



Curriculum Overview: Year 11 Combined Science

What your child will learn each half term

This overview shows the key topics, skills, and knowledge your child will be learning in Year 11 Combined Science. It helps families understand what's being taught, how it builds on previous learning, and how you can support your child at home.

- **What we are learning:** The topic or focus for the half term.
- **Key knowledge & skills:** What students should understand and be able to do.
- **How we assess learning:** knowledge checks, practical tasks, written responses and formal assessments.
- **Key words to know:** Vocabulary students will learn and use.

Half term	What we are learning	Key knowledge/skills	How we will assess learning in this unit	Homework
HT1	What we are learning • B5b Hormonal Coordination • B6a Reproduction • C6 Rate and Extent of Chemical Change • P5a Forces in Balance	Key knowledge & skills • Understand how hormones regulate body functions and maintain stable internal conditions. • Explain the role of hormones such as insulin in controlling blood glucose levels. • Describe human reproduction, fertilisation and development. • Investigate factors that affect the rate of chemical reactions. • Explain how catalysts and temperature affect reaction rates. • Describe balanced and unbalanced forces and their effects. • Apply calculations involving force, mass and weight. • Interpret scientific data and practical results. • Apply scientific knowledge to unfamiliar situations. • Develop practical, analytical and problem-solving scientific skills.	Continuous formative assessment in lessons. End of topic tests. Question level analysis and feedback. Required practical assessment booklets.	Homework is set weekly through the online platform Educake. Tasks reinforce current learning and revisit previous topics to support long-term retention of key scientific knowledge. Homework includes a mixture of multiple-choice and extended response questions. Teachers monitor completion and provide feedback where appropriate. Parents will be contacted if there are ongoing concerns regarding the completion of homework.
Key vocabulary B5b Hormonal Coordination Hormone, Endocrine, Gland, Insulin, Adrenaline, Thyroxine, Blood glucose, Pancreas, Regulation, Homeostasis B6a Reproduction Gamete, Fertilisation, Embryo, Foetus, Puberty, Hormone, Menstrual cycle, Reproduction, Contraception, IVF C6 Rate and Extent of Chemical Change Rate, Collision theory, Catalyst, Concentration, Surface area, Temperature, Equilibrium, Reversible reaction, Yield, Dynamic equilibrium P5a Forces in Balance Force, Resultant force, Balanced, Unbalanced, Gravity, Weight, Mass, Friction, Equilibrium, Newton				

HT2	What we are learning • B6a Reproduction • B6b Variation and Evolution • P5a Forces in Balance • P5b Motion Graphs	Key knowledge & skills • Describe human reproduction and development. • Explain how variation occurs within populations. • Understand how natural selection contributes to evolution. • Describe how organisms adapt to their environment. • Explain the difference between balanced and unbalanced forces. • Interpret and analyse motion graphs. • Calculate speed, velocity and acceleration. • Apply mathematical skills to scientific problems. • Interpret scientific evidence and data. • Develop analytical and problem-solving scientific skills.	Continuous formative assessment in lessons. End of topic tests. Question level analysis and feedback. Required practical assessment booklets.	Homework is set weekly through the online platform Educake. Tasks reinforce current learning and revisit previous topics to support long-term retention of key scientific knowledge. Homework includes a mixture of multiple-choice and extended response questions. Teachers monitor completion and provide feedback where appropriate. Parents will be contacted if there are ongoing concerns regarding the completion of homework.
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Key vocabulary

B6a Reproduction

Gamete, Fertilisation, Embryo, Foetus, Puberty, Hormone, Menstrual cycle, Reproduction, Contraception, IVF

B6b Variation and Evolution

Variation, Evolution, Natural selection, Adaptation, Species, Gene, Inheritance, Fossil, Mutation, Environment

P5a Forces in Balance

Force, Resultant force, Balanced, Unbalanced, Gravity, Weight, Mass, Friction, Equilibrium, Newton

P5b Motion Graphs

Speed, Velocity, Distance, Displacement, Acceleration, Time, Gradient, Motion, Deceleration, Graph

HT3	What we are learning • C7a Crude Oil and Fuels • C8 Chemical Analysis • C9 Our Atmosphere • P5c Force and Motion • B6c Genetics and Evolution • B7a Adaptations, Interdependence and Competition • P6a Wave Properties	Key knowledge & skills • Understand how crude oil is used to produce fuels and useful chemicals. • Explain how scientists identify and analyse substances using chemical tests. • Explore how Earth's atmosphere has changed over time and the impact of human activity. • Describe how forces affect motion and explain acceleration. • Understand how genetic information is inherited and how variation occurs. • Explain how evolution occurs through natural selection. • Explore how organisms adapt to their environments and depend on one another for survival. • Describe the properties and behaviour of waves. • Interpret scientific evidence, graphs and practical results. • Develop practical, analytical and problem-solving scientific skills.	Continuous formative assessment in lessons. End of topic tests. Question level analysis and feedback. Required practical assessment booklets.	Homework is set weekly through the online platform Educake. Tasks reinforce current learning and revisit previous topics to support long-term retention of key scientific knowledge. Homework includes a mixture of multiple-choice and extended response questions. Teachers monitor completion and provide feedback where appropriate. Parents will be contacted if there are ongoing concerns regarding the completion of homework.
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Key vocabulary

