

B5 Communicable Diseases

Lessons TBAT	Key Knowledge	Practical	Assessment
TBAT: Define health and disease	<p>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>Students should be able to describe the non-specific defence systems of the human body against pathogens, including the: • skin • nose • trachea and bronchi • stomach. 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. White blood cells help to defend</p>	<p>Optional practical for growing bacteria on a plate, can include antibiotic disks</p>	<p>Write up for the bacterial plate prac</p>
TBAT: Describe how some diseases are spread			<p>Maths focus</p>
TBAT: Grow a sample of bacteria in the lab			<p>H students can calculate the area of the zone of exclusion on a bacterial plate</p>
TBAT: Describe ways to reduce the spread of infection			

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<p>TBAT: Describe some common viral diseases</p> <p>TBAT: Describe some common bacterial diseases</p> <p>TBAT: Describe some common fungal and protist diseases</p> <p>TBAT: Describe how the human body defends from infection</p>	<p>against pathogens by: • phagocytosis • antibody production • antitoxin production.</p> <p>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 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>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>Key stage 3</p> <p>The skeletal and muscular systems</p> <ul style="list-style-type: none"> ♣ the structure and functions of the human skeleton, to include support, protection, movement and making blood cells ♣ biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles ♣ the function of muscles and examples of antagonistic muscles.
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	<p>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>	
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