

## Transport Systems - The Blood, Heart and Transport in Plants

This section allows transport systems to be examined. The need for transport systems in large organisms is considered, together with the ways in which the major transport systems of plants and mammals function.

**Red Blood Cells - Erythrocytes**  
Carry oxygen around the body (haemoglobin) No nucleus (More oxygen carrying possible) Biconcave - maximum surface area Haemoglobin combines with oxygen - oxyhaemoglobin lack of haemoglobin - anemic 5 million Red Blood Cells per mm<sup>3</sup> White Blood Cells - Leukocytes Irregular shape 7000 per mm<sup>3</sup> Phagocytes (engulf the bacteria) bacteria into vacuole enzymes destroy it Lymphocytes Produces antibodies which recognise antigen on bacteria membrane disable bacteria finally ingested by phagocytes immunity Platelets fragments of cells 250000 per mm<sup>3</sup> they clump together to clot blood make chemical that converts fibrinogen into fibrin - strands across wound. Plasma contains fibrinogen contains serum, water, salts, gasses, hormones, glucose and wastes It is made up of 90% water. Substances Transported by the Blood

From	To
Oxygen	Lungs
Body Cells	Carbon Dioxide
Body Cells	Lungs
Urea	Liver
Kidney	Food (Glucose)
Intestine	Body Cells
Hormones	Glands
Target Organs	Heat
Muscles/Liver	Whole Body

### Transport Systems - Veins, Arteries, Capillaries

Arteries carry oxygenated blood away from the heart around the body Veins carry deoxygenated blood from the body to the heart and then to the lungs Capillaries link arteries to veins. They are the site of diffusion with tissue Veins have valves to prevent backflow of blood Veins have a thin wall Arteries have thick walls, this allows for stretching (pulse) Arteries have a narrow lumen, allowing for high pressure Coronary arteries are around the heart The heart has double circulation, meaning blood goes through the heart twice, once oxygenated, and once deoxygenated. Cholesterol can cause blocking of the coronary arteries It can also cause blood pressure to increase. &nbsp; Transport In Plants Water and minerals are absorbed by the root hairs and then into the xylem Xylem and Phloem xylem transports water from root hairs to leaves phloem transports glucose from leaves to the rest of the plant Transpiration- it is the movement of water from root hairs to leaves where it evaporated and is released through the stomata The evaporation causes a suction due to the difference in pressure, and pulls water up through the leaves. This continuous cycle is known as a transpiration stream. Functions of transpiration Cools plant Brings water and minerals to the plant &nbsp;Differences between the Xylem and Phloem

Xylem	Phloem
Dead tissue make it up	living tissue
vessels lined with lignin	vessels lined with cellulose
Transports Water	Transports glucose

&nbsp; Environmental Factors Affecting Transpiration Light opens the stomata, therefore more evaporation temperature on a hot day evaporation occurs more rapidly Air Movement Wind removed water vapour around the leaf Humidity Low humidity, therefore higher concentration of water vapour in leaf the air. (diffusion high) Potometer - measures water uptake by roots&nbsp;

## About the Author

Source: <http://crampuppy.com>