Year 10 - Triple science

Year 10 is when students fully embark on their GCSE journey. They begin to build a more in depth understanding of the concepts learned earlier in each theme and develop aspirations of a career in STEM.
Throughout year 10 the students will use experimental techniques, critical thinking and considered questioning to explore a range of topics in biology, chemistry and physics.

Knowledge overview	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
Topic	Bioenergetics	Chemical changes	Domestic electricity	Infection and response	Energy changes	Nuclear physics
Theme	Ecosystems 3	Chemical reactions 3	Electromagnetism 5	Organisms 5	Chemical reactions 5	Energy and Particles 5
Overview	In this topic students will take a detailed look at respiration and photosynthesis and the factors which affect them. Students will consider the implication of changing these factors on real world contexts such as sport and farming	In this topic students will explore some of the various different chemical reactions which occur in industrial processes. Students will use their understanding of experimental techniques to explain how metals can be extracted from their ores.	In this topic students will take an in depth look at how electricity can be used at home. Students will consider how the to calculate the power of various appliances along with evaluating the safety measure in place for domestic electricity.	In this topics students will explore how pathogens can infect organisms and cause disease. Students will also look at the preventative measure in place to reduce disease as well as your bodies own defence mechanisms to combat pathogen.	In this topic students will take an in depth look at the energy changes associated with chemical reactions. Students will use experimental data to quantify and calculate these energy changes and then apply their results to real world contexts.	In this topic students will revisit the models of the atom and consider how and why the theories have changed over time. Students will consider the safety of using radioactive substances for a variety of uses and evaluate the use of nuclear energy.

Knowledge overview	Topic 7	Topic 8	Topic 9	Topic 10	Topic 11
Topic	Adaptations and interdependence	Quantitative chemistry	Waves in depth	Nutrient cycles & human impact on the	Chemistry of the atmosphere
Theme	Ecosystems 4	Chemical reactions 4	Electromagnetism 6	Ecosystems 5	Earth's resources 3
Overview	In this topic students will take an in depth look at how certain organisms become adapted to their habitats. Students will consider how organisms have physical and behavioural adaptations to thrive in the environment in which they live as well as to cope	In this topic students will delve into the methods used to quantify the amounts of substance used and produced in chemical reactions. Students will use mathematical concepts such as algebraic equations and ratios to calculate the yields	In this topic students will take a detailed look at waves and their properties. Students will use equations to understand the relationship between wavelength, frequency and wave speed. Students will also consider the risk associated with EM waves	In this topic students will investigate the various types of nutrient cycles which occur on Earth. Students will evaluate the impact of human activities on these nutrient cycles.	In this topic students look at in depth how human activity is having an impact on the atmosphere an how these changes can affect to world we live in. Students will consider how bias and misinformation can cause misconceptions regarding to scientific theories and