



Year 8 Science– Outline Programme of Study

		Term 1	For the rest of the year each group will study the following topics, each group will cover the groups in a different order.							
Big Ideas/	Reproduction	Digestion and Respiration	Microbes and Disease	Ecological Relationships	Heating and Cooling	Rocks	Sustainable Science	Elemental Chemistry	Electricity and Magnetisms	Light and Sound
Key Knowledge	<p>How plants reproduce including the structure of a flower, pollination and seed dispersal. Human reproduction including the structure and function of the male and female reproductive systems, puberty and the menstrual cycle. Conception, foetal development and birth.</p>	<p>Healthy diet and food groups. Food tests of proteins, carbohydrates and fats. Structure and function of the digestive system. Mechanical and chemical digestion including the mode of action of enzymes. The structure and function of the respiratory system including gas exchange. The chemical process of respiration including the equations for both aerobic and anaerobic respiration.</p>	<p>The structure of microorganisms limited to viruses, bacteria and fungi. Types of infectious diseases and how they are transmitted and how this can be prevented. The work of Jenner and Fleming on disease control. How the body responds to infection including the role of White Blood Cells and vaccination.</p>	<p>Revisiting the classification of living things, focussing on plants. How organisms interact within a habitat including predator/prey relationships, feeding relationships, food webs and pyramids of numbers. Sampling techniques.</p>	<p>The relationship between heat and temperature, thermal conductors and insulators, heat transfer process (Conduction, convection and radiation), changes of state and heating materials</p>	<p>What rocks are made of. How the 3 different types of rocks (sedimentary, igneous, metamorphic) are formed and how this links to their properties. How chemical and physical weathering occur and investigate these types of weathering. How the different rocks are linked in the rock cycle.</p>	<p>What a non-renewable and renewable energy resource is and the advantages and disadvantages of these energy resources. How fracking occurs and its uses. Evaluate the advantages and disadvantages of fracking. The problems with single-use plastics, palm oil and the fast fashion industry. Discuss how individuals, schools, communities and governments can tackle the issues associated with this.</p>	<p>How all matter is built from particles called atoms. What an element is and how this links to the periodic table. Representing atoms and elements using symbols and formulae. Constructing word equations for different reactions. Identify the signs of a chemical reaction. How to carry out chemical reactions safely. Record observations for chemical reactions. What a mixture is.</p>	<p>What are magnets and magnetic fields, What metals are magnetic, what are electromagnets? How can we make electromagnets stronger? What is the relationship between electricity and magnetism</p>	<p>What is a wave, the features of sound as a wave, the structure and function of the ear and eye, mirrors and reflection, refraction, the intensity of waves</p>

Further information and reading list
<ul style="list-style-type: none"> • BBCbitesize • Educake • Focuselearning • CGP revision guide • Richard Dawkins book the magic of reality • Tim Peak book • https://www.docbrown.info/



Ways to support and extend student learning in this subject

- [Kurzesagt youtube](#)
- [Veritasium youtube](#)
- Ask your child what they are studying in science
- Cook a meal
- Go to a science museum
- <https://scienceoxford.com/>
- Gardening