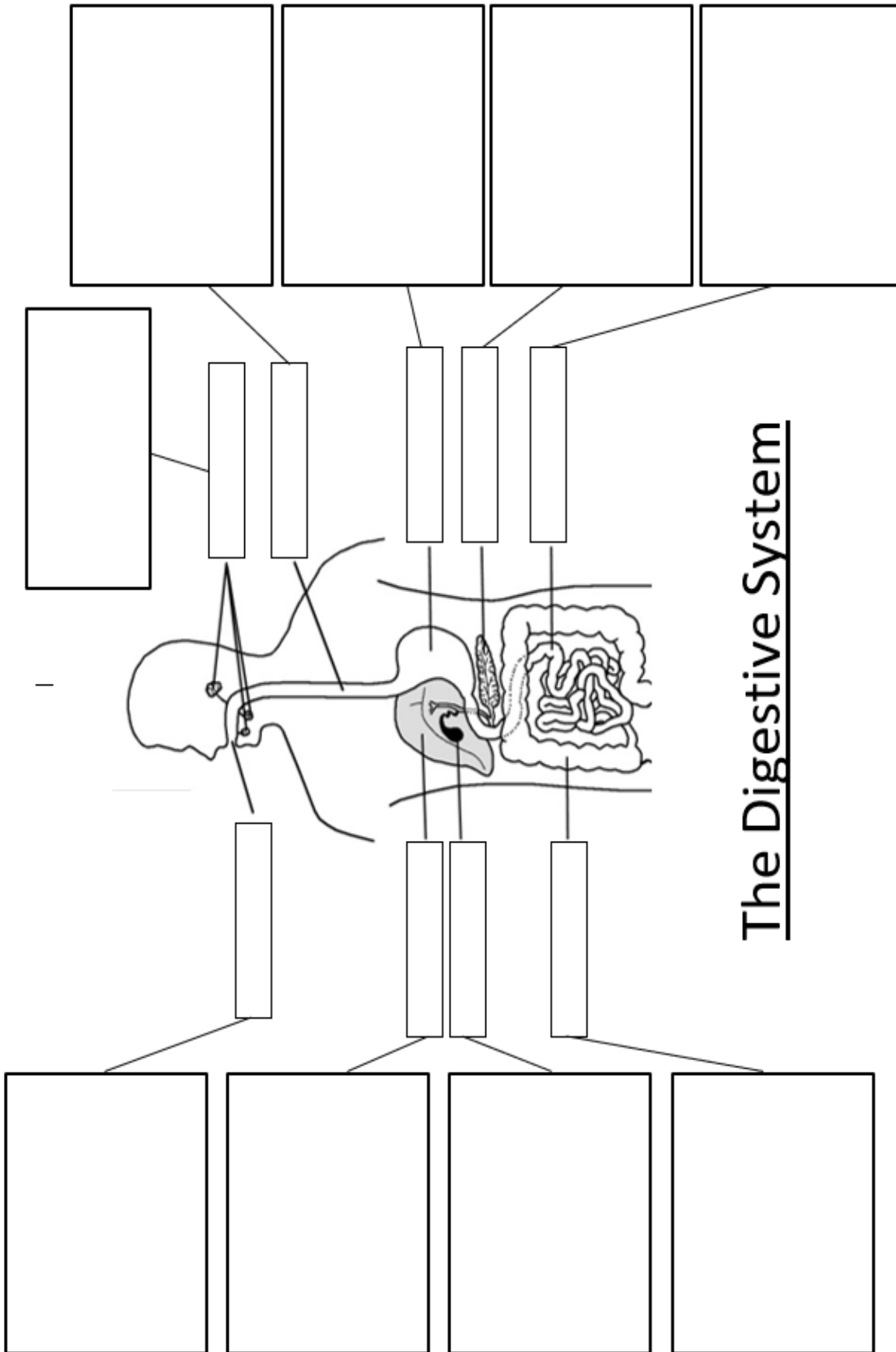
Describe the structure of a synovial joint



Muscles.

Muscles act in antagonists pairs. What does this mean?

Describe the sliding filament theory of muscle contraction.



