

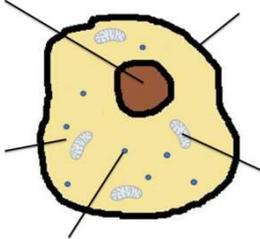
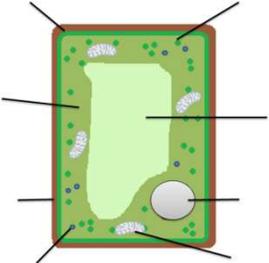
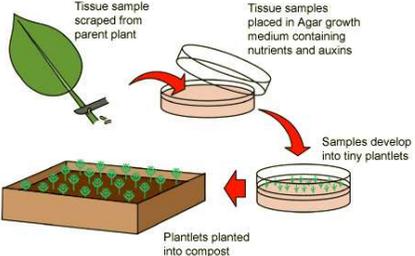
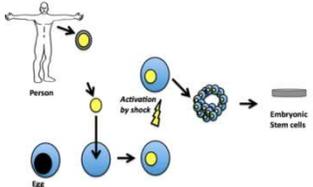


Biology Revision

AQA Trilogy

Use your PLC to choose a topic to revise and complete the tasks

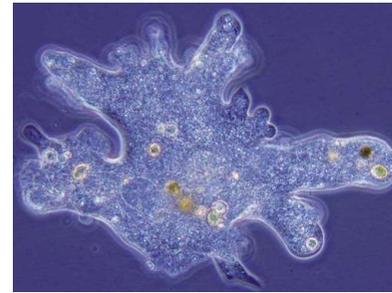
- B1 Cell Biology
- B2 Organisation
- B3 Infection and Response
- B4 Bioenergetics

<h2 style="text-align: center;">B1 Cell Biology AQA Trilogy</h2>	<p>Give three differences between prokaryotes and eukaryotes:</p> <ul style="list-style-type: none"> • • • 	<p>Write the equation used to work out magnification</p>	<p>Calculate the <u>magnification</u> if you have a magnified image that's 5mm wide and an object that is 0.05mm wide.</p> <p>Calculate the <u>image size</u> if your specimen is 0.1mm wide and the magnification is x20.</p> 
<p>Label the animal cell below</p> 	<p>In animals, how are the following cells specialised:</p> <ul style="list-style-type: none"> • Sperm cell • Nerve cell • Muscle cell 	<p>Describe the following stages of the cell cycle</p> <ul style="list-style-type: none"> • Interphase • Mitosis • Cytoplasmic division <p>Why is mitosis important?</p>	<p>RPA 1 – Using a light microscope </p> <p>Give 3 features of a good scientific drawing:</p> <ul style="list-style-type: none"> • • • <p>Name a piece of apparatus that you can use to help measure a specimen</p>
<p>Label the plant cell below</p> 	<p>In plants, how are the following cells specialised:</p> <ul style="list-style-type: none"> • Root hair cell • Xylem cell • Phloem cell 	<p>What is a stem cell?</p> <p>Give a difference between adult human stem cells and plant stem cells (meristem)</p> <p>Name 2 medical conditions that stem cells could help to treat</p>	
<p>What is the function of:</p> <ol style="list-style-type: none"> a) Mitochondria b) Ribosome c) Nucleus d) Permanent vacuole <p>What is a plant cell wall made of?</p>	<p>Define the following terms:</p> <p>Resolution</p> <p>Magnification</p> <p>How has electron microscopy increased our understanding of cells?</p>	<p>What is therapeutic cloning?</p> 	<p>Advantages of producing clones using plant stem cells:</p> <p>Disadvantages of producing clones using plant stem cells:</p>

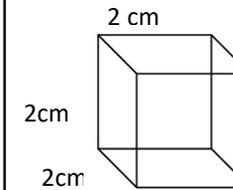
B1 Cell Biology AQA Trilogy

Give a feature of single-celled organisms like amoeba that mean they have sufficient diffusion across the cell membrane to meet the needs of the organism

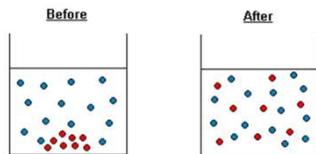
Amoeba (single-celled organism)



Calculate the surface area: volume ratio of the cube



Define the term diffusion

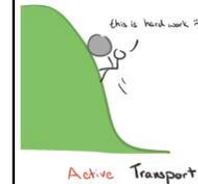


Explain why the following features are useful for an exchange surface:

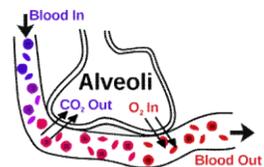
- Thin
- Large surface area
- Good blood supply

Define the term osmosis

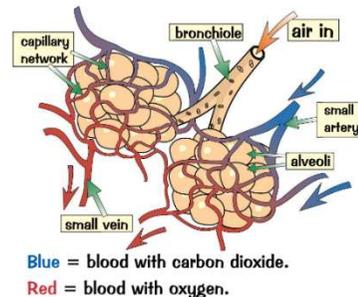
Define the term active transport



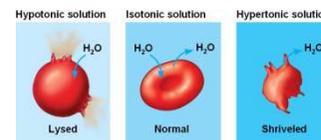
Give examples of diffusion



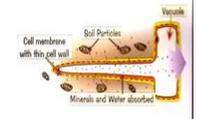
Alveoli in the lungs



Give examples of osmosis



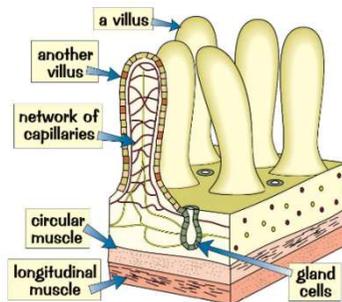
Give examples of active transport



Name 3 factors that affect the rate of diffusion:

-
-
-

Villi in the small intestine



Write the formula for calculating percentage change



RPA 2 – Osmosis potatoes

Potato chips were put into different concentrations of salt solution and their change in mass measured

The start mass of a potato chip was 53.2g and its finish mass was 55.6g. Calculate the percentage change



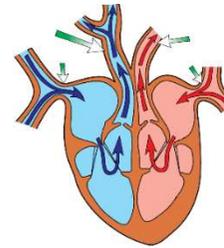
B2 Organisation AQA Trilogy

How do you calculate rate for an enzyme reaction?

At pH6, the time taken for amylase to break down starch was 90s.
Calculate the rate of reaction



Label the heart diagram



RPA 3: Test for carbohydrates, lipids and proteins

Describe the test for starch

Describe the test for reducing sugars



Define the following terms:
Tissue

Organ

Organ system

Use the 'Lock and key' mechanism to explain enzyme action



Where does the right ventricle pump blood to?

Where does the left ventricle pump blood to?

Why does the left side have thicker muscle than the right side?

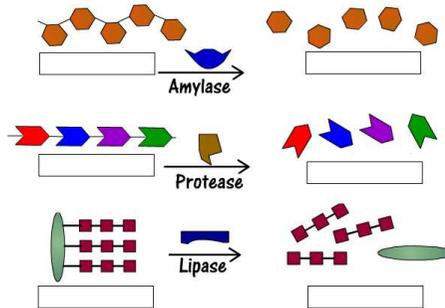
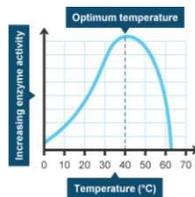
RPA 3: Test for carbohydrates, lipids and proteins

Describe the test for protein

Describe the test for lipids



Describe how temperature affects enzyme activity



How is heart rate controlled?

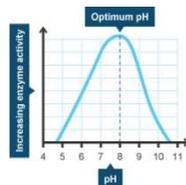
RPA 4: Investigate the effect of pH on the rate of reaction for amylase enzyme

Give a brief account of this investigation

How could you control the temperature during this investigation?



Describe how pH affects enzyme activity



Describe the role of bile in the digestive system

Describe the structure and function of:
Arteries Veins Capillaries

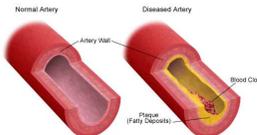
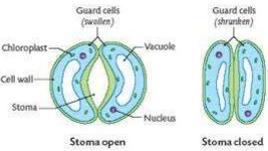
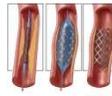
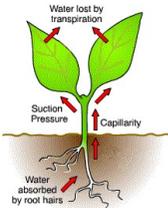
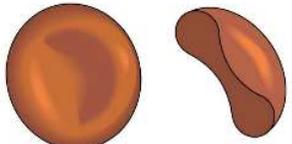
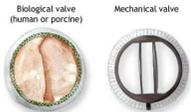
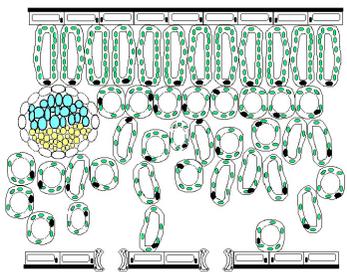


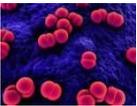
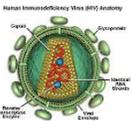
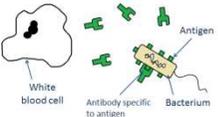
Write the equation for calculating rate of blood flow

1464ml of blood passed through an artery in 4.5 minutes. Calculate the rate of blood flow through the artery in ml/min



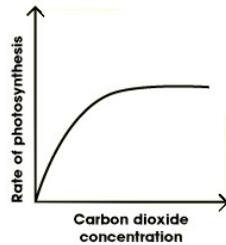
B2 Organisation AQA Trilogy

	<p>What is Coronary heart disease?</p> 	<p>State risk factors that can increase the incidence of non-communicable disease</p>	<p>Describe the role of stomata and guard cells</p> 
<p>Describe the functions of the 4 main components in blood:</p> <p>Red blood cells</p> <p>White blood cells</p> <p>Platelets</p> <p>Plasma</p>	<p>For each treatment method of CHD give an advantage and a disadvantage</p> <p>Using a drug (Statins)</p> <p>Using a stent</p> 	<p>Give a risk factor for the following:</p> <p>Coronary heart disease</p> <p>Type 2 diabetes</p> <p>Lung cancer</p> <p>Liver cirrhosis</p> <p>Low birthweight in babies</p> <p>Mental health issues in babies</p> <p>Cancer</p>	<p>Describe the process of transpiration</p> 
<p>How are red blood cells adapted to their function?</p> 	<p>What is the importance of valves in the heart and give two ways in which these can be repaired.</p> 	<p>What is cancer?</p> <p>Explain the difference between a benign and malignant tumour</p>	<p>How do the following affect the rate of transpiration?</p> <p>Temperature</p> <p>Humidity</p> <p>Light intensity</p> <p>Air movement</p>
<p>Define the following terms:</p> <p>Health</p> <p>Disease</p> <p>Communicable</p> <p>Non-communicable</p>	<p>Label the leaf below</p> 	<p>Adaptations of plant tissues:</p> <p>Epidermal tissue</p> <p>Palisade mesophyll</p> <p>Spongy mesophyll</p> <p>Xylem and phloem</p> <p>Meristem</p>	<p>In plants, how are the following cells specialised:</p> <ul style="list-style-type: none"> • Root hair cell • Xylem cell • Phloem cell

<p style="text-align: center;">B3 Infection and response AQA Trilogy</p>	<p>TMV (tobacco mosaic virus) Which plant does it affect?</p> <p>Symptoms</p> <p>Problem it causes to the plant</p>	<p>Malaria Pathogen caused by </p> <p>Symptoms</p> <p>Spread by</p> <p>How can the spread be controlled?</p>	<p>Describe what is in a vaccination and how it works</p> 
<p>How can the spread of disease be reduced or prevented?</p>	<p>Salmonella Pathogen caused by</p> <p>Symptoms</p> <p>Spread by</p> 	<p>Describe how the following non-specific defences help to prevent the entry of pathogens:</p> <p>Skin</p> <p>Nose</p> <p>Trachea and bronchi</p> <p>Stomach</p>	<p>What is an antibiotic used for and give an example</p> <p>What can antibiotics not kill?</p> <p>What is the role of a painkiller?</p>
<p>Measles Pathogen caused by</p> <p>Symptoms</p> <p>Spread by</p> 	<p>Gonorrhoea Pathogen caused by</p> <p>Symptoms</p> <p>Spread by</p> <p>How can the spread be controlled?</p> 	<p>Describe the process of phagocytosis</p> 	<p>Where did the following drugs originate from?</p> <p>Heart drug digitalis</p> <p>Painkiller aspirin</p> <p>Penicillin antibiotic</p>
<p>HIV Pathogen caused by</p> <p>Symptoms</p> <p>Spread by</p> <p>What is AIDs?</p> 	<p>Rose black spot Pathogen caused by</p> <p>Symptoms</p> <p>Spread by</p> <p>How can it be treated?</p>	<p>Describe the role of:</p> <p>Antibodies</p>  <p>Antitoxins</p> 	<p>Define the following terms:</p> <p>Toxicity</p> <p>Efficacy</p> <p>Dose</p>

B4 Bioenergetics AQA Trilogy

How does carbon dioxide concentration affect the rate of photosynthesis?



Write the word and symbol equations for aerobic respiration

Is this exothermic or endothermic?

RPA 5: Investigate the effect of light intensity on the rate of photosynthesis



State the gas given off by plants during photosynthesis

Which piece of apparatus would you use to find the volume of gas given off?

Describe how you could control the effect of heat from the lamp on the rate of photosynthesis

Write the word AND symbol equation for photosynthesis

Is it exothermic or endothermic?

What is meant by the term limiting factor?

Give three reasons that living organisms need energy

-
-
-

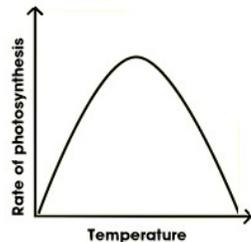


Why do heart rate and breathing rate increase during exercise?

What is meant by the term oxygen debt?



How does temperature affect the rate of photosynthesis?



Inverse square law

This is the 'proportional to' symbol. Putting one over the distance shows the inverse. The distance is squared.

$\text{light intensity} \propto \frac{1}{\text{distance (d)}^2}$

Calculate the light intensity when the lamp is 10cm from the pondweed in a.u

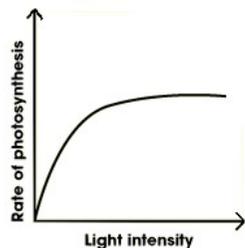


Write the word equation for anaerobic respiration in muscles

How does the energy given out compare to aerobic respiration?

Define the term metabolism

How does light intensity affect the rate of photosynthesis?



List 5 uses of the glucose produced during photosynthesis:

-
-
-
-

Write the word equation for anaerobic respiration in plant and yeast cells



In yeast, this is also known as fermentation. Give 2 uses of this.

What does metabolism include?

-
-
-
-

Required Practical Activities (B1-4) AQA Trilogy



RPA 2 – Osmosis potatoes

Potato chips were put into different concentrations of salt solution and their change in mass measured.

The start mass of a potato chip was 53.2g and its finish mass was 55.6g. Calculate the percentage change

RPA 3: Food tests

Describe the test for starch

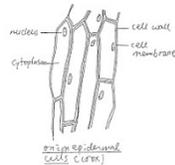


RPA 4: Investigate the effect of pH on the rate of reaction for amylase enzyme
Give a brief account of this investigation

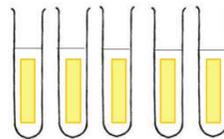
RPA 1 – Using a light microscope

Give 3 features of a good scientific drawing

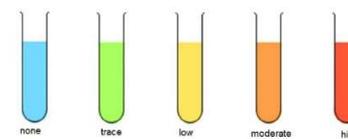
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Explain why we use percentage change rather than change in mass

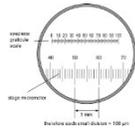


Describe the test for reducing sugars



How could you control the temperature during this investigation?

Name a piece of apparatus that you can use to help measure a specimen



Describe how to focus a microscope

How did the mass of the potato change in the most concentrated solution and why

How did the mass of the potato change in the most dilute solution and why?

Describe the test for proteins



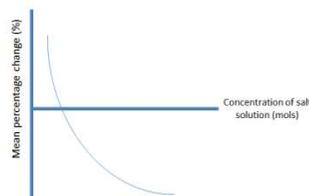
RPA 5: Investigate the effect of light intensity on the rate of photosynthesis
State the gas given off by plants during photosynthesis

Which piece of apparatus would you use to find the volume of gas given off?

Write the equation used to calculate the magnification of a specimen



Describe how you could use a graph to find the concentration of the solutes inside the cell



Describe the test for lipids



Describe how you could control the effect of heat from the lamp on the rate of photosynthesis