C7a Crude Oil and Fuels

Crude oil, Hydrocarbon, Combustion, Fuel, Fractional distillation, Alkane, Fossil fuel, Refinery, Viscosity, Flammability

C8 Chemical Analysis

Chromatography, Ion, Flame test, Purity, Separation, Analysis, Sample, Solvent, Identification, Chemical test

C9 Our Atmosphere

Atmosphere, Carbon dioxide, Greenhouse effect, Climate change, Oxygen, Nitrogen, Pollution, Methane, Environment, Emissions

P5c Force and Motion

Acceleration, Velocity, Force, Mass, Momentum, Motion, Inertia, Resultant force, Newton, Distance

P6a Wave Properties

Wave, Amplitude, Frequency, Wavelength, Transverse, Longitudinal, Oscillation, Reflection, Refraction, Speed

B6c Genetics and Evolution

DNA, Gene, Chromosome, Allele, Inheritance, Variation, Mutation, Evolution, Natural selection, Species

B7a Adaptations, Interdependence and Competition

Adaptation, Competition, Interdependence, Ecosystem, Habitat, Resources, Species, Predator, Prey, Survival

HT4	What we are learning • P6a Wave Properties (Part 2) • P7 Electromagnetism • C10a The Earth's Resources • B7a Adaptations, Interdependence and Competition (Part 2) • B7b Organising an Ecosystem • B7c Biodiversity and Ecosystems	Key knowledge & skills • Explain how waves transfer energy and how different types of waves behave. • Describe magnetic fields and explain how electromagnets are used in everyday life. • Understand the importance of sustainable use of Earth's resources. • Evaluate methods used to conserve resources and reduce environmental impact. • Explore how organisms compete and depend on each other within ecosystems. • Understand how energy and materials are transferred through ecosystems. • Explain the importance of biodiversity and conservation. • Investigate the impact of human activity on ecosystems and the environment. • Interpret scientific evidence and environmental data. • Develop practical, analytical and evaluative scientific skills.	Continuous formative assessment in lessons. End of topic tests. Question level analysis and feedback. Required practical assessment booklets.	Homework is set weekly through the online platform Educake. Tasks reinforce current learning and revisit previous topics to support long-term retention of key scientific knowledge. Homework includes a mixture of multiple-choice and extended response questions. Teachers monitor completion and provide feedback where appropriate. Parents will be contacted if there are ongoing concerns regarding the completion of homework.
Key vocabulary P6a Wave Properties Wave, Amplitude, Frequency, Wavelength, Transverse, Longitudinal, Oscillation, Reflection, Refraction, Speed P7 Electromagnetism Magnetic field, Electromagnet, Solenoid, Current, Coil, Transformer, Generator, Motor, Magnetism, Induction B7b Organising an Ecosystem Ecosystem, Community, Population, Habitat, Niche, Abiotic, Biotic, Distribution, Sampling, Quadrat B7c Biodiversity and Ecosystems Biodiversity, Conservation, Ecosystem, Species, Extinction, Sustainability, Habitat, Environment, Food web, Interdependence C10a The Earth's Resources Resource, Finite, Sustainable, Potable water, Desalination, Recycling, Environment, Conservation, Raw material, Demand B7a Adaptations, Interdependence and Competition Adaptation, Competition, Interdependence, Ecosystem, Habitat, Resources, Species, Predator, Prey, Survival				

HT5	What we are learning Revision and preparation for GCSE examinations	Key knowledge & skills - Consolidate core knowledge from across the GCSE Combined Science course. - Develop examination technique and extended writing skills. - Practise application of scientific knowledge in unfamiliar contexts. - Analyse and improve performance using assessment feedback.	Continuous formative assessment in lessons. End of topic tests. Question level analysis and feedback. Required practical assessment booklets.	Homework is set weekly through the online platform Educake. Tasks reinforce current learning and revisit previous topics to support long-term retention of key scientific knowledge. Homework includes a mixture of multiple-choice and extended response questions. Teachers monitor completion and provide feedback where appropriate. Parents will be contacted if there are ongoing concerns regarding the completion of homework.
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