## Teign School Curriculum Overview





**SCIENCE KS3**

**Key Stage 3**

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| **Year**  | **Cycle 1 -12 Weeks****(10 weeks teaching, 1 week assessment, 1 impact week)** | **Cycle 2 -12 Weeks****(10 weeks teaching, 1 week assessment, 1 impact week** | **Cycle 3 -12 Weeks****(10 weeks teaching, 1 week assessment, 1 impact week** |
|  | *Insert what is to be taught, a very brief summary of what it comprises of and rationale for why it is taught at this point e.g. how it builds from the previous keystage and how it links to other topics within the keystage and it leads to future learning. It might be that you have more than 1 topic within the cycle.*  |
| **7**(Common ESW SoL from Sep 2022) | **Forces (Speed and Gravity)** This topic builds on knowledge learnt about gravity in KS2 and leads into a deeper understanding of forces in GCSE Physics Topic 5 - Forces  | **Electromagnets (Voltage and resistance and Current)**This topic builds on knowledge learnt about circuits in Yr 4 at KS2 and leads into a deeper understanding of the GCSE Physics Topic 2 - electricity **Energy (Energy costs and Energy transfer)**This topic builds on knowledge and learning at KS2 and leads into a deeper understanding of GCSE Physics Topic 1 - Energy | **Waves (Sound and Light)**This topic builds on knowledge learnt about sound in Yr 3 and light in Yr 6 at KS2 and leads into a deeper understanding of the GCSE Physics Topic 6 - Waves |
| **PSHE LINKS** |  |  |  |
|  | **Matter (Particle model and Separating mixtures)**This topic builds on knowledge learnt about solids, liquids and gases and separating mixtures in Yr 5 at KS2 and leads into a deeper understanding of particles in GCSE Chemistry Topic 2 –Bonding and properties of matter and GCSE Physics Topic 3 –particle model of matter. It also links with separation techniques in topic 8 Chemical analysis. | **Earth (Earth structure and Universe)**This topic builds on knowledge learnt about rocks in Yr 3 and planets in Yr 5 at KS2 and leads into a deeper understanding of the GCSE Chemistry Topic 7 Crude oil and Topic 10Using the Earth’s resources. It also links with Space in Triple Physics Topic 10. | **Reactions (Metals and non-metals, Acids and alkalis)**This topic builds on knowledge and learning at KS2 and leads into a deeper understanding of the GCSE Chemistry Topic 4 – Chemical changes |
| **PSHE LINKS** |  |  |  |
|  | **Organisms (Movement and Cells)**This topic builds on knowledge learnt about the skeleton and muscles in yr 3 at KS2 and leads into a deeper understanding of cells and organisms in GCSE Biology Topic 1 Cells and Topic 2 Organisation. | **Genes (Variation and Human reproduction)**This topic builds on knowledge learnt about adaptations and life cycles in KS2 and leads into a deeper understanding of GCSE Biology Topics 5, 6 and 7 - Homeostasis and response, Inheritance and Evolution and Ecology. | **Ecosystems (Interdependence and Plant reproduction)**This topic builds on knowledge learnt about food chains and plants in Yr 3 at KS2 and leads into a deeper understanding of GCSE Biology Topic 7 - Ecology |
| **PSHE LINKS** |  |  |  |
| **8** | **Forces (Contact forces and Pressure)** – This topic builds on knowledge learnt in forces in Year 8 and leads into a deeper understanding of forces in GCSE Physics Topic 5 - Forces  | **Electromagnets (Magnetism and Electromagnets)**This topic builds on knowledge learnt about magnets in Yr 3 at KS2 and electricity in Yr 7 and leads into a deeper understanding of the GCSE Physics Topic 7 – magnetism and electromagnetism.**Energy (Work and Heating and cooling)**This topic builds on knowledge and learning at KS2 and in Yr 7 and leads into a deeper understanding of GCSE Physics Topic 1 - Energy | **Waves (Wave affects and Wave properties)**This topic builds on knowledge learnt at KS2 and in Yr 7 on waves. It leads into a deeper understanding of the GCSE Physics Topic 6 – Waves*After the End of Year 8 assessment the students will have a sequence of lessons designed to develop skills and understanding of number use in Science.*  |
| **PSHE LINKS** |  |  |  |
|  | **Matter (Elements and the Periodic table)**This topic builds on knowledge learnt about matter in Yr 7 and leads into a deeper understanding of GCSE Chemistry Topic 2 –Atomic structure and the periodic table  | **Earth (Climate and Earth’s resources)**This topic builds on knowledge learnt about the environment in KS2 and leads into a deeper understanding of the GCSE Chemistry Topic 4, 9 and10. Extraction of metals, Chemistry of the atmosphere and using the Earth’s resources. It also links with GCSE Biology Topic 7 - Ecology  | **Reactions (Types of reaction and Chemical energy)**This topic builds on knowledge and learning about reversible reactions in KS2 and Reactions in Yr 7. It leads into a deeper understanding of the GCSE Chemistry Topic 3 and 4 – Quantitative Chemistry and Chemical changes*After the End of Year 8 assessment the students will have a sequence of lessons designed to develop skills and understanding of number use in Science.* |
