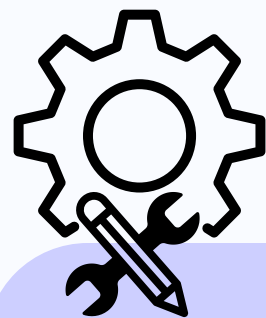


**Working Scientifically skills
are embedded across the
teaching of all content.**

Asking Questions
Developing methods
Measuring and
Presenting Results
Writing conclusions
using Secondary sources and
scientific ideas
Evaluating Investigations



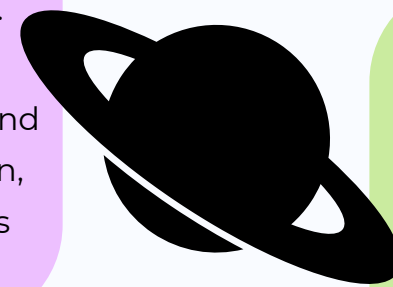
**Intro to Science
and Skills**

We begin with an introduction to the study of science, that hopes to foster an enquiring mind and to begin the development of skills of scientific enquiry. Pupils come to us with hugely varying degrees of science knowledge, skills and understanding and this introduction allows for a levelling of fundamental knowledge whilst still allowing for challenge and extension through tasks set. Scientific method is explored in a fun and innovative way, whilst basic skills, such as measuring and understanding relationships between variables are established.

Space

Many children have a great interest, great knowledge and a natural curiosity about this subject, This topic builds on this, allowing for challenge and exploration whilst meeting the National Curriculum objectives. This topic also includes where possible a visiting planetarium experience. An understanding of space is necessary for evolution of our planet in Year 6.

Pupils learn about the movement of the earth and the moon, explore the shape and size of the sun, moon and earth and use the idea of the earths rotation to explain day and night.

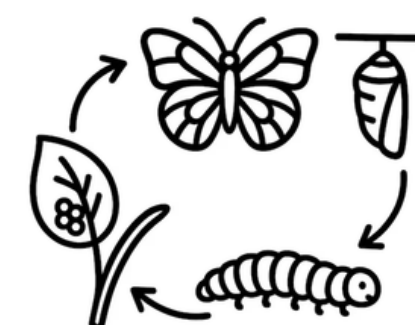


Year 5 Science

Pupils join us from a wide range of feeder schools. Assessment in Science has two approaches. We assess continually throughout the year across a wide range of objectives that are taught in class. This work is assessed using work completed in the classroom. Additionally pupils are formally assessed 3 times in a year.

**Animal Life
Cycles**

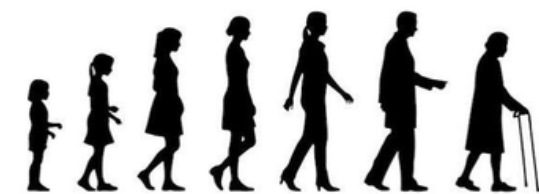
Building on work on Year 2 and Year 4, this topic introduces the concept of a life cycle for the first time, allowing for exploration of real butterflies and chicks. Building foundations for Y6 Classification and an initial appreciation of eco systems and interdependence (Studied in Year 8)



**Human Life
Cycle**

This topic is taught in Year 5 in conjunction with and as preparation for the PSHE curriculum. This topic provides a foundation for the topic of genetic inheritance in Year 6 and is built on considerably in Year 7.

Pupils learn about the changes that happen as humans develop to old age,



**Formal
Assessment**

Forces

This topic builds on work completed again in LKS2. Allowing for knowledge recap and a development of Physics understanding. It provides the first real opportunity for substantive links to be made with engineering and mathematics (STEM) and gives a sound basis for the substantive Year 7 Forces topic.

Pupils learn about the force of gravity, friction, air and water resistance and complete the topic by exploring simple machines such as levers, gears and pulleys.

