

Year 11 - Combined science

Year 11 combined science is where students begin to refine their understanding of the themes they have studied in their high school career, and further extend and challenge themselves with the most difficult concepts in the GCSE course

The work they complete through their five year journey will allow students to leave Rastrick High school as scientifically literate members of society.

Knowledge overview	Topic 1	Topic 2	Topic 3	Topic 4
Topic	Homeostasis and response	Rates of reactions	Chemical analysis	Organic chemistry
Theme	Organisms 6	Chemical reactions 6	Matter and the periodic table 5	Earth's resources 4
Overview	In this topic students will consider how the human body maintains control of certain factors such as temperature and blood sugar. Students will sequence the stages in the nervous system and explain how hormones can communicate messages in the human body.	In this topic students will explore how the speed at which reactions occur can be measured and changed. Students will consider real world industrial processes and they will explain the importance of how these chemical reactions progress.	In this topic students will investigate the various techniques scientists use to identify unknown substances. Students will also practice the techniques used to separate a variety of mixtures.	In this topic students will detail how crude oil is formed, extracted and separated into useful products. Students will evaluate the use of crude oil as a natural but finite resource and investigate the impact its use has on the environment.

Knowledge overview	Topic 5	Topic 6	Topic 7	Topic 8
Topic	Magnetism in depth	Inheritance and variation	Theories of evolution	Using Earth's resources
Theme	Electromagnetism 7	Genes and Evolution 3	Genes and Evolution 4	Earth's resources 5
Overview	In this topic students will take an in depth look at magnetism and electromagnetism. Students will use models to represent the ways in which magnetic fields can interact and will use equations to help calculate the forces produced.	In this topic students will look at genetic inheritance and how it occurs. Students will use models and established techniques to demonstrate and communicate ideas about inheritance.	In this topic students will explore the theory of evolution and critique the evidence put forward to support it. Students will apply their understanding of evolution and changing ecosystems to explain why organisms may become extinct.	In this topic students will take an in depth look at how humans use the resources found on Earth and the impact their use is having on the planet. Students will evaluate and justify new techniques and practices aimed at reducing the impact they have.