



# Science Curriculum Implementation - Five Year Curriculum Model



Based on the 10 Big Ideas

Forces

Electromagnets

Energy

Waves

Matter

Reactions

Earth

Organisms

Ecosystems

Genes

## Key Stage 2

### Prior Learning: Key Stage 2 Scientific Enquiry

Understand what variables are and how to control them.

Take measurements from a range of equipment, understanding the need for repeated measures to increase accuracy.

Gather and record data using labels, classification keys, tables, scatter graphs, bar and line graphs.

Use test results to make further predictions to set up further comparative and fair tests.

Make conclusions on the test carried out, orally and in writing.

### Prior Learning: Key Stage 2 Biology

Plants, including parts of plants, needs of plants and their life cycle.

Animals, including humans, focusing on nutrition, skeletons and muscles.

Living things and their habitats, including classifying living things and looking at changes to environments.

Animals, including humans, focusing on eating: teeth, the digestive system and food chains.

Living things and their habitats, including life cycles of a mammal, amphibian, insect and bird.

Animals, including humans, focusing on changes from birth to old age.

Living things and their habitats, including classifying micro-organisms, plants and animals.

Animals, including humans, focusing mainly on diet and exercise.

Evolution and inheritance, looking at fossils, reproduction and adaptation.

### Prior Learning: Key Stage 2 Chemistry

Rocks, including comparing rocks, looking at fossils and understanding how soil is made.

Properties and changes of materials, including dissolving, separating and reversible changes.

### Prior Learning: Key Stage 2 Physics

Light, looking at how light is reflected, how shadows are formed and can change.

Forces and magnets, focusing on attraction and repulsion of magnets, magnetic materials and the two poles of a magnet.

Electricity, including constructing a circuit and understanding conductors and insulators.

Earth and space, looking at the movement of the sun, earth and moon.

Forces, including gravity, air resistance, water resistance and friction.

Light, looking closely at how it travels and how shadows are made.

Electricity, analysing the function of lamps, buzzers, cells and switches.

## Year 7

### Term 1

After an introduction focussed on Scientific Enquiry students will study units on **Speed, Gravity, the Particle Model, Cells and Movement**. These will build on the prior work from Key Stage 2

Cultural Exposure: Jeans for Genes Day, Christmas Lectures

### Term 2

Students will continue to develop the Big Science Ideas by covering units on **Separating Mixtures, Energy Costs, Energy Transfer and Acids & Alkalis**. As in Term 1 these units will build on Key Stage 2 knowledge.

Cultural Exposure: Science Week 2020: Our Diverse Planet.

### Term 3

The final term of Year 7 involves students studying units on **Variation, Human Reproduction, Sound, Light and the Universe**. Throughout the year topics will be revisited to ensure the key facts of each unit are secure.

Cultural Exposure: A series of careers based STEM challenges.

### Assessment:

Formative: Kerbooble interactive assessments, the development of 'live marking' and self & peer assessment will support students.

Summative: End of topic tests, mid & end of year assessments (supported by relevant intervention)

## Year 8

### Term 1

Further work will be done to develop students' Scientific Enquiry skills and units on **Potential Difference & Resistance, Current, Earth Structure, Contact Forces and Elements**.

Cultural Exposure: Jeans for Genes Day, Christmas Lectures

### Term 2

The complexity of work increases as students develop the Big Ideas with units on the **Periodic Table, Breathing, Digestion** and the Ecosystems Big Idea is introduced through **Interdependence and Plant Reproduction**.

Cultural Exposure: Science Week 2020: Our Diverse Planet.

### Term 3

The Big Ideas are further developed through units on **Metals & Non-Metals, Work, Heating & Cooling, Respiration and Photosynthesis**. Revisiting topics is used throughout the year to ensure that the key fact are secure.

Cultural Exposure: A series of careers based STEM challenges.

### Assessment:

Formative: Kerbooble interactive assessments, the development of 'live marking' and self & peer assessment will support students.

Summative: End of topic tests, mid & end of year assessments (supported by relevant intervention)

## Year 9

### Term 1

The complexity of work continues as students develop each of the big ideas with units on **Evolution, Inheritance, Magnetism, Electromagnets, Climate and the Earth's Resources**.

Cultural Exposure: Jeans for Genes Day, Shaping Futures

### Term 2

The final parts of the Key Stage 3 National curriculum are met through units on **Pressure, Wave Effects, Wave Properties, Types of Reaction and Chemical Energy**.

Cultural Exposure: Science Week 2020: Our Diverse Planet. Big Bang Fair

### Term 3

Students will have a series of GCSE Foundation Units focussing on **Cell Structure and Transport, Atomic Structure, Energy Conservation and Dissipation, Cell Division, Periodic Table and Energy Transfer by Heating**

Cultural Exposure: A series of careers based STEM challenges. SF trip.

### Assessment:

Formative: Kerbooble interactive assessments, the development of 'live marking' and self & peer assessment will support students.

Summative: End of topic tests, mid & end of year assessments (supported by relevant intervention)

## Year 10

### Term 1

Big Ideas are further developed through units on **Organisation & Digestive System, Structure & Bonding, Energy Resources, Organising Animals & Plants, Chemical Calculations, Electric Circuits and Communicable Diseases**

Cultural Exposure: Jeans for Genes Day, Shaping Futures

### Term 2

Big Ideas are developed through units on **Chemical Changes, Electricity in the Home, Preventing & Treating Diseases, Electrolysis, Molecules and Matter and Non-Communicable Diseases**

Cultural Exposure: Science Week 2020: Our Diverse Planet.

### Term 3

Year 10 is completed with units on **Energy Changes, Radioactivity, Photosynthesis, Rates and Equilibrium, Forces in Action and the Human Nervous System**. Revisiting units through the year will support students

Cultural Exposure: A series of careers based STEM challenges. SF trip.

### Assessment

Formative: Kerbooble interactive assessments, the development of 'live marking' and self & peer assessment will support students.

Summative: End of topic tests, full Paper 1 at Christmas and Summer.

## Year 11

### Term 1

Big Ideas are further developed through units on **Hormone Control, Crude Oil and Fuels, Motion, Reproduction, Chemical Analysis, Force & Motion, Variation & Evolution, Earth's Atmosphere and Wave Properties**

Cultural Exposure: Jeans for Genes Day, NHS Careers Event

### Term 2

Big Ideas are further developed through units on **Genetics & Evolution, Electromagnetic Waves, Adaptations and Interdependence, the Earth's Resources, Organising an Ecosystem, Electromagnets and Biodiversity**

Cultural Exposure: Science Week 2020: Our Diverse Planet.

### Term 3

Students revise for exams. Revisiting units through 'Blast from the Past' work, exam literacy and communication skills, applying understanding, and analysing data will have been on-going through the 5 year plan.

Cultural Exposure:

### Assessment

Formative: Kerbooble interactive assessments, the development of 'live marking' and self & peer assessment will support students.

Summative: End of topic tests, full Paper 2 at Xmas and Paper 1&2 Easter.