Revision Guide

AQA GSCE Triple Biology Paper 1 Higher

Name: Class:

10 Minutes on....

Animal Cells

Draw a labelled diagram of an animal cell.

Cell Part	Function
Nucleus	
Cytoplasm	
Cell Membrane	
Mitochondria	
Ribosome	

10 Minutes on....

Plant Cells

Draw a labelled diagram of a plant cell.

Cell Part	Function
Nucleus	
Cytoplasm	
Cell Membrane	
Mitochondria	
Ribosome	
Vacuole	
Cell Wall	
Chloroplast	

10 Minutes on....

Bacterial Cells

Draw a labelled diagram of a bacterial cell.

Cell Part	Function
Cytoplasm	
Slime Capsule	
Ribosome	
Cell Wall	
Flagella	
Plasmid	
Genetic Material	
Cell Membrane	

10 Minutes on....

Specialised Animal Cells

Sperm Cell

Diagram	Function
	Adaptations

Muscle Cell

Diagram	Function
	Adaptations

Nerve Cell

Diagram	Function
	Adaptations

10 Minutes on....

Specialised Plant Cells

Root Hair Cell

Diagram

Function

Adaptations

Xylem

Diagram

Function

Adaptations

Phloem

Diagram

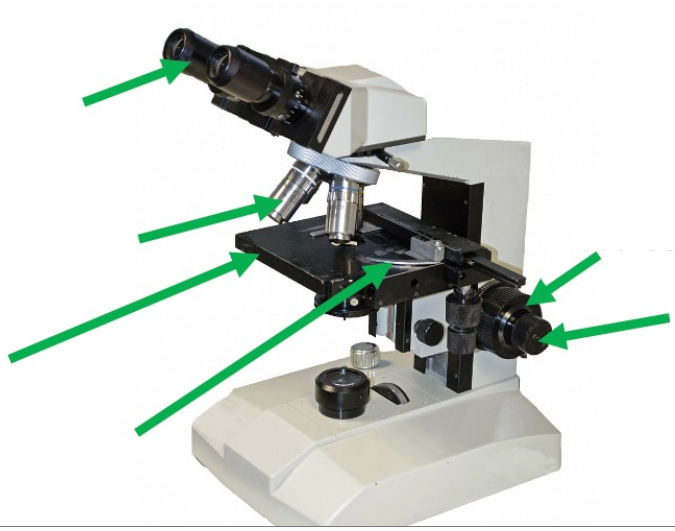
Function

Adaptations

10 Minutes on....

Microscope RP

Label the image of the microscope



Describe how to set up a microscope to observe a sample on a slide

Hazard	Risk	Plan to Minimise Risk
Iodine Solution is an Irritant		
Sharp Knife		

10 Minutes on....

Microscopy

Type of Microscope	Advantages	Disadvantages
Light Microscope		
Electron Microscope		

Key Term	Definition
Magnification	
Resolution	

10 Minutes on....

Magnification

Equation for Magnification

Converting Units

1km = _____m
1m = _____cm
1cm = _____mm
1mm = _____µm
1µm = _____nm
1nm = _____ m

Calculations

1. A microscope has a magnification of x1000 and the image of a cell that is observed has a width of 2.5mm. What is the actual size of the cell? Give your answer in micrometres.

2. A microscope has a magnification of x400 and the image of a cell that is observed has a width of 5mm. What is the actual size of the cell? Give your answer in micrometres.

3. A microscope has a magnification of x400 and the image of a cell that and the cell that is being observed has an actual size of 25 micrometres. How large will the size of the image appear? Give your answer in millimetres.

10 Minutes on....

Magnification

Equation for Magnification

	The average diameter of a red blood cell is 0.008mm. On a photograph, the diameter of the red blood cell is 10cm. Calculate the magnification.	A drawn cell is 125mm. The real length of the cell was 0.015625mm. Calculate the magnification of the drawing.	A drawn cell is 3.5cm. The real length of the cell was 0.02916mm. Calculate the magnification of the drawing t0 2s.f.	A drawn cell is 112mm. The real length of the cell was 280 micrometres (µm). Calculate the magnification of the drawing.
Write the equation for Magnification				
Identify the size of image Identify the real size of Object				
Ensure that the values for size and real size of are the same units				
Substitute values into equation				
Complete equation				
State the final answer				

10 Minutes on....

Culturing Microorganisms

Step	Justification
Heat the inoculating loop using a Bunsen Burner	
Dip the sterilised loop in a suspension of the bacteria you want to grow and make zigzag streaks across the agar surface	
Relace the lid quickly	
Fix the lid with adhesive tape. Do not seal all the way around.	
Store and incubate upside down.	

