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| **YEAR \_\_\_\_ 2023-2024\_\_\_\_\_ TERM: Spring 2/Summer 1**  **‘An ambitious curriculum that meets the needs of all’**  **Medium Term Planning - Topic: Immunology & Disease** | |
| **Curriculum Intent** | **In addition to working further on objectives from KS3 Healthy Living and KS4 Topic 1 Cell Structure & Transport, pupils will be taught, following National Curriculum guidelines, the following in this topic:**   * the relationship between health and disease * communicable diseases including sexually transmitted infections in humans (including HIV/AIDs) * bacteria, viruses and fungi as pathogens in animals and plants * body defences against pathogens and the role of the immune system against disease * reducing and preventing the spread of infectious diseases in animals and plants * the process of discovery and development of new medicines |
| **Skills/National Curriculum Links** |
| **Spiritual, moral, social, and cultural development** | **SMSC:** Communicable diseases, clinical trials, making informed health decisions  **PSHE/British Values:**  Spread of disease, sexually transmitted infections, herd immunity  **Skills Builder:** Health communication & decision making |
| **Numeracy** | Calculation of numbers in a bacterial colony through exponential increase, graphical representation of antibody production, interpretation of health data |
| **Literacy** | **Vocabulary Tier 2:** Health, bacteria, virus, fungus, microorganisms, toxin, engulf, measles, salmonella, transmission, vaccination, antibiotics, painkillers  **Vocabulary Tier 3:** Communicable, antibody, antigen, antitoxin, pathogen, gonorrhea, immune system, *Biology only: monoclonal antibodies*  **Reading:** Students are given opportunity to develop their skills in specified tasks that develop disciplinary literacy. Throughout the GCSE Biology and Combined Science course they develop their understanding of the requirements of exam questions and the key terminology in questions. In addition, they read practical methodology and translate this to actions in laboratory tasks.  **Writing:** Students construct answers independently and through class teaching. Their answers range from single word answers to the planning and writing of 6-mark “extended writing” tasks that require linking of multiple concepts from a topic. These often develop students’ ability to construct written evaluations of contrasting situations, where the use of comparative connectives are required.  **Oracy:** Students are regularly given the opportunity to practice their scientific vocabulary in class discussion, through choral response and in giving instruction to others during practical activities. |
| **Becoming future ready** | **Careers/Employability:** Opportunity for development of communication, teamwork, and manual dexterity in the completion of practical activities (Required Practicals in testing for carbohydrates, proteins and lipids and measuring the effect of pH on amylase activity) |
| **Adaptation** | Throughout this topic, quality first teaching will provide differentiation:  **By product:** Assessments have opportunities for students to achieve all grades, with structured questions and opportunities for development of extended writing for all abilities.  **By resource:** Booklets are differentiated as appropriate, with ‘foundation’ booklets produced in conjunction with class teachers for students who would benefit from additional scaffolding of resources in order to achieve their potential.  **By Intervention**: by providing different levels of supervision and support, including the specific deployment of teaching assistants within lessons.  **By Progressive Questioning:** exploring pupils’ understanding through interactive dialogue.  **By Grouping:** according to prior attainment, gender, social preference.  **By Task:**Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.  **By Offering Optional Activities:** In class or as homework, to extend learning.  This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work. |
| **QFT/SEND Provision** |
| **Implementation**  **Curriculum Delivery** | To be able to:  3.1.1.a I can describe what a pathogen is and how pathogens are spread.  3.1.1.b I can explain how pathogenic bacteria and viruses cause damage in the body.  3.1.1.c I can explain how the spread of diseases can be reduced or prevented.  3.1.2.a I can describe measles, HIV and tobacco mosaic virus as examples of viral pathogens (to include pathology, treatment and disease control where appropriate).  3.1.3.a I can describe salmonella food poisoning and gonorrhoea as examples of bacterial pathogens (to include pathology, treatment and disease control where appropriate).  3.1.4.a I can describe the signs, transmission and treatment of rose black spot infection in plants.  3.1.5.a I can describe the symptoms, transmission and control of malaria, including knowledge of the mosquito vector.  3.1.6.a I can describe defences that stop pathogens entering the human body.  3.1.6.b I can state the role of the immune system.  3.1.6.c I can describe how white blood cells attack pathogens.  3.1.7.a I can describe how vaccination works, including at the population level.  3.1.8.a I can explain how antibiotics and painkillers are used to treat diseases, including their limitations.  3.1.9.a I can describe how sources for drugs have changed over time and give some examples.  3.1.9.b I can describe how new drugs are tested, including pre-clinical testing and clinical trials.  ***GCSE Biology only***  3.2.1.a I can describe what monoclonal antibodies are and why they are useful.  3.2.1.b I can describe how monoclonal antibodies are produced.  3.2.2.a I can explain how monoclonal antibodies are used for diagnosis, research, chemical testing, and disease treatments.  3.2.2.b I can evaluate the advantages and disadvantages of monoclonal antibodies.  Red denotes interleaving; aspects of knowledge covered previously. |
| **Learning Outcomes (Knowledge)** |
| **Current learning to be developed in the future within:** | Topic 14 (Health Issues) |
| **Assessment** | Refer to assessment maps for formative and summative assessment opportunities. |
| **Impact** | Attainment and Progress – Refer to assessment results / data review documentation. |