

GCSE Biology (Separate AND Trilogy)

Success Criteria: Animal Transport and Exchange systems



<i>I can...</i>	
Describe the main structures of the human gas exchange system (trachea, bronchi, alveoli and the network of capillaries surrounding the alveoli) and Identify alveoli as the site of gas exchange	
Describe the function of the human ventilation system, including the role of the diaphragm and intercostal muscles to change the volume of the thorax (change in volume = change in pressure = movement of air)	
Relate the circulatory system to the gas exchange system (oxygen diffuses into the blood at the alveoli and is then pumped around the body to all cells)	
Identify the function of each components of blood (RBC, WBC, platelets and plasma)	
Explain how different types of blood cells are adapted to their transport functions.	
Understand that blood is pumped around the body by the heart (muscular organ) and flows through tubes called blood vessels (A rteries= A way from heart, VeI Ns = I N to heart)	
Describe the structure of the main types of blood vessel including arteries, veins and capillaries with reference to thickness of walls, diameter of lumen, presence of valves	
Relate the structure of the different blood vessels to their functions (<i>high pressure leaving the heart = thick walls of arteries, capillary walls 1 cell thick = fast diffusion</i>)	
Describe the role of skeletal muscle in helping to return low pressure blood back to the heart via veins. (<i>muscles squeeze veins, smaller volume = increased pressure, helps blood get back to heart</i>)	
Describe the circulatory system as a 'double circulation' system = through the heart twice (heart to lungs, then heart to body)...very efficient system.	
Describe the structure of a human heart including 2halves (left side = thicker muscle/stronger), 4 chambers (atrium = upper/arrival, ventricle = lower/leave), main blood vessels in and out (aorta, pulmonary artery, pulmonary vein and vena cava), valves (between atrium-ventricle and in artery leaving ventricle)	
Describe how the heart initiates its own contraction (special group of cells in the wall of the right atrium act as a natural pacemaker telling the rest of the cardiac muscle cells to contract). Normal resting heart rate is around 70bpm.	
Give examples of problems that can occur with blood flow through the heart including coronary heart disease, leaky valves and natural pacemakers stop working.	
Explain what coronary heart disease is, factors that cause the disease and ways to treat the disease including use of statins (drugs to lower cholesterol) and stents (inserted surgically into the vessel to hold it open)	
Explain the consequences of a faulty heart valve and evaluate the use of biological or mechanical replacement valves.	
Explain how problems with the rhythm of the heart can often be solved using an artificial pacemaker (electrical device, implanted surgically)	
Understand that in the case of total heart failure a donor heart can be transplanted (organ transplant=long waiting list, risk of rejection)	
Recognise that artificial hearts are occasionally used to keep patients alive whilst waiting for heart transplants, or to allow the heart to rest as an aid to recovery.	

AQA exam specification:

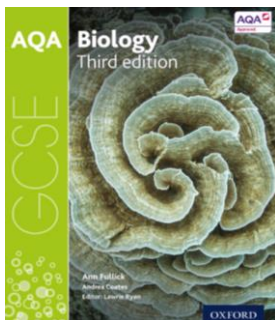
- 4.2.2.2 The Heart and blood vessels
- 4.2.2.3 Blood
- 4.2.2.4 Coronary heart disease

Additional support:

Access the appropriate textbook on kerboodle.com, create your own revision notes of the key points of the topic and attempt the summary questions.

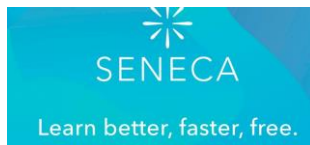


Combined science GCSE textbook
Pages 52-61



Separate Biology GCSE textbook
Pages 52-61

Utilise online revision resources to support your class notes, such as...



Attempt past paper questions using www.physicsandmathstutor.com and self-mark your answers using the official exam mark schemes.



Extension work/extra challenge:

Ask your teacher for extension tasks...

Pack 1 Topic 9 – Having a Change of Heart (4.2.2.2)

Pack 1 Topic 10- Diseases of Blood: Sickle Cell Disease (4.2.2.3)