Progression Model: Science Year 7

Module 1: Building blocks and Energy	Module 2: Substances, Health, and Space	Module 3: Electricity, Body Systems, and Acids and Alkalis.
Learning Intent for this module: Students will learn about cells as the building blocks of all living things and atoms as the building blocks of all matter. They will also learn about the three states matter and be introduced to the concept of energy and energy transfers 1. Cells and organisation 2a. States of matter 2b. Types of energy and energy transfers 3. Atoms, elements, and compounds	**Learning Intent for this module:** Students will learn about factors that affect health including importance of a balanced diet and the digestive system. They will also learn about energy requirement in the home, space physics and pure and impure substances. 1. Health, Nutrition and the Digestive system 2. Energy in the Home and Space 3. Pure and impure substances	**Learning Intent for this Module:** Students will learn about electricity and magnetism. They will also learn about the organs of the gas exchange and reproductive systems. 1. Animal and Plant Reproduction 2. Static and current electricity 3 Magnetism and Gas Exchange
Key Content to be learned: **Biology**: Students will learn the names and functions of cell parts and the adaptations on unicellular organism. They will learn how to use a microscope and investigate the rate of diffusion. **Physics**: Students will lean that matter can exist in three states and the properties of each in relation to the particle model. Students will learn how changes of state occur and the names of state changes. Students will learn the names of important measurements and units is science and how to calculate and covert them. Students	**Key content to be learned:** **Biology**: Students will learn about the importance of a balanced diet and the problems of drug and alcohol abuse. They will learn about the digestive system linking it to their prior knowledge of cells, tissues, and organs. **Physics**: Students will learn about energy in the home, making links to their prior knowledge on energy transfers. They will compare the power rating and efficiency of different appliances and make links to energy values in food. Students will also study space physics at a time when it is dark enough to observe the night sky. They will learn how day length, year length and seasons of	**Key Content to be learned:** **Biology:** Students will build on their prior knowledge of cells and body systems when they learn about puberty, fertilisation, pregnancy, and birth in mammals. They will also learn about sexual reproduction in plants including the importance of pollination, linking this to ideas about interdependence in ecosystems in Y8. **Physics:** Students will be introduced to the idea of electricity as the movement of electrons and the idea that electric fields can act between objects not in contact. They will build on their prior knowledge of electrical circuits, being

will learn about different types of energy and how it can be transferred. **Chemistry**: Students will learn about the Dalton model of an atom and what molecules and elements are in relation to atoms. They will learn about chemical and physical changes and apply their understanding to the principal of conservation of mass.	the year are determined by the Earth's rotations and be introduced to the key ideas of gravity, mass and weight. **Chemistry:** Students will build on their knowledge of particles, elements, compounds and mixtures when they learn about pure and impure substances. They will apply this knowledge to understand the principals behind different separation techniques.	introduced to more components, their functions and symbols. They will learn about how to measure and calculate electrical current, potential difference and resistance in the context of both series and parallel circuits. Students will also learn about magnetic forces and their uses.
Prior Knowledge: In primary school (Y2) students compare the differences between things that are living, dead, and things that have never been alive. Students will build on these ideas by introducing important ideas and terminology such as respiration, excretion etc. In year 4 students learn to group materials according to whether they are solids, liquids, or gases. Here they will learn to more fully describe these differences and explain them in terms of the behaviour of particles. In year 4, students observe materials changing state and measure or research the temperature at which this happens. In this module students will draw graphs to investigate and explain the relationship between temperature and state changes.	**Prior Knowledge** In Y6 students learn how their bodies might be damaged by drugs and other substances, these ideas will be revisited and further developed including the importance and components of a balanced diet. In Y4 students are taught simple functions of the basic parts of the digestive system and in the previous topic the concept of cells, tissues, organs and organs systems was introduced. Students will build on these ideas to develop more sophisticated schemas of how food is digested, and the organs involved. In Y5 students are introduced to a model of the Sun and Earth that enables them to explain day and night. They also learn that the Sun is a star at the centre of our solar system and that it has eight planets. Students will build on these ideas in a way that enables them to explain day and year length and the seasons of the year.	**Prior Knowledge** In Y4 students construct simple series circuits and name the basic parts (cells, wires, bulbs, switches and buzzers), they are introduced to the idea that the circuit needs to be complete for the bulb to light up. In Y6 students give reasons for variations in the brightness of bulbs, loudness of buzzers etc. and they learn to use symbols in circuit diagrams. Students will build on this knowledge and understanding and apply it to ideas around current, potential difference and resistance in series and parallel circuits. In Y5 students learn about the lifecycles of different vertebrates and can describe key aspects of reproduction in plants and animals. In this module students will develop a more detailed understanding of human and plant reproduction. Puberty and menstruation will be taught at this appropriate developmental stage where students may still have questions and concerns about their changing bodies.

	In the previous module ideas about atoms, elements, compounds, and mixtures were introduced. This will enable students to understand what we mean by pure and impure substances. This prior knowledge as well as that about state changes will be needed to explain what is happening on a particle level when mixture are separated.	
Key tasks for this module: Extended writing key task on Robert Hooke (Biology) Cells and Organisation (Biology) States of matter (Physics) Atoms elements and compounds (Chemistry)	**Key tasks for this module:** Health and Nutrition (Biology) Space (Physics) Extended writing task (Physics) Pure and Impure Substances (Chemistry)	**Key tasks for this module:** Reproduction (Biology) Electricity (Physics) Gas Exchange (Chemistry) Extended writing task (Chemistry)