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| *What will they be learning, why and in what order?* | | | | | |
|  | **Term 1** | **Term 2** | | | **Term 3** |
| **Bridge/ Foundation knowledge required** | Students have previously covered “dead, alive, never been alive” content in primary school. They will be familiar with the idea that we are made up of cells, and the basic necessities for life. They will have some previous knowledge of the digestive system.  Students will not yet have covered any content on atoms, elements and compounds, but may be able to describe what is meant by solid, liquid and gas and give examples. | Students will be familiar with the planets, and some will be able to name them in the correct order.  Students will not have previously covered any energy content, but should be able to use the word “energy” in the context of food and behaviour.  Students will have covered some reproduction content in primary school and some will be able to name parts of the male and female reproductive system. | | | Students have not previously covered acid and alkali content, but will be able to describe a range of household items and foods which fit into these categories.  Students will be able to link their knowledge of household items such as a sieve to describe what it meant by filtration. Students have previously covered evaporation in the water cycle.  Most students will have covered some forces content before, and should be able to describe/demonstrate a range of forces. Most will not yet be able to use accurate terminology, and will likely refer to all forces as “push and pull”. |
| **Key Learning Experience / Skills** | Cells – Students will be able to draw and label animal and plant cells, stating the function of each organelle. Students will be able to identify a range of specialised cells.  Organisation – Students will be able to describe the eight major organ systems in the human body, and name organs within the systems.  Solids, Liquids and Gases – Students will be able to accurately identify given substances as solid, liquid or gas and describe the properties and particle arrangements of such substances.  Atoms, Elements and Compounds – Students will state that all matter is made up of atoms, and will be able to draw accurate diagrams to depict this. Students will be able to identify a range of substances as either elements or compounds. | Space – Students will name the planets in order, and accurately identify them in a diagram. Students will describe the orbit of the Moon and the Earth. Students will explain how seasons/day/night are caused.  Energy – Students will state the energy stores and energy transfer pathways, and give examples of each. Students will carry out a range of practical tasks to demonstrate energy transfers in action.  Reproduction – Students will be able to name the parts of the male and female reproductive systems and the specialised cells produced by both. Students will be able to describe how an egg is fertilised and how this develops into an embryo. Students will be able to describe the changes that take place during puberty, and the stages of the menstrual cycle. | | | Acids and Alkalis – students will be able to categorise a range of substances into acid, neutral or alkali. Students will carry out a range of tests to determine the pH of a given substance.  Separation Techniques – Students will describe and carry out a range of practical activities to separate mixtures.  Forces – Students will describe a range of forces, and carry out practical activities to test the effects of a given force on an object. Students will carry out calculations and present their data appropriately.  Light and Sound – Students will describe the different types of wave and carry out practical tasks to investigate translucent, transparent and opaque materials. |
| **Assessment**  How will you assess the impact of teaching? | Students will complete plenary tasks in every lesson, mid-topic assessments at the halfway point in each topic, and end-of-topic tests once per topic. | | | | |
| **CIAG Links** | Cells and organisation – medicine, nursing, healthcare, teaching  SLG and AEC – formulation chemistry, pharmacology, teaching | Space and energy – physicist, astrophysicist, aeronautical engineering, teaching  Reproduction - medicine, nursing, healthcare, teaching | | | Acids and Alkalis and Separation Techniques – formulation chemistry, colour chemistry, criminology/forensic chemistry, police, teaching  Forces and Light and Sound – physicist, teaching, optician |
| **British Values** | Students will consider how scientific theories have not always been immediately accepted, and are impacted by the improper use of tolerance, respect and democracy.  Students will consider how rule of law and liberty play a role in the implementation of new scientific theories in areas such as medicine. | | | | |
| **Cross Curricular Link Numeracy** | Students will be expected to draw graphs and carry out simple equations throughout the energy and forces topics. | | **Cross Curricular Link- Literacy** | Students will use glossaries to aid with the high-demand vocabulary in the biology topics. Students will complete a range of assessment questions with mixed literacy demand.  Students will frequently be tested on vocabulary through spelling tests and games such as bingo.  Teachers will present key word lists in lessons. | |
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