

Meden School Curriculum Planning							
Subject	Biology	Year Group	10	Sequence No.	1	Topic	B3 – Infection & Response

Retrieval	Core Knowledge	Student Thinking
What do teachers need retrieve from students before they start teaching new content ?	What specific ambitious knowledge do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to development of our students thinking, encouraging them to see the inequalities around them and 'do something about them!'
<p>Year 8 Microbes L1: Understanding that microbes are bacteria, viruses and fungi. Examining the differences between bacteria and viruses and knowing how each affect the body and how they both reproduce rapidly.</p> <p>Year 8 Microbes L2: Knowing that pathogens are disease causing microorganisms such as bacteria, virus, fungi and protists. What is the bodies first line of defence and how do they work?</p> <p>Year 8 Microbes L3: What happens if a pathogen gets inside your body? Understanding white blood cells work through antibodies, antitoxins and phagocytosis.</p> <p>Year 8 Microbes L4: Understanding immunity and how memory cells develop and work. Resulting in a rapid response of antibody production any secondary exposure to the same pathogen.</p>	<p>L1: Communicable Diseases. Students should be able to explain how diseases caused by viruses, bacteria, protists and fungi are spread in animals and plants. Students should be able to explain how the spread of diseases can be reduced or prevented. Pathogens are microorganisms that cause infectious disease. Pathogens may be viruses, bacteria, protists or fungi. They may infect plants or animals and can be spread by direct contact, by water or by air. Bacteria and viruses may reproduce rapidly inside the body. Bacteria may produce poisons (toxins) that damage tissues and make us feel ill. Viruses live and reproduce inside cells, causing cell damage.</p> <p>L2: Bacterial Diseases. Salmonella food poisoning is spread by bacteria ingested in food, or on food prepared in unhygienic conditions. In the UK, poultry are vaccinated against salmonella to control the spread. Fever, abdominal cramps, vomiting and diarrhoea are caused by the bacteria and the toxins they secrete. Gonorrhoea is a sexually transmitted disease (STD) with symptoms of a thick yellow or green discharge from the vagina or penis and pain on urinating. It is caused by a bacterium and was easily treated with the antibiotic penicillin until many resistant strains appeared. Gonorrhoea is spread by sexual contact. The spread can be controlled by treatment with antibiotics or the use of a barrier method of contraception such as a condom.</p> <p>L3: Viral Diseases. Measles is a viral disease showing symptoms of fever and a red skin rash. Measles is a serious illness that can be fatal if complications arise. For this reason, most young children are vaccinated against measles. The measles virus is spread by inhalation of droplets from sneezes and coughs. HIV initially causes a flu-like illness. Unless successfully controlled with antiretroviral drugs the virus attacks the body's immune cells. Late stage HIV infection, or AIDS, occurs when the body's immune system becomes so badly damaged it can no longer deal with other infections or cancers. HIV is spread by sexual contact or exchange of body fluids such as</p>	<p>L1: How diseases are spread, controlled, or reduced? Linking into COVID experiences.</p> <p>L2: How does food preparation and food hygiene relate to causing food poisoning and how this affects food businesses? What are real life dangers of unprotective sex?</p> <p>L3: How does the Measles virus affect the body? How does HIV affect the body? How are these diseases controlled, prevented or cured? How are plants affected by viruses? How can this be applied to real life scenarios?</p>

<p>Year 8 Microbes L6: What are different types of STIs such as gonorrhoea and HIV. Researching numerous STIs on how they are contracted, prevented and treated.</p> <p>Year 8 Microbes L7: What does communicable and non-communicable mean and provide examples of such diseases.</p> <p>Year 8 Microbes L8: How do antibiotics work and addressing the misconception that they can be taken to cure viral diseases. How antibiotics were discovered by Alexander Fleming and how this discovery has saved millions of lives. Understanding that painkillers only treat the symptoms of a disease and not the disease itself. Discovery of antibiotic resistance and the impact of this upon modern medicine.</p> <p>Year 8 Microbes L9: Understanding vaccinations, what is in them, how the body responds to a vaccine and how it provides protection against disease. Researching how Edward Jenner discovered the first vaccine and what are the pros and cons of vaccines. How does mass vaccination and herd immunity work?</p>	<p>blood which occurs when drug users share needles. Tobacco mosaic virus (TMV) is a widespread plant pathogen affecting many species of plants including tomatoes. It gives a distinctive 'mosaic pattern of discolouration' on the leaves which affects the growth of the plant due to lack of photosynthesis.</p> <p>L4: Fungal & Protist Diseases. Rose black spot is a fungal disease where purple or black spots develop on leaves, which often turn yellow and drop early. It affects the growth of the plant as photosynthesis is reduced. It is spread in the environment by water or wind. Rose black spot can be treated by using fungicides and/or removing and destroying the affected leaves.</p> <p>The pathogens that cause malaria are protists. The malarial protist has a life cycle that includes the mosquito. Malaria causes recurrent episodes of fever and can be fatal. The spread of malaria is controlled by preventing the vectors, mosquitos, from breeding and by using mosquito nets to avoid being bitten.</p> <p>L5: Students should be able to describe the non-specific defence systems of the human body against pathogens, including the:</p> <ul style="list-style-type: none"> • skin • nose • trachea and bronchi • stomach. <p>Students should be able to explain the role of the immune system in the defence against disease. If a pathogen enters the body the immune system tries to destroy the pathogen.</p> <p>White blood cells help to defend against pathogens by:</p> <ul style="list-style-type: none"> • phagocytosis • antibody production • antitoxin production. <p>L6: Vaccinations. Students should be able to explain how vaccination will prevent illness in an individual, and how the spread of pathogens can be reduced by immunising a large proportion of the population. Vaccination involves introducing small quantities of dead or inactive forms of a pathogen into the body to stimulate the white blood cells to produce antibodies. If the same</p>	<p>L4: How do fungal diseases affect plants? How can fungal diseases be prevented or controlled? What is Malaria? What is the impact of Malaria on developing countries? How can we prevent or control Malaria?</p> <p>L5: How does the body defend itself? What is the bodies first line of defence? What is the immune system? How does the immune system defend us from diseases?</p> <p>L6: How does a vaccine work? What are examples of vaccines that we may have had? How has the vaccination programme affected the spread of covid? What are the pros and cons of vaccines?</p>
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