Describe how you could change the method to investigate the effect of antibiotics and disinfectants on bacterial growth.

10 Minutes on....

Mitosis

Key Term	Definition
Chromosome	
Mitosis	

Describe the different stages during the cell cycle.

Describe what needs to happen before a cell divides.

10 Minutes on....

Stem Cells

Key Term	Definition
Stem Cell	
Undifferentiated Cell	

Type of Stem Cell	Description
Meristem	
Embryonic Stem Cell	
Adult Stem Cell	

Compare adult and embryonic stem cells.

10 Minutes on....

Diffusion

Key Term	Definition
Diffusion	

Construct a Model of Diffusion

Examples of Diffusion

Factors That Affect Diffusion	Description
Temperature	
Concentration	
Surface Area (Within an Organism)	

10 Minutes on....

Osmosis

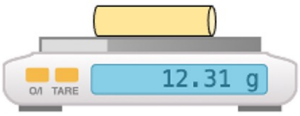
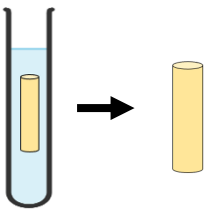
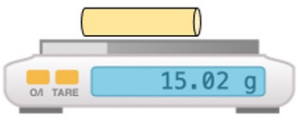
Key Term	Definition
Diffusion	
Osmosis	
Dilute Solution	
Concentrated Solution	
Isotonic Solution	
Hypertonic Solution	
Hypotonic Solution	

Explain what will happen to a cell if it is placed in a <u>hypertonic</u> solution.

Explain what will happen to a cell if it is placed in a <u>hypertonic</u> solution.

10 Minutes on....

Osmosis RP

Step	Image
	
	
	
	
	
	
	
Repeat for 0.2, 0.4, 0.6, 0.8 and 1M solutions	
Plot a graph to show the percentage change in mass for each concentration and draw a line of best fit.	
To determine the concentration, find the point that the line crosses the x axis and there is no change in mass	

10 Minutes on....

Active Transport

Key Term	Definition
Active Transport	

Construct a Model of Active Transport

Examples of Active Transport Taking Place

Compare active transport to diffusion.

10 Minutes on....

Organisation

Key Term	Definition	Example
Cell		
Tissue		
Organ		
Organ System		
Organisms		

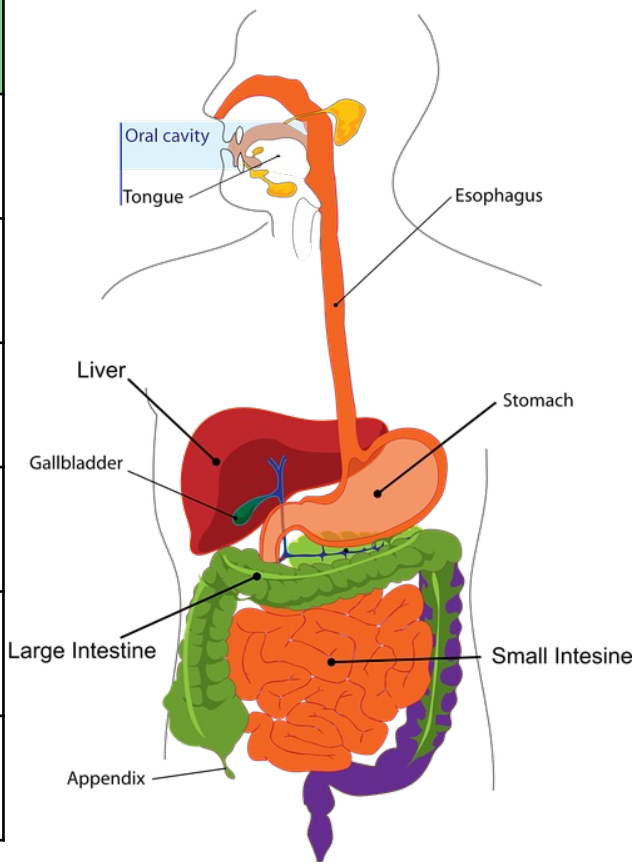
Construct a diagram to model the levels of organisation in an organism.