| **PSHE LINKS** |  |  |  |
|  | **Organisms (Breathing and Digestion)**This topic builds on knowledge learnt about diet, exercise and drugs at KS2 and organisms in Yr 7. It leads into a deeper understanding of GCSE Biology Topic 2 and 3 - Organisation and infection and response. | **Genes (Evolution and Inheritance)**This topic builds on knowledge learnt about fossils and variation in Yr 6 and genes in Yr 7 and leads into a deeper understanding of GCSE Biology Topics 6 and 7 - Inheritance and Evolution and Ecology. | **Ecosystems (Respiration and Photosynthesis)**This topic builds on knowledge learnt about plants in Yr 3 at KS2 and Biology in Yr 7. It leads into a deeper understanding of GCSE Biology Topic 4 – Bioenergetics*After the End of Year 8 assessment the students will have a sequence of lessons designed to develop skills and understanding of number use in Science.* |
| **PSHE LINKS** |  |  |  |
| **9** |  |  |  |
| **Biology** | **Topic 1 Cell biology: KS3 Link 8.2**Cells are the basic unit of all forms of life. In this topic we will explore cell structure and the use of microscopes in understanding this knowledge. We will then look at how the structural differences between types of cells enables them to perform specific functions within the organism. | **Topic 1 Cell biology continued: KS3 Link 8.2** **Topic 3 Infection and response : No direct KS3 link**The new concept is pathogens such as viruses and bacteria that cause infectious diseases. This section explores how we avoid diseases by reducing contact with pathogens, as well as how the body uses barriers and how the immune system works. | **Topic 3 Infection and continued : No direct KS3 link** **Topic 2 Organisation: KS3 Link 8.3 and 8.4 (up to enzymes)**Having learnt about cells in cycle 1 we will link this to learn about how they work together in tissues, organs and systems. Examples are the human digestive and the respiratory system.  |
| **PSHE LINKS** |  |  |  |
| **Physics** | **Topic 1 Energy: KS3 Link 3.1, 3.2 3.4**We begin by looking at energy stores, systems and changes; we will look at different ways of calculating energy changes, efficiency of energy transfers and global energy resources.This builds on the concepts developed in the Year 7 Energy topic. | **Topic 1 Energy continued and****Topic 2 Electricity: KS3 Link 2.1 and 2.2**Electric charge is a fundamental property of matter everywhere. Many circuits are powered with mains electricity, but portable electrical devices must use batteries of some kind. Power stations, like all machines, have a limited lifetime. More electricity use means building new power stations but what mix of power stations can promise a sustainable future? | **Topic 2 Electricity continued**Electric charge is a fundamental property of matter everywhere. Many circuits are powered with mains electricity, but portable electrical devices must use batteries of some kind. Power stations, like all machines, have a limited lifetime. More electricity use means building new power stations but what mix of power stations can promise a sustainable future? |
| **PSHE LINKS** |  |  |  |
| **Chemistry** | **Topic 1 Atomic structure and the periodic table 1.1 (except 1.2 mixtures) KS3 Links 5.3, 5.4**An introduction to atomic structure including sub-atomic particles, and how the elements are organised in the Periodic Table with a focus on Group 0, 1 **These topics follow the new curriculum plan which is running for Year 9 from 2022/23** | **Topic 1 Atomic structure and the periodic table 1.1 continued** More on Group 7 and transition metals; balancing equations**Topic 2.1 Chemical Bonds and 2.2 Bonding and Structure KS3 Link 5.3**Having established atomic structure in Year 9 it is now possible to consider the ways that atoms join to form compounds and the kinds of structures this creates. There will also be an opportunity to recap the main Groups in the Periodic table.**Topics 4.1 Reactivity of metals, 4.2 Reactions of acids KS3 Links 5.2, 6.1**These topics examine basic patterns of reaction and can be linked back to understanding of the Periodic Table. | **Topics 5 Energy Changes, 9 Chemistry of the atmosphere KS3 Links 7.3**This unit takes the concept of reactivity in cycle 2 and develops the idea by adding energy changes associated with this process. It also introduces the concept of a dynamic atmosphere.**Physics Topic 2 Electricity** :Choosing energy resources, changing energy usage and improving energy efficiency |
| **PSHE LINKS** |  |  |  |