Ravens Wood School
KS4 Curriculum Plan

Subject: Year 9: B5: Communicable disease

Overarching Topic: B5: Communicable disease			
Why is this topic being studied at this time? How does it fit into the wider subject curriculum?	We investigate health, non-communicable and communicable disease in more detail, first of looking at health and asking what health is and how do we stay healthy. After this we investigate how lifestyle, environmental or genetic factors contribute to the development of disease. We look at pathogens, bacterial, viral, fungal and protist disease and how these can be prevented or controlled. Finally, we look at the human immune response and how we develop immunity to such diseases. Triple students take this further and look at culturing microorganisms, investigating how we prevent microbial growth and the development and control of diseases in plants.		
	Essential	**Core**	**Ambitious**
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	• What is health and disease? • How do I maintain my health in terms of both communicable and non-communicable diseases? • What are pathogens and how do they cause disease? • What are the four groups of pathogen? • What are antibodies and antigens? • What do white blood cells do? • What are memory cells?	• What factors contribute to the development of non-communicable diseases such as cancers? • What is the difference between how bacteria and viruses infect cells and relate this to the different treatments required? • What are the differences between diseases caused by fungus and protists? • How is the human's immune response is maintained and how does this convey long term protection onto us as individuals and as a community?	• Can you suggest a novel chemotherapy treatment, knowing what you know about cancer and mitosis? • How could the UK government have improved its Covid-19 pandemic response in 2020?
	TRIPLE ONLY QUESTIONS • What is binary fission? • Can I identify diseases in plants based on visual symptoms? • What is aseptic technique and why is each stage carried out?	**TRIPLE ONLY QUESTIONS** • Can I successfully culture microorganisms and demonstrate antiseptic efficacy using the zone of inhibition? • What causes plant symptoms on a cellular level and link this back to knowledge on cell structure and function?	**TRIPLE ONLY QUESTIONS** • Can I suggest and investigate ways to increase the efficacy of antiseptic or antibiotic and devise a method to investigate their theory? • Why are the hunt for novel antibiotics and antifungal treatments are on-going?
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 scientific equipment used in growing microorganisms in the lab and measuring inhibition zones.	
	2. Variables	Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.	
	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 in to account data analysis.	