10 Minutes on....

Digestive System

Key Term	Definition
Digestive System	
Enzyme	

Part	Function
Teeth	
Stomach	
Pancreas	
Small Intestine	
Liver	
Gall Bladder	



Explain how organs in the digestive system work together for digestion.

10 Minutes on....

Enzymes

Describe the lock and key model

Construct a diagram to model how enzymes work.

Sketch and label a graph to model the effect of temperature on enzyme activity.

Sketch and label a graph to model the effect of pH on enzyme activity.

10 Minutes on....

Digestive Enzymes

Enzyme	Site of Production	What it Does
Carbohydrase		
Protease		
Lipase		

Explain why carbohydrase does not work in the stomach.

Describe how bile aids digestion

10 Minutes on....

Food Tests RP

Sugar

Description of Test For Nutrient	Positive Result

Starch

Description of Test For Nutrient	Positive Result

Protein

Description of Test For Nutrient	Positive Result

10 Minutes on....

Enzymes RP

Construct a method to investigate the effect that pH has on enzyme activity. Use the space below to draw a diagram of how equipment would be set up.

Why Use a Water Bath?

Problems of the Method

Finding Exact pH/ Temperature

10 Minutes on....

Heart and Blood Vessels

Key Term	Definition
Heart	
Aorta	
Vena Cava	
Pulmonary Artery	
Pulmonary Vein	
Coronary Artery	
Trachea	
Bronchi	
Alveoli	
Pacemaker	

Explain what artificial pacemakers are used for.

10 Minutes on....

Blood and Blood Vessels

Blood Vessel	Function	Adaptations
Arteries		
Veins		
Capillaries		

Key Term	Definition
Blood	

Blood Component	Function
Red Blood Cells	
White Blood Cells	
Platelets	
Plasma	

10 Minutes on....

Coronary Heart Disease

Treatment	Description	Advantages	Disadvantages
Statins			
Artificial Hearts			
Heart Transplant			
Mechanical Valve			

Describe what coronary heart disease is.

10 Minutes on....

Health Issues

Key Term	Definition
Health	
Pathogen	
Cancer	
Non-Communicable Disease	
Communicable Disease	

Identify factors which are major causes of ill health.

Identify examples of diseases which may interact.

10 Minutes on....

Lifestyle and Disease

Lifestyle Factor	The Effect It Has on Health
Diet	
Alcohol	
Smoking	

Non-Communicable Disease	Risk Factors
Cardiovascular System	
Type 2 Diabetes	
Cancer	

