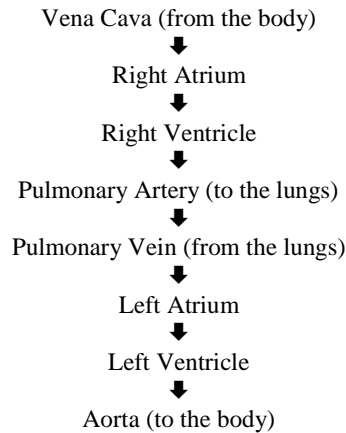


Biology Revision Notes – Circulation And Disease

1. The **circulatory system** consists of the blood vessels and the heart.
2. The **right side** of the heart pumps blood around the lungs.
The **left side** of the heart pumps blood around the whole body (the walls are thicker).
3. The flow of blood through the heart is as follows:



4. **Valves** stop blood from flowing backwards in veins.
5. There are the following different types of blood vessel in the body:
 - **Arteries** – carry oxygen rich blood (except pulmonary artery) away from the heart at a high pressure. They have thick walls and no valves.
 - **Veins** – carry blood without oxygen (except pulmonary vein) towards the heart at a low pressure. They have thinner walls and valves.
 - **Capillaries** – are very thin with one cell thick walls. They allow oxygen and carbon dioxide to be exchanged by cells. They take away waste products, and deliver food.
6. No cell is more than one or two cells away from a capillary.
7. When you exercise, your heart beats faster (and you breathe faster), to get more blood, and therefore oxygen, to all the cells in the muscles.
8. **Plasma** takes up about 55% of the blood. It is a clear yellow colour, with food, hormones, waste products and carbon dioxide dissolved in it.
9. **Red blood cells** are 98% haemoglobin. They carry oxygen to the body cells, and have no nucleus.
10. **Platelets** are protein fragments that are used to clot the blood when the body is cut.
11. **White blood cells** fight against disease:
 - **Phagocytes** – ingest bacteria and can change shape. They have a ‘wiggly’ nucleus.
 - **Lymphocytes** – make antibodies which are specific to a virus. They destroy the virus with the antibodies, and have a ‘big round’ nucleus.
12. Disease is caused by **bacteria** and **viruses**.
13. The body prevents infection by:
 - Using the **skin** as a barrier.
 - Producing **mucus** in the breathing organs.
 - Producing **blood clots** to seal cuts.
14. **Bacteria** have a protein-coated cell wall, and contain strands of genetic material – not in a nucleus. They are very small – between 1/20mm and 1/1000mm.
15. **Viruses** just have a protein coat and DNA inside. They need living cells to be able to reproduce. They are smaller than bacteria – between 1/2000mm and 1/100000mm.
16. Common bacterial and viral diseases are as follows:
 - Bacterial diseases – TB, salmonella, boils, whooping cough and venereal disease.
 - Viral diseases – chicken pox, influenza and measles.
17. **Immunisation** is when dead or weak virus or bacterium cells are injected into the body. White blood cells fight off the disease, and the body becomes immune to it.
18. **Living conditions** affect the spread of disease.