Separate Biology Revision Mats

Topics 1, 6-9

Paper 2

Draw and label a plant cell, animal cell and bacterial cell.

Explain the advantages and disadvantages of using electron microscopes to view cells.

Explain the functions of these cell components.

Nucleus

Cell membrane

Cell wall

Cytoplasm

Ribosome

Mitochondria

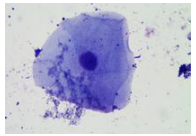
Vacuole

Plasmid DNA

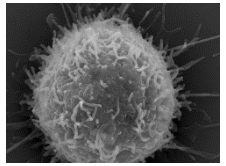
Flagellum

Draw and label the specialised features of a ciliated epithelial cell, sperm cell and egg cell.

.Calculate the actual size of the nucleus of this cell.
Magnification x 400



The diameter of an egg cell is 8 μm, calculate the magnification used in this image.



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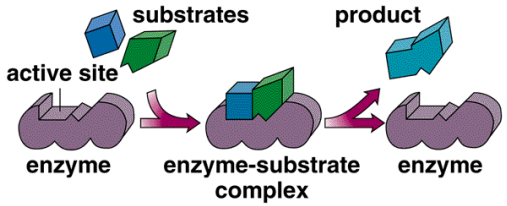
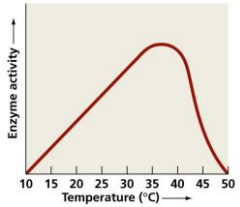
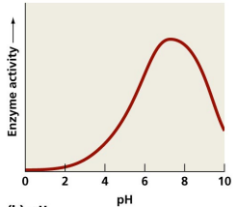


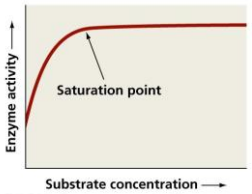
Use the diagram to explain how an enzyme works.

What happens when an enzyme gets denatured?

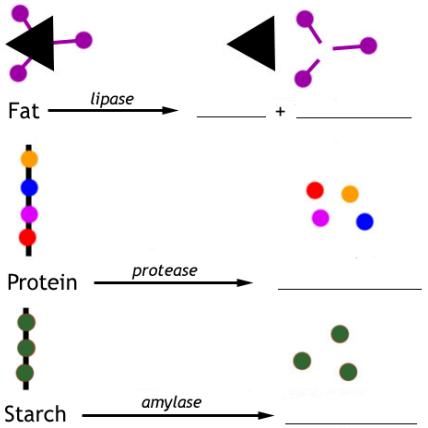
For the different graphs explain the shape. Why does it increase/decrease/level off and where is the optimum?





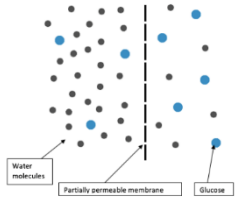


.What are the products of the following enzyme catalysed reactions?



Osmosis.

Which way will the water molecules move?



Write a definition of osmosis?

What happens to the mass of potato chip when it is placed in these solutions, can you explain why?

Pure water

Strong salt solution

How would you describe these cells?

What is diffusion?

What substances diffuse into and out of cells?

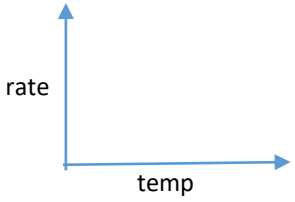
What is active transport?

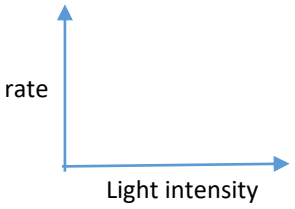
Topic key words

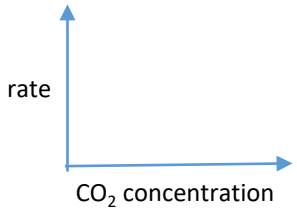
Eukaryotic	prokaryotic	organelles	nucleus	cell membrane	cytoplasm	mitochondria
ribosomes	cell wall	chloroplasts	chlorophyll	vacuole	acrosome	haploid
Ciliated	magnification	resolution	estimation	enzyme	substrate	active site
Enzyme-substrate complex		optimum	catalysts	carbohydrates	proteins	lipids
Sugar	amino acids	fatty acids	glycerol	osmosis	diffusion	active transport

Write the word equation for photosynthesis:

Draw graphs to show how the rate of photosynthesis is affected by different factors

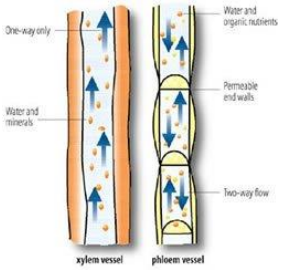






Explain how the rate of photosynthesis is directly proportional to light intensity:

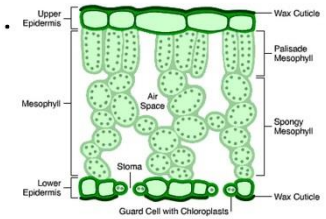
Explain how the rate of photosynthesis is inversely proportional to the distance from the light (inverse square law)



Explain the structure and function of xylem and phloem vessels

Explain how a leaf is adapted for photosynthesis

Leaf cross section



Define:
Translocation

Transpiration

Explain how each factor affects rate of water uptake
Light intensity

Air movement

Temperature

How can plants conserve water

Leaf size and shape –

Cuticle –

Stomata –

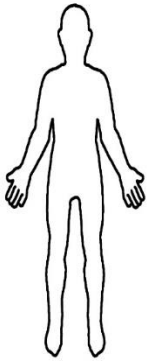
Explain what happens to cause the following trophic responses.

