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| **YEAR \_\_\_\_ 2024-2024 \_\_\_\_\_ TERM: Summer 2 / Autumn 1 (Y11)**  **‘An ambitious curriculum that meets the needs of all’**  **Medium Term Planning - Topic: Plant Transport** | |
| **Curriculum Intent** | **In addition to working further on objectives from KS3 Cells, Photosynthesis, KS4 Topic 1 Cell Structure & Transport, Topic 3 Environment and Topic 8 Biodiversity, pupils will be taught, following National Curriculum guidelines, the following in this topic:**   * the fundamental units of living organisms are cells, which may be part of highly adapted structures including tissues, organs and organ systems, enabling life processes to be performed more effectively * cells as the basic structural unit of all organisms; adaptations of cells related to their functions; the main sub-cellular structures of eukaryotic and prokaryotic cells * the need for transport systems in multicellular organisms, including plants |
| **Skills/National Curriculum Links** |
| **Spiritual, moral, social, and cultural development** | **SMSC:**  **PSHE/British Values:**  **Skills Builder:** |
| **Numeracy** | Calculations required in the topic include rates of transpiration, volume of a cylinder, mean [numbers of stomata in an area of a leaf] |
| **Literacy** | **Vocabulary Tier 2:** photosynthesis, rate, humidity, evaporation,  **Vocabulary Tier 3:** xylem, phloem, waxy cuticle, palisade layer, spongy layer, stomata, transpiration, translocation, osmosis, diffusion, active transport, potometer,  **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 (Practical in observing transpiration using a simple dye) |
| **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:  2.3.1.a I can name some plant tissues and describe their functions  2.3.1.b I can explain how the structure of plant tissues are related to their function within the leaf, which is a plant organ  2.3.2.a I know that the roots, stem and leaves form a plant organ system that transports substances around the plant  2.3.2.b I can explain how root hair cells, xylem and phloem are adapted to their functions  2.3.2.d I can describe the process of transpiration  2.3.2.e I can explain how the rate of transpiration can be affected by different factors  2.3.2.c I can describe the process of translocation  1.3.1.e I can explain how effectiveness of an exchange surface can be increased, including examples of exchange surface adaptations.  Red denotes interleaving; aspects of knowledge covered previously. |
| **Learning Outcomes (Knowledge)** |
| **Current learning to be developed in the future within:** | Topic 9.2 Photosynthesis |
| **Assessment** | Refer to assessment maps for formative and summative assessment opportunities. |
| **Impact** | Attainment and Progress – Refer to assessment results / data review documentation. |