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| **YEAR \_\_\_\_ 2023-2024\_\_\_\_\_ TERM: Spring 2**  **‘An ambitious curriculum that meets the needs of all’**  **Medium Term Planning - Topic: Cell Division** | |
| **Curriculum Intent** | **In addition to working further on objectives from KS3 Digestion and KS4 Topic 1 Cell Structure & Transport, pupils will be taught, following National Curriculum guidelines, the following in this topic:**   * stem cells in animals and meristems in plants * some of the practical and ethical considerations of modern biotechnology. |
| **Skills/National Curriculum Links** |
| **Spiritual, moral, social, and cultural development** | **SMSC:** Ethical uses of stem cells in medicine, stem cell cloning  **PSHE/British Values:** Risks and benefits associated with using stem cells in medical research  **Skills Builder:** Debate - ethics |
| **Numeracy** | Review of microscopy calculations, calculation of cell cycle length (higher Triple) |
| **Literacy** | **Vocabulary Tier 2:** Divide, cycle, therapeutic, replication, clone  **Vocabulary Tier 3:** Mitosis, chromosome, chromatid, stem cells, meristem, cloning, multicellular,  **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 ‘Core’ 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:  1.2.1.a I can describe how genetic information is stored in the nucleus of a cell  1.2.2.a I can describe the processes that happen during the cell cycle, including an understanding of mitosis  1.2.2.b I can describe that genetic material is doubled and numbers of subcellular structures are increased before the cell divides.  1.2.2.c I can describe that during mitosis one set of chromosomes is pulled to each end of the cell and the nucleus divides.  1.2.2.d I can describe the three stages of the cell cycle.  1.2.2.e I can describe how cell division by mitosis is important in the growth and development of multicellular organisms.  1.2.3.a I can describe stem cells, including sources of stem cells in plants and animals and their role in an organism  1.2.3.b I can describe the use of stem cells in the production of plant clones and therapeutic cloning  1.2.3.c I can discuss the potential risks, benefits and issues associated with using stem cells in medical research and treatments  Red denotes interleaving; aspects of knowledge covered previously. |
| **Learning Outcomes (Knowledge)** |
| **Current learning to be developed in the future within:** | Topic 12 (Reproduction and Genetic Engineering), 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. |