Ravens Wood School
KS4 Curriculum Plan

Subject: Year 9: B4: Organising animals and plants

Overarching Topic: B4: Organising animals and plants			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	In this section we will learn about the human respiratory system provides oxygen and removes carbon dioxide and relate this to our previous learning of the digestive system. In each case they provide dissolved materials that need to be moved quickly around the body in the blood by the circulatory system. Damage to any of these systems can be debilitating if not fatal. Although there has been huge progress in surgical techniques, especially with regard to coronary heart disease, many interventions would not be necessary if individuals reduced their risks through improved diet and lifestyle. We will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide that they need for photosynthesis.		
	Essential	**Core**	**Ambitious**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	• What are the key structures in the respiratory and circulatory systems? • What are the key structures in the plant transport system? • How are the different structures in the respiratory system adapted to their functions? • How are the different structures in the circulatory system adapted to their functions? • How are the different structures in the plant transport system adapted to their functions? • What is gas exchange? • What are the functions of the xylem and phloem in plants?	• What is blood and explain how it has specialised cells and features that allow it to carry out a multitude of different roles? • What would the advice to patients be on the advantages and disadvantages of different treatments for cardiovascular diseases? • What is the overview of plant anatomy on the level of the leaf, xylem and phloem and how do these structures work together to carry out exchange? • Why environmental do conditions affect transport in plants and what consequences might this have for the agricultural industry? • What is the structure of the heart and explain what atrioventricular and semilunar valves do? • How are the structures of veins, arteries and capillaries linked to their function? • What route does a red blood cell take around the body? • What processes are involved in inhalation and exhalation?	• Why do unicellular organisms have no circulatory system, while small organisms such as fish have a single circulatory system while we require a double circulatory system? • What would novel treatments be for different aspects of cardiovascular disease? • How does asthma affect gas exchange?
	TRIPLE ONLY QUESTIONS • N/A	**TRIPLE ONLY QUESTIONS** • N/A	**TRIPLE ONLY QUESTIONS** • N/A
The Key Skills/ Techniques	**The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.**		
	Skill/Technique	**How will this skill be developed?**	
	1. Graphing & Drawing	Scientific drawing of cross section of a plant stem and scientific equipment used in plant dissection.	
	2. Variables	Be able to suggest improvement to the method of staining cells based upon an understanding of microscopic principles and factors that affect likely success of histological staining.	
	3. Data Analysis	Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.	
	4. Application	Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.	

	5. Working Scientifically	Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking into account data analysis.