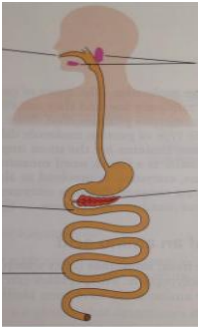
The Digestive System

Draw and label a diagram to show the layers of the gut wall and their relative proportions

What is the function of saliva during digestion?

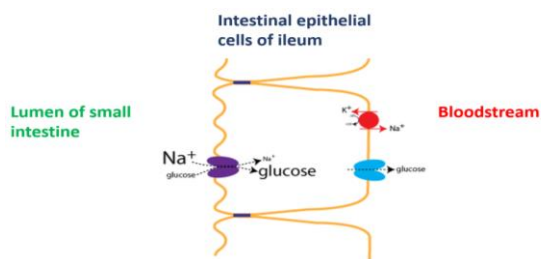
What is the function of mucus during digestion?

Describe how starch is fully digested into glucose. (3 marks)



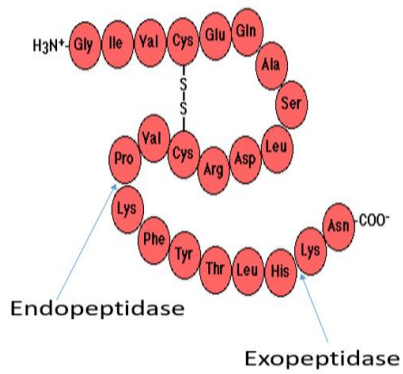
Describe how the disaccharides sucrose and lactose are digested. (2 marks)

Describe how glucose is absorbed into the blood from the ileum. (5 marks)



Digestion of proteins

Describe the chemical digestion of a protein (4)



Describe the how the endopeptidases pepsin and trypsin are activated.

Describe how glucose is absorbed by the epithelial cells of the ileum (small intestine). (5)

Lipid digestion and absorption

What are triglycerides made up of?

Where is bile produced?

Where is bile stored?

Where is bile secreted into?

Which organ produces the digestive enzymes e.g. lipase?

Where are the digestive enzymes secreted to?

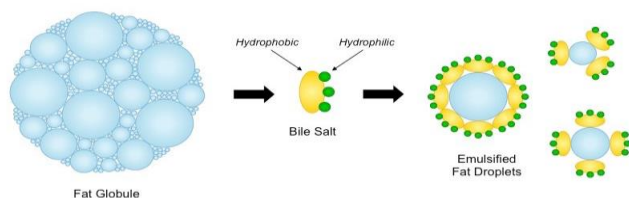
What is a monoglyceride?

What is a micelle?

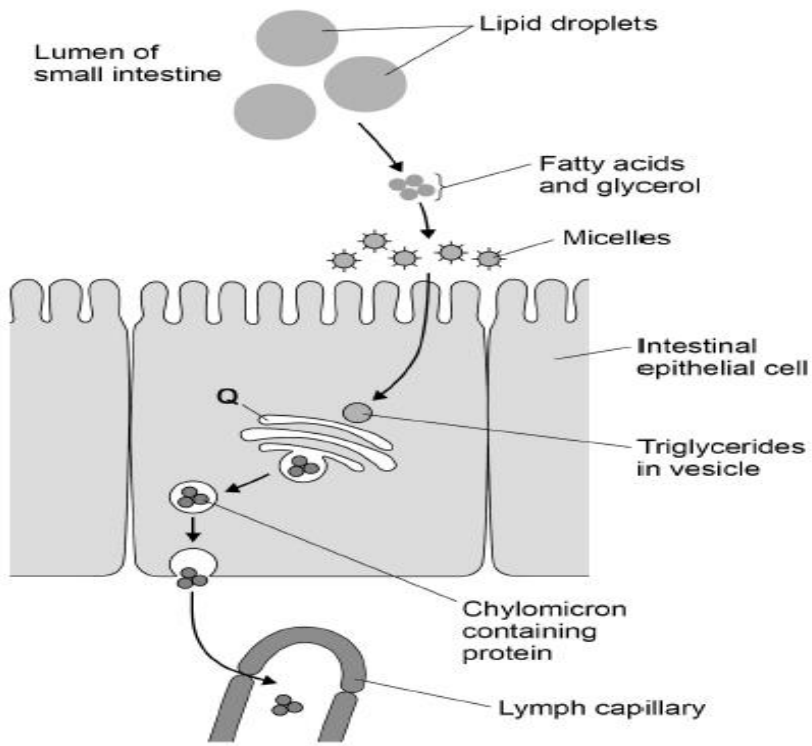
What is a chylomicron?

