Medium Term Plan 2020/21 Subject: Science Term: Autumn Term 2 Topic from LTP: Biology 1B Health and Disease Lessons per week: 3 Group(s): Wood Weir and Rowsell

Students will show achievement by understanding different diseases and how they are spread and prevented. This year the lesson will have a focus on Covid 19. They will also be able to work out BMI from height and weight and be able to recommend how to reduce BMI. There are opportunities for practical work in the unit which links to independence. The power point presentations will link to communication and group work is a vital part of this unit to share their ideas. Learning about health and disease all link very well to wellbeing. Students will have opportunities in this unit to consider science in their own lives through Covid 19, BMI and the development of vaccines and medicine.

Careers opportunities link to work in the health care profession and scientific research.

Week	**Topic**	**Learning Intentions**	**Tasks**	**Assessed LOs**
W1	Disease and Bacterial infections	• To know the difference between communicable and non-communicable diseases • To know what a pathogen is • To be able to name at least 4 diseases and know how they spread • To recall work on cells and microscopes[I1] • To be able to describe the structure and function of bacteria including the flagellum • To know the difference between a bacterial disease and a virus • To be able to list common bacterial infections	• Table of diseases, quiz • Roam the room task to summarise some common diseases – transport and symptoms • Doctor hot seat • Research into malaria, Cholera, and Influenza • Role play of how to prevent diseases • WHO task.. what would you do about Covid 19? • Simple activity using microscopes to recall cell structure • Students are to identify common elements of bacteria	**Students should be able to** • Recall the difference between communicable and non-communicable diseases • Explain what a pathogen is • List at least 4 common diseases and how they are spread and prevented • Describe the structure and function of bacteria including the flagellum • List common bacterial infections • Suggest how to treat bacterial infections

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		• To be able to suggest how to treat some common bacterial infections • To be able to explain how the bodies chemical defences stop pathogens	and identify their differences using pictures around the room • They should produce an accurate drawing of bacteria. • Questions on how bacterial infections are spread. • Demonstration of stomach acid at work	• Explain ways that the bodies chemicals defences stop pathogens
W2	Fungal infections	• To able to describe the structure of fungi • To know some common fungal infections including tinea • To know how fungal infections spread • To be able to describe how fungi obtain their nutrients • To know what agar is and what scientists use it for • To know what kind of organisms grow on agar and be able to identify them • To plan an investigation using agar	• Students should draw and label fungi. • Students could walk around the local area to spot fungi and take photographs and describe them and how they obtain their nutrients • Create a leaflet describing fungal infections, spread and prevention • Oil and sprinkles hand washing exercise to show how washing hands is important • Students will investigate the best soap by washing hands and placing washed and unwashed finger on an agar plate.	**Students should be able to** • Describe the structure of fungi • Recall at least two differences between a fungi and a bacteria • List common fungal infections including tinea • Describe how fungi obtain their nutrient • Identify organisms growing on agar • Investigate washing hands using agar plates

Week	**Topic**	**Learning Intentions**	**Tasks**	**Assessed LOs**
W3	Sexually transmitted diseases	• To be able to recall the structure and function of parts of blood • To know two ways that white blood cells kill pathogens • To know how HIV is spread • To know what effect HIV has on white blood cells • To understand how the spread of HIV can be prevented • To know the difference between prevention and cure of a disease	• Students should make a model of blood • Students will model the spread of disease using milk, iodine solution and starch solution • They will prepare a comic strip of how white blood cells kill pathogens • Students will learn about HIV and its spread	**Students should be able to** • Describe the structure and functions of blood • Explain how white blood cells kill pathogens • Describe how HIV is spread and its effect on white blood cells • Explain how the spread of HIV can be prevented
W4	Development of medicines	• To understand the difference between a medicine and a vaccine • To know how a vaccine works and their risks and benefits on the population • To know what happens when scientific data is wrong and the link to MMR and autism • To know how medicines are developed • To know the costs of developing medicines • To understand the consequences when testing is not rigorous • To debate if animals should be used to test medicines	• Create a leaflet or Clicker 7 explaining the difference between a vaccine and a medicine • Debate whether vaccines should be compulsory • Wall display on the stages of medicine development • Work through the cost of developing a medicine • Thalidomide drug and what went wrong • Debate on animal testing • Worksheet on Covid 19 vaccination	**Students should be able to** • Explain the difference between a vaccine and a medication • List the difference stages of the development of medicines. • Explain why medicines are so costly • Be able to give an opinion on animal testing

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		• To be aware of how the vaccine is being prepared for Covid 19		
W5	Healthy lifestyle and effect on health	• To know what is meant by BMI • To be able to measure BMI given weight and height • To understand that scientific ideas need to be challenged • To know ways to reduce body mass though diet • To explain how to find the best exercise program to reduce BMI	• Students will complete a worksheet to calculate BMI of people given height and weight • Student should evaluate the BMI chart as a good measure of health or not • Those who wish can find out their own • Student should create a leaflet to show how diet can reduce BMI • Student should complete a case study looking at three different exercises to reduce BMI and conclude which was best	**Students should be able to** • Use the BMI chart and work out what range a person is in given data • List ways to reduce BMI through diet • Describe the way a personal trainer could assess an exercise program to reduce BMI
W6	Revision and assessment	• Preparation for the test	• Quizzes, vocab checks. Kahoot	