

Edexcel Biology IGCSE

2.h - Transport

Flashcards

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Give 2 reasons why unicellular organisms can rely on diffusion alone



Give 2 reasons why unicellular organisms can rely on diffusion alone

- They have a large surface area to volume ratio due to their size
- They have low metabolic demands



What does the phloem transport?



What does the phloem transport?

Sugars like sucrose



What direction does the phloem transport sugars?



What direction does the phloem transport sugars?

The phloem transports sugars up and down the plant from **source to sink**.



What does the xylem transport?



What does the xylem transport?

The xylem transports water and minerals.



What direction does the xylem transport water and minerals?



What direction does the xylem transport water and minerals?

Up the plant (from the roots to the leaves).



How are root hair cells adapted to their function?



How are root hair cells adapted to their function?

- Long root hair extension to increase surface area for uptake
- Thin membranes to decrease the diffusion distance



State 3 benefits of transpiration



State 3 benefits of transpiration

- The stream of water cools the plant
- The water helps to support the plant by creating turgor pressure
- The plant has a constant water supply for photosynthesis



How is the xylem adapted to transport water?



How is the xylem adapted to transport water?

- It is waterproofed using a substance called lignin
- The xylem cells are dead and have no organelles so there is more space for water



Describe the process of transpiration (Higher)



Describe the process of transpiration (Higher)

- Water is lost through the stomata
- More water is drawn up to replace the lost water



What is the transpiration stream? (Higher)



What is the transpiration stream? (Higher)

The transpiration stream is the flow of water through a plant.



How does temperature affect the rate of transpiration? (Higher)



How does temperature affect the rate of transpiration? (**Higher**)

- As the temperature increases, so does the transpiration rate
- The molecules have more KE and evaporation happens faster



How does light intensity affect the rate of transpiration? **(Higher)**



How does light intensity affect the rate of transpiration? (**Higher**)

- The brighter the light, the more stomata are open and the rate of photosynthesis increases which both decrease the amount of water in the plant
- The rate of transpiration increases



How does the wind speed affect the rate of transpiration? **(Higher)**



How does the wind speed affect the rate of transpiration? (**Higher**)

- The faster the wind speed, the faster the water is moved away from the plant, creating a steeper gradient and increasing the transpiration rate



Describe translocation



Describe translocation

- Translocation is the movement of sugars up or down the phloem from source to sink (with the use of energy)



Name 4 components of the blood



Name 4 components of the blood

- Red blood cells
- White blood cells
- Platelets
- Plasma



What is the function of platelets?



What is the function of platelets?

Platelets are small fragments of cells that are involved in blood clotting.



State 2 benefits of blood clotting (Higher)



State 2 benefits of blood clotting (Higher)

- It prevents the entry of microorganisms
- It prevents blood loss

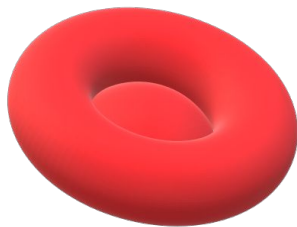


How are red blood cells adapted to their function?



How are red blood cells adapted to their function?

- Contain haemoglobin to carry oxygen
- Biconcave shape to maximise surface area and allow them to squeeze through capillaries
- No nucleus to maximise space for haemoglobin



What is the purpose of plasma?



What is the purpose of plasma?

Plasma is the liquid part of the blood and its purpose is to act as a transport medium to transport CO_2 , hormones, nutrients and waste products.



What is the function of white blood cells?



What is the function of white blood cells?

White blood cells are involved in phagocytosis and some white blood cells produce antibodies.



What is a pathogen?



What is a pathogen?

A disease-causing microorganism



Give 2 ways that the body can respond to detecting a pathogen



Give 2 ways that the body can respond to detecting a pathogen

- Lymphocytes can produce antibodies that are specific to the antigens on the pathogen
- Phagocytes can engulf the pathogen



How do vaccines work? (Higher)



How do vaccines work? (Higher)

- Dead or inactive pathogens are injected into the body
- The body produces antibodies against the pathogen
- Memory cells are also created to provide long term immunity



Describe the double circulatory system in mammals



Describe the double circulatory system in mammals

The heart pumps blood to the lungs, the oxygenated blood returns to the heart and is then pumped around the body.