What is the lacteal?

Describe the role of bile and lipase in the digestion of lipids.



Describe how the fatty acids and monoglycerides are absorbed into the lacteal (lymphatic capillary).



The Cardiovascular System

The cardiac cycle word fill:

1. Atrial systole

The ventricles are and the atria This increases the and decreases the in the atria, pushing the blood into the ventricles. The tricuspid and bicuspid are

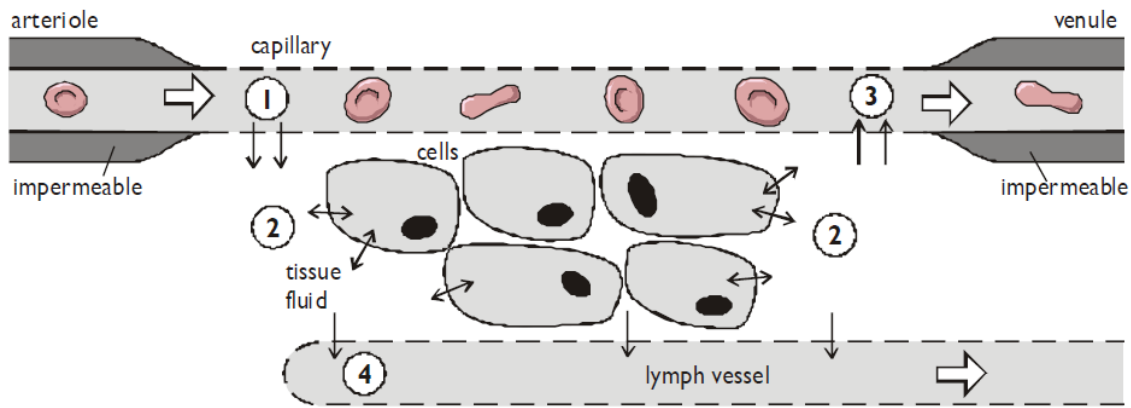
2. Ventricular systole

The atria and the ventricles There is now more pressure in the so the and valves to prevent The pressure is also higher in the than in the and the which forces the valves open as blood is forced into the arteries.

3. Atrial and ventricular diastole

The atria and ventricles both The higher pressure in both the And force the closed. Blood returns to the heart as the pressure in and is greater than in the atria. As the ventricles continue to relax, there is a higher pressure in the atria so the and valves open and blood trickles into the

Formation of Tissue Fluid



Use the numbers – 1-5 to describe and explain what is happening at each number:

1.

2.

3.

4.

Part 2 – Highly Recommended | Time: 4-6 hours

In year 13 you will continue with the unit 4 controlled assessment and therefore should spend ample time preparing your notes for task two

Task 2 will be completed individually, but is the only task where you'll have access to your notes.

1. In September you will have 3 hours to produce 4 leaflets detailing the action of 4 different drugs.
2. The assignment requires you to prepare notes on the 4 drugs, which you can then use in September. (I cannot provide any feedback on your notes).

What to do: Access the document entitled 'SIL assignment part 2' found on Teams: **General → Files → Class materials → Unit 4 → Task 2**