1. Positive phototropism

2. Positive geotropism

3. Describe the use plant hormones in rooting powder,selective weedkiller, seedless fruit and ripening fruit,

What are the main endocrine glands in the body and what hormone do they secrete?



Hormone	Endocrine Gland	Target Organ	What effects does it have on the body
Adrenalin			
Thyroxine			

Hormone	Role
Oestrogen	
Progesterone	
FSH	
LH	

Explain why the uterus lining is maintained if fertilisation occurs

What is Clomifene? How does it work to assist fertility?

What is IVF? When would it be used?

How does hormonal contraception work? What are the benefits and drawbacks?

How does barrier contraception work? What are the benefits and drawbacks?

Complete the sentences to explain what happens when someone gets too cold. Use all the key words at the bottom

1. When a person shivers their muscles

2. The blood vessels near the surface of the skin contract

3. The erector muscles contract causing

Contract air hairs less relax radiation diameter layer friction heat blood decreases stand up insulator

Define the terms:

Vasoconstriction:

Vasodilation:

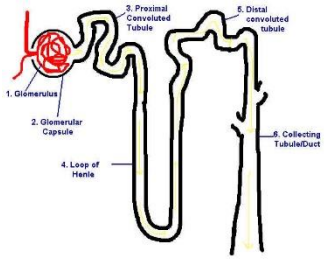
Describe the changes that occur when blood glucose increases.

Higher- Describe what happens when blood glucose levels decrease.

(Keywords – insulin, glucagon, glycogen, glucose, liver, pancreas, blood).

Describe the causes and possible treatment of type 1 and type 2 diabetes.

Explain how the kidneys produce urine and the role of ADH.



Structure	Function
Red blood cell (erythrocyte	
White blood cell – phagocyte	
White blood cell – lymphocyte	
Platelets	
Plasma	

List substances that are transported into and out of organisms

1)

2)

3)

4)

5)

Define diffusion

Why do multicellular organisms need a transport system?

Why do multicellular organisms need exchange surfaces?

Explain how the structure of blood vessels is related to their functions:

Structure	Function
Artery	
Vein	
Capillary	

Explain, how the alveoli are adapted for efficient gaseous exchange

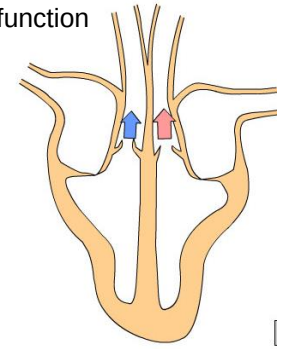
Define respiration:

Equations:

Aerobic respiration

Anaerobic Respiration

Label the heart – structure and function



What is the purpose of the valves?

Why is the left ventricle thicker than the right ventricle?

Compare and contrast aerobic and anaerobic respiration

Similarities	Differences

What is the equation for cardiac output?

Define

Population:

Community:

Ecosystem:

Abiotic:

Biotic

Interdependence:

Explain the difference between parasitism and mutualism.

Give examples of parasitism

Give examples of mutualism

A student used a 1m2 quadrat in a 20 m2 field to measure the number of dandelions.
This were there results for 5 quadrats: 2, 5, 6, 8, 4.
Estimate the number of dandelions in the field.

What are the benefits to biodiversity of:

Conservation of animal species -

Reforestation –

On the reverse of the page. Draw the water cycle, carbon cycle and the nitrogen cycle.

Draw a flow diagram to show the stages of eutrophication

Explain why only 10% of energy is transferred at each trophic level.

How does this affect the length of a food chain?

Label the food chain with as many different terms as you can:

Oak tree → caterpillar → blackbird → Hawk

Draw a pyramid of biomass for the foodchain.

Explain what these are the impact on diversity and the environment :

Fish farming –

Non-indigenous species –

Eutrophication –

Explain how do each of these effect food security

- Increasing population
- Animal farming, fish and meat consumption
- New pests and pathogens
- Environmental change
- Biofuel production

Water cycle

Eutrophication:

Carbon cycle:

Pollution	Indicator species	How it shows the effect
Polluted water		
Clean water		
Air quality		

Nitrogen cycle

How and why do each of these affect the rate of decay:

Temperature –

Water content –

Oxygen content -

Name at least six food preservation mechanisms and give a reason why each works: