

AS Biology Pre-Course Revision Materials

The following four revision pages are designed to provide you with a set of outline notes on the topics covered in B3 of AQA GCSE Biology and serve as the minimum you should understand prior to starting the AS Biology course.

The course also requires that you also have a working knowledge of Word and Balanced Symbol Equations, Particle Theory, Photosynthesis, Aerobic and Anaerobic Respiration, Enzyme structure and function and the processes of Diffusion and Osmosis. You should ensure that you revise these topics adequately in advance of commencing the course.

The following books are also useful pre-course reading and revision guides, and will support your continued understanding of Biology:

- Williams, Gareth (2003). *Advanced Biology for You*. Nelson Thornes. ISBN 978-0-7487-5298-0
- CGP (2015) *New Head Start to A-level Biology*. ISBN: 978-1-78294-279-5
- Bryson, Bill (2003). *A Short History of Nearly Everything*. USA: Broadway Books. ISBN 0-7679-0817-1.

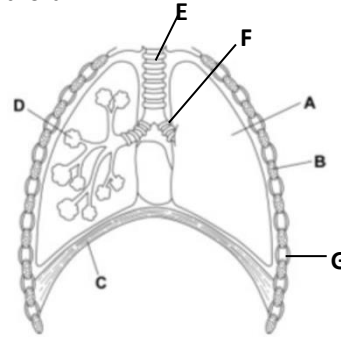
B3 REVISION – CHAPTER 1 – EXCHANGE OF MATERIALS

Describe active transport:

How is it different to diffusion:

Label the structures of the thorax

- A:
- B:
- C:
- D:
- E:
- F:
- G:

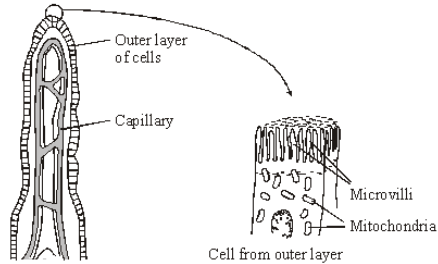


Draw a picture to explain how osmosis works:

Describe the effects of osmosis in animal cells:

Describe the effects of osmosis in plant cells:

Describe the how nutrients are absorbed in the gut



Describe gas exchange in the lungs during inspiration:

Describe gas exchange in the lungs during exhalation:

Explain how gaseous exchange takes place in plants:

Describe transpiration:

KEY WORDS:

Partially permeable
Osmosis
Active transport
Solute
Exchange surface
Ventilated
Gaseous exchange
Alveoli

Capillaries
Breathing
Breathing systems
Thorax
Abdomen
Diaphragm
Intercostal muscle
Negative pressure
Positive pressure

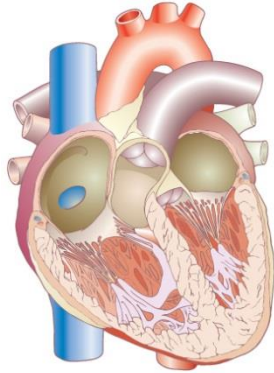
Vacuum
Trachea
Villi
Evaporation
Cuticle
Guard cells
Root hair cells
Transpiration
Whitling

ASSESSMENT:



B3 REVISION – CHAPTER 2 – TRANSPORTING MATERIALS

Label the structures of the heart



State the parts that make up blood:

What substances are transported by the blood:

Explain the function of:
Red blood cells:

White blood cells:

Describe what artificial blood is and why it is used instead of real blood:

Describe what an artificial heart is and why it is used instead of a real heart:

Transport in plants

Describe how the structure of each blood vessel helps it carry out its function:

Artery:

Vein:

Capillary

KEY WORDS:

| | | | |
|--------------------------|-------------------|-------------------|-----------------|
| Transport system | Oxygenated | Pulmonary artery | Urine |
| Blood circulation system | Arteries | Aorta | Biconcave discs |
| Blood vessels | Veins | Valves | Pigment |
| Heart | Coronary arteries | Stents | Haemoglobin |
| Blood | Atria | Plasma | Oxyhaemoglobin |
| Double circulation | Vena cava | Red blood cells | Transfusion |
| | Deoxygenated | White blood cells | Donors |
| | Pulmonary vein | Plasma | Phloem |
| | Ventricles | Urea | Xylem |

ASSESSMENT:



B3 REVISION – CHAPTER 3 – KEEPING INTERNAL CONDITIONS CONSTANT

Ions and water loss:

Explain the function of the kidneys:

Explain how the kidneys work:

Explain what dialysis is and why it is needed:

Explain kidney transplants and the risk of rejection:

Thermoregulation:

Describe how the body reacts when it is cold:

Describe how the body reacts when it is hot:

Draw the thermoregulation feedback loop:

Blood glucose:

Describe how insulin controls blood sugar levels in the body:

Draw the feedback loop of blood glucose control:

Explain what diabetes is and the different types people can have:

State the internal conditions that the body needs to maintain:

KEY WORDS:

Liver
Bladder
Selective reabsorption
Urobilins
Dialysis
Kidney transplant

Dialysis machine
Recipient
Immune response
Immunosuppressant
drugs
Xenotransplantation
Core body

temperature
Thermoregulatory
centre
Hypothermia
Insulin
Type 1 diabetes
Glucagon

ASSESSMENT:



B3 REVISION – CHAPTER 4 – HOW HUMANS CAN AFFECT THE ENVIRONMENT

Describe human population growth:

Describe how acid rain is formed and the effects it has:

Explain what deforestation is and the effects it has on biodiversity:

Describe some of the ways humans pollute the land:

Describe how increasing agricultural production affects the carbon dioxide levels in the atmosphere:

Explain what causes global warming and its effect:

Describe some of the ways humans pollute the water:

Describe how food production can be made sustainable:

What are biofuels:

What are the advantages and disadvantages of using them:

KEY WORDS:

| | | |
|------------------|-------------------|-----------------------------|
| Non-renewable | Biodiversity | Exothermic |
| Industrial waste | Global warming | Sustainable food production |
| Sewage | Greenhouse gases | Mycoprotein |
| Ecology | Greenhouse effect | Fermenters |
| Eutrophication | Biofuels | |
| Acid Rain | Biogas | |
| Deforestation | Distillation | |
| | Carbon neutral | |

ASSESSMENT:

