



	Sequence		
<p>TOPIC (S)</p> <p>Classification and Nature of Microorganisms</p>	<ol style="list-style-type: none"> 1. Prokaryotes 2. Eukaryotes 3. Acellular organisms 	<ol style="list-style-type: none"> 4. Virulence mechanisms of bacteria 5. Virulence mechanisms of eukaryotes 6. Virulence mechanisms of viruses 	<ol style="list-style-type: none"> 7. Phenotypic methods to classify bacteria 8. Classification of viruses 9. Classification of protists
<p>Knowledge & Skills development</p>	<ul style="list-style-type: none"> • Know the general characteristics of prokaryotes including cellular structure, cell wall (gram positive/gram negative) appendages for movement, genome and plasmids • Understand growth characteristics including binary fission, growth curves, reproductive strategies, the effect of temperature on the rate of enzyme activity and its impact on microorganism growth • Be able to describe the eukaryotic nature of single celled protists and sporozoa • Structure and reproductive strategies of fungi • Describe main characteristics of viruses, to include structure of the virion, types of genetic material in viruses, capsid, possibility of envelope, reproductive strategies of viruses • Describe the main characteristics of prions, to include that they are non-living, lacking in nucleic acids, made of mis-folded proteins based on normal brain proteins, cause damage to the brain leading to neurodegenerative diseases • Describe virulence mechanisms of bacteria including access to the host, the role of adhesins, endotoxins and exotoxins, damage to host cells and tissues. Outline how the immune system is evaded and incubation periods 		<ul style="list-style-type: none"> • Describe mechanisms of eukaryotes to include access to the host, production of proteases and endotoxins in fungi, use of adhesins and toxins, antigenic variation and the ability to survive inside phagocytic vesicles • Describe virulence mechanisms of viruses including how they access to the host, how they cause direct cell damage and latency • Be able to recall the mechanism for the evolution of pathogens • Be able to describe phenotypic method to classify bacteria to include the shape and cell structure, to include cocci, bacilli, flagellate rods, spirilla, vibrios. • Be able to compare the structure of the cell wall between Gram positive and Gram negative bacteria, oxygen requirements, to include aerobes, obligate aerobes, anaerobes and facultative anaerobes • Be able to classify viruses using Baltimore classification which uses type of nucleic acid and mode of replication and other methods, to include size, host organism, capsule structure. • Describe the classification of protists, to include cell structures, metabolisms, and methods of motility.
<p>Assessment / Feedback Opportunities</p>	<p>Formative Assessment Teacher questioning Discussions</p>		<p>Summative assessment Final Assignment Submission</p>

Personal Development (Including British Values, RSE, Citizenship)	<ul style="list-style-type: none"> • Healthy Lifestyles : Understanding how pathogens access the human body and cause illness • Personal Development: Collaborative problem solving
Literacy/Reading Opportunities	<p>Subject specific vocabulary introduced before reading of related texts</p> <p>Word etymology from Latin and Greek roots</p> <p>Reading of simple and complex sentences, paragraphs, articles</p> <p>Scientific writing for coursework assignments</p>
Key Vocabulary	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest, Absolute, Uncertainty, Error, Virulence Mechanisms, Antigenic Variation, Endotoxins, Adhesins, Aerobes,</p>
Cross-Curricular Links	<p>Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators</p> <p>Sport – Understanding processes within the human body</p> <p>Health and Social Care – Understanding how disease spreads through a population</p>
Career Opportunities	<p>Biological Scientists, Microbiology, Biochemistry, Medicine, Pathology, Nursing, Health Visitor, Virologist</p>