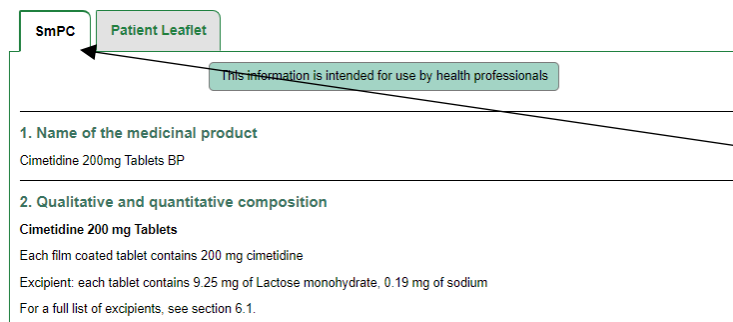
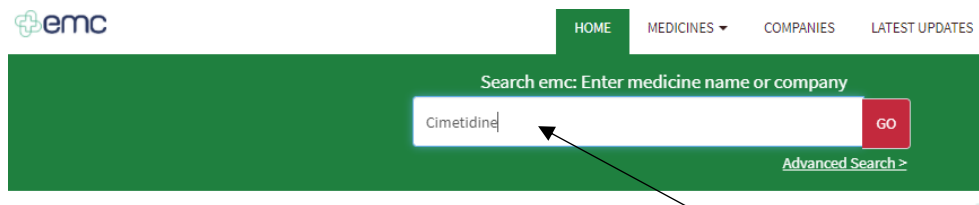
Look at the example!

Using the sources of information and subject specific terminology complete the tables for the 4 drugs you have been assigned

Useful sources of information

1. British National Formulary (BNF) <https://bnf.nice.org.uk/>
2. NHS Medicines A to Z <https://www.nhs.uk/medicines/>
3. The electronic medicines compendium (EMC) <https://www.medicines.org.uk/emc/>
4. Web MD - <https://www.webmd.com/>

How to use the EMC source quick guide!



Type in the name of the drug in to the search bar and press 'GO'

Make sure the tab is on SmPC as this information is aimed at health professionals and contains some useful information you can use

1. Name of the medicinal product
2. Qualitative and quantitative composition
3. Pharmaceutical form
4. Clinical particulars
 - 4.1 Therapeutic indications
 - 4.2 Posology and method of administration
 - 4.3 Contraindications
 - 4.4 Special warnings and precautions for use
 - 4.5 Interaction with other medicinal products and other forms of interaction
 - 4.6 Fertility, pregnancy and lactation
 - 4.7 Effects on ability to drive and use machines
 - 4.8 Undesirable effects
 - 4.9 Overdose
5. Pharmacological properties
 - 5.1 Pharmacodynamic properties
 - 5.2 Pharmacokinetic properties
 - 5.3 Preclinical safety data
6. Pharmaceutical particulars
 - 6.1 List of excipients
 - 6.2 Incompatibilities
 - 6.3 Shelf life
 - 6.4 Special precautions for storage
 - 6.5 Nature and contents of container
 - 6.6 Special precautions for disposal and other handling
7. Marketing authorisation holder
8. Marketing authorisation number(s)
9. Date of first authorisation/renewal of the authorisation
10. Date of revision of the text

From the side menu you can use:

4.8 Undesirable effects

5. Pharmacological properties including
5.1 and 5.2

6.2 Incompatibilities (choose the common
ones)

Please note: you will also have to use
other sources of information along with
this but it is a great starting point

Summer Independent Learning:

Part 2: Preparation of notes for Unit 4 Task TWO.

Copies of the documents you have been provided with for this assignment can be found on Teams in the 'Unit 4 Medicines and treatment of disease' Channel>'Files' tab>'Class materials'>Unit 4 Task 3.

This assignment requires you to prepare notes on 4 drugs in the tables below. You will then use these notes in September for Controlled Assessment. (I cannot provide any feedback on your notes).

You have been allocated 4 drugs as shown in the list below.

Make sure you save your work on OneDrive so you can access it from college.