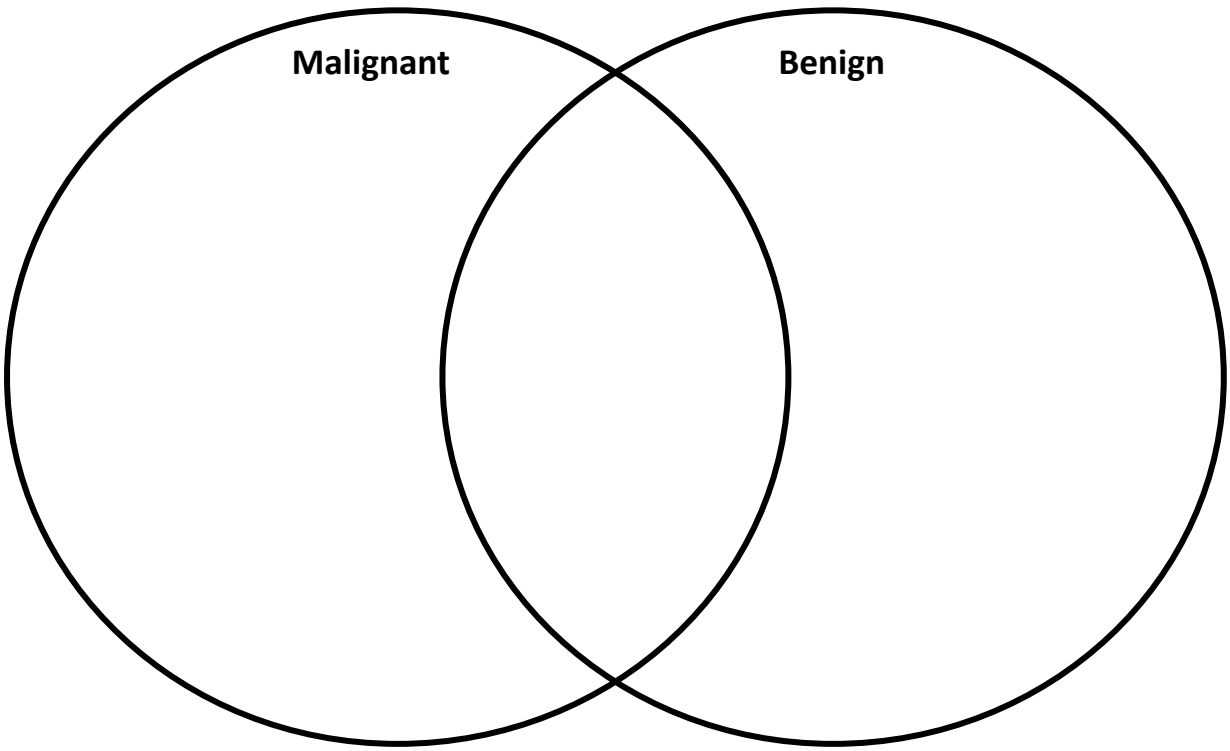
Explain why it is advised pregnant woman do not drink alcohol or smoke.

10 Minutes on....

Cancer

Key Term	Definition
Cancer	
Benign Tumour	
Malignant Tumour	

Compare malignant and benign tumours.



10 Minutes on....

Plant Tissues

Plant Tissue	Function
Epidermal	
Palisade Mesophyll	
Spongy Mesophyll	
Xylem	
Phloem	
Meristem Tissue	

Construct a labelled diagram of the leaf in which you show the different tissues.

10 Minutes on....

Plant Organ Systems

Root Hair Cell

Diagram	Function
	Adaptations

Xylem

Diagram	Function
	Adaptations

Phloem

Diagram	Function
	Adaptations

10 Minutes on....

Plant Organ Tissues

Process	Function
Transpiration	
Translocation	

Factor	Effect on Rate of Transpiration
Changing Temperature	
Humidity	
Air Movement	
Light Intensity	

Construct a summary to explain how substances are transported around a plant.

10 Minutes on....

Communicable Diseases

Key Term	Definition
Communicable Disease	
Virus	
Bacteria	
Protists	
Fungi	
Pathogen	

Explain how bacteria make us feel ill.

Explain how viruses make us feel ill.

10 Minutes on....

Viral Diseases

Disease	How It is Spread	Symptoms	Treatment	Prevention of Spread
Measles				
HIV				
Tobacco Mosaic Virus				

Explain why children are vaccinated for measles.

10 Minutes on....

Bacterial Diseases

Disease	How It is Spread	Symptoms	Treatment	Prevention of Spread
Salmonella				
Gonorrhoea				

Explain how food should be prepared to avoid food poisoning

10 Minutes on....

Fungal Diseases

Disease	How It is Spread	Symptoms	Treatment	Prevention of Spread
Rose Black Spot				

Explain why roses with rose black spot will have stunted growth.

10 Minutes on....

Protist Diseases

Disease	How It is Spread	Symptoms	Treatment	Prevention of Spread
Malaria				

Explain how we can prevent people from being bitten by mosquitos.

10 Minutes on....

Human Defence Systems

Non-Specific Defence System	How It Defends the Body
Skin	
Nose	
Trachea and Bronchi	
Stomach	

White Blood Cell Defence	How It Defends the Body
Phagocytosis	
Antibody Production	
Antitoxin Production	

10 Minutes on....

Vaccination

Describe the process of vaccination and explain how a vaccination provides immunity to an individual.

Explain why a large proportion of a population needs to be vaccinated for it to be effective.

