N5 Biology MO6 **Transport Systems – Animals** Learning Outcome Checklist

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| Lesson | MC900432651[1] | by the end of each lesson you should know about the following (including meanings of **key words**) |
| **blood**  |  | * in mammals the blood contains **plasma**, **red blood cells** and **white blood cells**.
* the cells are carried in the liquid plasma
* blood transports **nutrients, oxygen** and **carbon dioxide**.
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| red blood cells |  | * red blood cells are very small and specialised to **transport oxygen**
* red blood cells are **biconcave** in shape which presents a large surface area for the uptake of oxygen
* red blood cells have **no nucleus** making more room for haemoglobin
* red blood cells contain **haemoglobin**
* haemoglobin picks up oxygen in the lungs and forms **oxyhaemoglobin**
* in respiring tissues oxyhaemoglobin releases the oxygen
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| white blood cells |  | * **white blood cells** are part of the **immune system** and are involved in destroying pathogens.
* **pathogens** are microorganisms that cause disease
* there are two main types of white blood cells – **phagocytes** & **lymphocytes**.
* phagocytes carry out a process called **phagocytosis** in which they engulf pathogens.
* some lymphocytes produce Y shaped proteins called **antibodies** which destroy pathogens.
* **specific** antibodies are produced for a particular pathogen.
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| heart |  | * the heart is a **muscular pump** that keep blood flowing round the body
* the heart has **four chambers,** right and left **atrium** at the top, right and left **ventricle** at the bottom
* the right side of the heart receives **deoxygenated** blood from the body in the **vena** **cava** (main vein) and pumps it to the lungs via the **pulmonary artery**
* the left side of the heart receives **oxygenated** blood from the lungs in the **pulmonary vein** and pumps it to the body via the **aorta** (main artery)
* the **muscle of the left ventricle is** **thicker** than the muscle of the right ventricle because the left ventricle **generates a greater force** to pump blood to the whole body not just to the lungs
* the heart muscle receives its blood supply from the **coronary** **artery**
* there are four **valves** in the heart that prevent the blood flowing back to the chamber it came from
* location of all parts of the **heart on a diagram**
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| blood vessels |  | * **arteries** have **thick, muscular walls,** a **narrow central channel** and carry blood under **high pressure** **away** from the heart.
* **veins** have **thinner** **walls**, a **wider channel** and carry blood under **low pressure back** towards the heart. Veins contain **valves** to prevent backflow of blood.
* **capillaries** are **thin walled** and have a **large surface area**, forming networks at tissues and organs to allow efficient **exchange of materials**.
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