Student number	Body system and drug					
	ANTIBACTERIAL DRUG	CARDIOVASCULAR SYSTEM	GASTRO-INTESTINAL SYSTEM	ENDOCRINE SYSTEM	KIDNEY & EXCRETORY SYSTEM	CENTRAL NERVOUS SYSTEM
B002859	SULPHONAMIDE		OMEPRAZOLE		FURUSOMIDE	SERTRALINE
B003703	ERYTHROMYCIN			LEVOTHYROXINE	FURUSOMIDE	SERTRALINE
B002828	SULPHONAMIDE	PROPANOLOL	OMEPRAZOLE		FURUSOMIDE	
B004262	SULPHONAMIDE	PROPANOLOL				SERTRALINE
B002194	SULPHONAMIDE	PROPANOLOL	OMEPRAZOLE	LEVOTHYROXINE		
B002569	ERYTHROMYCIN		OMEPRAZOLE		FURUSOMIDE	SERTRALINE
B004021	ERYTHROMYCIN		OMEPRAZOLE		FURUSOMIDE	SERTRALINE
B003699	SULPHONAMIDE		OMEPRAZOLE	LEVOTHYROXINE	FURUSOMIDE	
B003725	ERYTHROMYCIN			LEVOTHYROXINE	FURUSOMIDE	SERTRALINE
B002252	ERYTHROMYCIN	PROPANOLOL	OMEPRAZOLE	LEVOTHYROXINE		
B002319	SULPHONAMIDE	PROPANOLOL	OMEPRAZOLE	LEVOTHYROXINE		
B002929	SULPHONAMIDE			LEVOTHYROXINE	FURUSOMIDE	SERTRALINE
B002528	ERYTHROMYCIN	PROPANOLOL		LEVOTHYROXINE		SERTRALINE
B004461	ERYTHROMYCIN	PROPANOLOL			FURUSOMIDE	SERTRALINE
B003936	SULPHONAMIDE	PROPANOLOL	OMEPRAZOLE	LEVOTHYROXINE		
B002565	ERYTHROMYCIN		OMEPRAZOLE	LEVOTHYROXINE	FURUSOMIDE	
B002533	ERYTHROMYCIN	PROPANOLOL		LEVOTHYROXINE		SERTRALINE

Key words and definitions - Complete the following table!

Key word	Definition
Agonist	
Antagonist	
Inhibitor	
Neurotransmitter	
Competitive inhibitor	
Non-competitive inhibitor	

Example:

Sources of information used:

<https://www.webmd.com/drugs/2/drug-11210/cimetidine-oral/details>

<https://www.medicines.org.uk/emc/product/6026/smpc#PRODUCTINFO>

<p>Name of class of drugs Antacids</p>	<p>Body system affected Gastro-intestinal system</p>
<p>Examples and other names of the drug (write in the name of the drug allocated to you from the table above) Cimetidine, Zabcid, Tagamet</p>	
<p>Administration (how is the drug given) Orally – Tablets/solution, twice per day with a meal for a period of several weeks</p>	
<p>Dosage for adults Tablets range from 200mg-800mg Oral solution 5ml 200mg</p>	
<p>AC2.1 explain the molecular basis of the action of medicines</p>	<p>Mode of Action (remember specification terms!) Cimetidine is a histamine H2-receptor antagonist, which rapidly inhibits the secretion of hydrochloric acid and pepsin in the stomach. It is a reversible, competitive antagonist which means it has a similar shape to the agonist (histamine) and blocks it from binding to the receptors on parietal cells (those that secrete acid)</p>
<p>A.C2.2 explain how medicines affect body systems</p>	<p>Uses (and why it treats it) It is used as an anti-ulcer drug, by blocking the H2 receptors this reduces the volume of gastric juice secreted and the hydrogen ion concentration. This therefore increases the pH within the stomach and allows the ulcer an environment in which it is able to heal rather than being irritated by acidic gastric juices which could potentially lead to the ulcer bursting</p>
<p>AC2.7 explain how adverse reactions to medicines can occur</p>	<p>Very common/common adverse reactions/side effects (and why they occur)</p> <ul style="list-style-type: none"> • Headaches, dizziness, drowsiness, depression, agitation – extended action as H2 receptors also found in the brain where histamine is a neurotransmitter • Joint or muscle pain – immunological reaction • Skin rash – immunological reaction • Diarrhoea, nausea, constipation – lowering of the stomach acid pH can cause a reduction in the successful digestion of some biological molecules such as proteins. This can cause problems with digestion
<p>AC2.5 compare the effects of the interaction of medicines</p>	<p>Interactions with other medicines (and how) This medication can slow down the removal of other medications from your body, which may affect how they work. Examples of affected drugs include metoprolol, propranolol, tacrine, warfarin, zaleplon, calcium channel blockers (such as diltiazem), tricyclic antidepressants (such as amitriptyline), theophylline, among others. Since cimetidine reduces the amount of acid in your stomach, it may also change the absorption of certain medications and affect how they work. Some examples of affected drugs include atazanavir, dasatinib, delavirdine, certain azole antifungals (such as itraconazole, ketoconazole), pazopanib, among others.</p>
<p>Contraindications (who cannot take the drug) Children younger than 12 (unless directed by the doctor),</p>	

