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| Year 9 | **Topic: B1 – Cells and Microscopy**  **C1 – Model of the Atom and the Periodic Table**  **Period:** Spring 2 |
| **Overview of topic:**  B1 – Students will begin the GCSE journey. This topic teaches students that cells are the basic unit of all forms of life. In this topic we explore how structural differences between types of cells enables them to perform specific functions within the organism. These differences in cells are controlled by genes in the nucleus. For an organism to grow, cells must divide by mitosis producing two new identical cells. If cells are isolated at an early stage of growth before they have become too specialised, they can retain their ability to grow into a range of different types of cells. This phenomenon has led to the development of stem cell technology. This is a new branch of medicine that allows doctors to repair damaged organs by growing new tissue from stem cells.  C1 – In this topic, students will learn that the periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. The historical development of the periodic table and models of atomic structure provide good examples of how scientific ideas and explanations develop over time as new evidence emerges. The arrangement of elements in the modern periodic table can be explained in terms of atomic structure which provides evidence for the model of a nuclear atom with electrons in energy levels. | |
| **Key** **knowledge:**  Cells are fundamental biology knowledge, this is then built on so students can understand how cells in their body develop.  The periodic table is the basics of all chemistry and this topic introduces elements to students.  **Key vocabulary:**   |  |  | | --- | --- | | **Tier 2** | **Tier 3** | | **Cells**  **Rows**  **Columns** | **Microscope**  **Prokaryote**  **Eukaryote**  **Protist**  **Stem cell**  **Element**  **Compound**  **Proton**  **Neutron**  **Electron**  **Shell** | | **Key skills:**  ***Know how to…***   * Calculate magnification * Accurately use a microscope * Analyse ethical situations * Use the periodic table * Represent element as labelled diagrams |
| **Co-curricular opportunities:**  ***Maths skills to calculate equations.*** | **Key reading skills taught and key texts:**  **DART activities**  **Wider Reading Opportunities/Links:**  <https://www.microscopemaster.com/history-of-the-microscope.html> |
| **How can I use this information at home?**   * Conversation starters with your children to discuss their learning * Support your child in carrying out independent research around the topic * Visit your local library (or BorrowBox), museums, or other locations to explore the topic * Promote books/other texts that explore this topic (see reading section) * Help your child to learn the key vocabulary | |