Advantages of Vaccination	Disadvantages of Vaccination

10 Minutes on....

Antibiotics and Painkillers

Key Term	Definition
Antibiotic	
Painkiller	

Identify when antibiotics would be prescribed.

Describe why painkillers are used and what they do.

Explain why the overuse of antibiotics is a concern.

Explain why antibiotics should not be prescribed for viral infections.

10 Minutes on....

Development of Drugs

Key Term	Definition
Digitalis	
Aspirin	
Penicillin	
Placebo	

Identify what new drugs are tested for.

Stage	Description	Purpose
Pre-Clinical		
Clinical Trials Phase 1		
Clinical Trial Phase 2		
Clinical Trial Phase 3		
Peer Review		

10 Minutes on....

Monoclonal Antibodies

Key Term	Definition
Monoclonal Antibodies	
Hybridoma Cell	

Describe how monoclonal antibodies are made.

10 Minutes on....

Uses of Monoclonal Antibodies

Identify uses for monoclonal antibodies.

Explain why monoclonal antibodies are not used as widely as first hoped.

Advantages of Using Monoclonal Antibodies	Disadvantages of Using Monoclonal Antibodies

10 Minutes on....

Detecting Plant Diseases

How Plant Diseases Can be Detected	How Plant Diseases Can be Identified

Condition	Description	How It Affects Plant Growth
Tobacco Mosaic Virus		
Black Spot		
Aphids		
Nitrate Deficiency		
Magnesium Deficiency		

10 Minutes on....

Plant Defence Responses

Physical Defences	How It Protects The Plant
Cellulose Cell Walls	
Tough Waxy Cuticle	
Layers of Dead Cells Around Stem	

Chemical Defences	How It Protects The Plant
Antibacterial Chemicals	
Poisons	

Mechanical Defences	How It Protects The Plant
Thorns and Hairs	
Leaves Which Drop Or Curl When Touched	
Mimicry	

10 Minutes on....

Photosynthesis

Construct a word equation for photosynthesis.

Construct a balanced symbol equation for photosynthesis.

Describe how plants are adapted for photosynthesis,

Describe the process of photosynthesis.

10 Minutes on....

Rate of Photosynthesis

Temperature

Sketch of Graph	Describe how it effects the rate of photosynthesis.

Light Intensity

Sketch of Graph	Describe how it effects the rate of photosynthesis.

Carbon Dioxide Concentration

Sketch of Graph	Describe how it effects the rate of photosynthesis.

10 Minutes on....

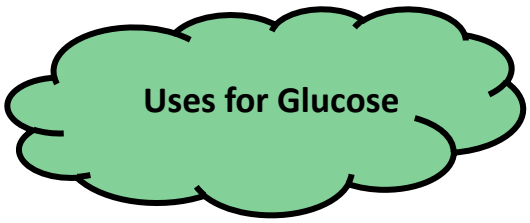
Light Intensity RP

Construct a method to investigate the effect that light intensity has on the rate of photosynthesis. Use the space below to draw a diagram of how equipment would be set up.

Control Variable	How it will be controlled	How to Test as the Independent Variable
Size of pondweed		
Type of pondweed		
Colour of light		
Temperature of water		
Time for plant to equilibrate		
Carbon dioxide concentration		
Volume of water in beaker		

10 Minutes on....

Uses of Glucose



Substance Being Tested for	Reagent Used	Description of Test	Positive Result
Starch			
Glucose			
Protein			

10 Minutes on....

Respiration

Construct a word equation for aerobic respiration.

Construct a balanced symbol equation for aerobic respiration.

Construct a word equation for anaerobic respiration in animals and plants.

Compare anaerobic respiration and aerobic respiration in animals.

Key Term	Definition
Fermentation	

10 Minutes on....

Response To Exercise

Change That Occurs During Exercise	Why The Change Occurs
Increased Heart Rate	
Increased Breathing Rate	
Increased Breath Volume	

Explain when anaerobic respiration occurs during exercise.

Explain what happens when anaerobic respiration occurs during exercise.

Key Term	Definition
Oxygen Debt	

10 Minutes on....

Metabolism

Key Term	Definition
Metabolism	

Identify examples of metabolic reactions.

Substance	Why It Is Important In The Body
Sugars	
Amino Acids	
Fatty Acids and Glycerol	