DRUG 1

Useful sources of information – you can use others.

1. British National Formulary (BNF) <https://bnf.nice.org.uk/>
2. NHS Medicines A to Z <https://www.nhs.uk/medicines/>
3. The electronic medicines compendium (EMC) <https://www.medicines.org.uk/emc/>

Name of class of drugs	Body system affected
Examples and other names of the drug (write in the name of the drug allocated to you from the table above)	
Administration (how is the drug given)	
Dosage for adults	
AC2.1 explain the molecular basis of the action of medicines	Mode of Action (remember specification terms!)
A.C2.2 explain how medicines affect body systems	Uses (and why it treats it)
AC2.7 explain how adverse reactions to medicines can occur	Very common/common adverse reactions/side effects (and why they occur)
AC2.5 compare the effects of the interaction of medicines	Interactions with other medicines (and how)
Contraindications (who cannot take the drug)	

DRUG 2

Useful sources of information – you can use others.

5. British National Formulary (BNF) <https://bnf.nice.org.uk/>
6. NHS Medicines A to Z <https://www.nhs.uk/medicines/>
7. The electronic medicines compendium (EMC) <https://www.medicines.org.uk/emc/>

Name of class of drugs	Body system affected
Examples and other names of the drug (write in the name of the drug allocated to you from the table above)	
Administration (how is the drug given)	
Dosage for adults	
AC2.1 explain the molecular basis of the action of medicines	Mode of Action (remember specification terms!)
A.C2.2 explain how medicines affect body systems	Uses (and why it treats it)
AC2.7 explain how adverse reactions to medicines can occur	Very common/common adverse reactions/side effects (and why they occur)
AC2.5 compare the effects of the interaction of medicines	Interactions with other medicines (and how)
Contraindications (who cannot take the drug)	

DRUG 3

Useful sources of information – you can use others.

1. British National Formulary (BNF) <https://bnf.nice.org.uk/>
2. NHS Medicines A to Z <https://www.nhs.uk/medicines/>
3. The electronic medicines compendium (EMC) <https://www.medicines.org.uk/emc/>

Name of class of drugs	Body system affected
Examples and other names of the drug (write in the name of the drug allocated to you from the table above)	
Administration (how is the drug given)	
Dosage for adults	
AC2.1 explain the molecular basis of the action of medicines	Mode of Action (remember specification terms!)
A.C2.2 explain how medicines affect body systems	Uses (and why it treats it)
AC2.7 explain how adverse reactions to medicines can occur	Very common/common adverse reactions/side effects (and why they occur)
AC2.5 compare the effects of the interaction of medicines	Interactions with other medicines (and how)
Contraindications (who cannot take the drug)	

DRUG 4

Useful sources of information – you can use others.

1. British National Formulary (BNF) <https://bnf.nice.org.uk/>
2. NHS Medicines A to Z <https://www.nhs.uk/medicines/>
3. The electronic medicines compendium (EMC) <https://www.medicines.org.uk/emc/>

Name of class of drugs	Body system affected
Examples and other names of the drug (write in the name of the drug allocated to you from the table above)	
Administration (how is the drug given)	
Dosage for adults	
AC2.1 explain the molecular basis of the action of medicines	Mode of Action (remember specification terms!)
A.C2.2 explain how medicines affect body systems	Uses (and why it treats it)
AC2.7 explain how adverse reactions to medicines can occur	Very common/common adverse reactions/side effects (and why they occur)
AC2.5 compare the effects of the interaction of medicines	Interactions with other medicines (and how)
Contraindications (who cannot take the drug)	