What is the difference in function between veins, arteries and capillaries?



What is the difference in function between veins, arteries and capillaries?

- **Arteries** carry blood **away** from the heart
- **Veins** carry blood towards (**into**) the heart
- **Capillaries** flow close to tissues for exchange

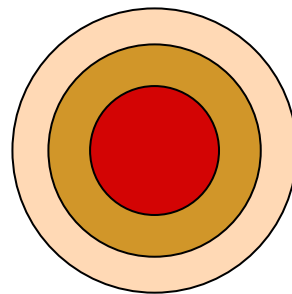


Describe the structure of arteries



Describe the structure of arteries

They have thick walls made of muscle and elastic tissue and a small lumen to transport blood under high pressure

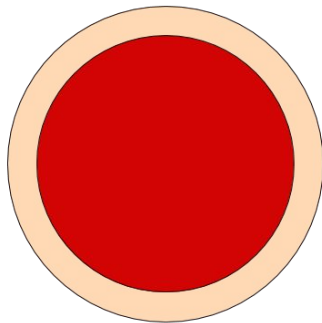


Describe the structure of capillaries



Describe the structure of capillaries

They have thin walls about one cell thick to allow for the easy exchange of substances at the tissues.

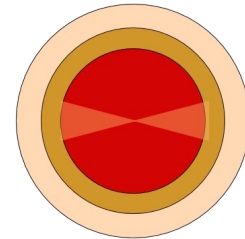


Describe the structure of veins



Describe the structure of veins

Veins have less muscle and elastic tissue than arteries and they have a larger lumen as the blood is at lower pressure, they also have valves to prevent backflow.



Describe the blood flow through the right side of the heart



Describe the blood flow through the right side of the heart

- Deoxygenated blood flows into the right atrium from the vena cava
- This blood passes through the right AV valve into the right ventricle
- The blood is then pumped out of the heart to the lungs through the right SL valve and into the pulmonary artery



Describe the blood flow through the left side of the heart



Describe the blood flow through the left side of the heart

- Blood enters into the left atrium from the pulmonary vein
- The blood is then pumped through the left AV valve into the left ventricle
- The blood is then pumped out through the left SL valve and into the aorta



What is the name of the wall that separates the right and left sides of the heart?



What is the name of the wall that separates the right and left sides of the heart?

The septum



What is the name of the artery that supplies the heart tissue with blood?



What is the name of the artery that supplies the heart tissue with blood?

The coronary artery



What type of muscle is the heart made of?



What type of muscle is the heart made of?

Cardiac muscle



Why is the wall of the left ventricle thicker than the wall of the right ventricle?



Why is the wall of the left ventricle thicker than the wall of the right ventricle?

The left ventricle has to pump blood a further distance around the whole body so the blood needs to be under a higher pressure.



What does adrenaline do to the heart rate?



What does adrenaline do to the heart rate?

Adrenaline increases the heart rate as it triggers the 'fight or flight' reflex.



State 2 parts of the body (aside from the heart) that adrenaline affects



State 2 parts of the body (aside from the heart) that adrenaline affects

- Adrenaline dilates the pupils
- Adrenaline increases the breathing rate



Why does the heart rate increase during exercise?



Why does the heart rate increase during exercise?

- More muscle movement requires more energy from respiration
- The muscle tissues need to be provided with a supply of oxygen to carry out respiration and so the heart needs to pump faster to provide the oxygen



What is coronary heart disease (CHD)?



What is coronary heart disease (CHD)?

When the artery providing the heart tissue with blood becomes blocked.



Give 3 common risk factors for coronary heart disease



Give 3 common risk factors for coronary heart disease

- Smoking
- Poor diet
- Lack of exercise