**Formal
Assessment**

Material World

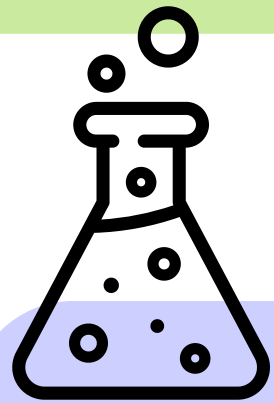
This topic builds on work completed in UKS2 and is further developed in Y6. Allowing both for knowledge recap and development of chemistry understanding. It provides preliminary knowledge for the learning of particle theory, atoms, elements and compounds and Separating Techniques in KS3.

Pupils compare and group together materials on the basis of their properties and give reasons based on investigations why certain materials have particular uses.

**Formal
Assessment**

**Working Scientifically skills
are embedded across the
teaching of all content.**

Asking Questions
Developing methods
Measuring and
Presenting Results
Writing conclusions
using Secondary sources and
scientific ideas
Evaluating Investigations



Materials

This topic builds considerably on work completed in Year 5 and UKS2. Allowing both for knowledge recap and development of chemistry understanding. It provides foundational knowledge for the study of Particle Theory and Atoms, elements and compounds in Year 7 and Separating techniques in Year 8.

Pupils learn about the properties of solids, liquids and gases, the techniques of filtering, sieving and evaporation to separate substances and the principles of reversible and irreversible changes.

Electricity and Light

Pupils are introduced to electricity in Year 4, children develop their knowledge by learning how to draw circuit diagrams and investigating the impact of components in circuits. This unit provides foundational knowledge for the topic of electricity and magnetism in Year 8.

Light is first taught in Year 3. This unit both builds on and recaps that foundational knowledge.

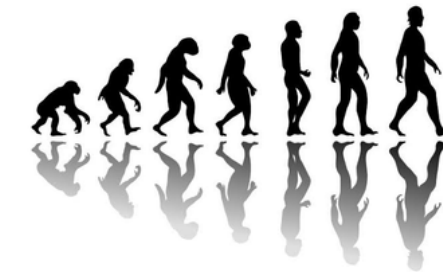
Pupils learn about how light travels, how we see things and how shadows are formed.



**Formal
Assessment**

Classification

This topic builds substantively on pupils learning from years 3 and 4 on classification keys. Pupils learn about how living things are classified into broad groups, including microorganisms, plants and animals and are able to give reasons for this classification. Learning about microscopic organisms is a foundation for the Year 7 topic of cells/microscopy and also feeds into the Year 8 topic of Eco Systems. This topic is developed further at high school.



Careers

This topic introduces pupils to the wide range of career options that be achieved through the study of science and aims to challenge the stereotypical views of a 'scientist'. It reflects on the skills that are needed to follow a career in the science. Pupils consider several science based careers in more depth.



**Formal
Assessment**

Evolution

This topic is challenging and fascinating it starts with initial learning of the the origins of our planet and the development of our species. Pupils recognise that living things have changed over time and how fossils provide evidence of living things that inhabited the earth millions of years ago. They learn that living things produce offspring of the same kind but not necessarily identical to their parents and use this knowledge to understand adaptation and evolution. This topic is a foundation for Year 7 Reproduction and is developed further at high school.



**Digestion and
Circulation**

This topic builds substantively on 'Humans' topics taught throughout KS1 and LKS2. Pupils build on and develop their understanding of the digestive system and circulatory system, bringing their knowledge together to understand how nutrients and oxygen are used in the body. They learn how to recognise the impact of diet, exercise, drugs and lifestyle on the way their body functions.

This unit provides sound foundational knowledge for the health and digestion topic in Year 8.

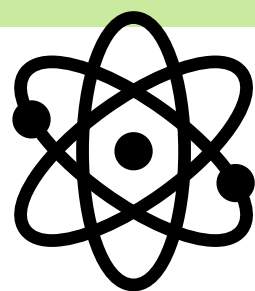
**Formal
Assessment**

Year 6 Science

Assessment in Year 6 has two approaches. We assess continually throughout the year across a wide range of objectives that are taught in class. This work is assessed using work completed in the classroom. Additionally pupils are formally assessed 3 times in a year.

Working Scientifically skills are embedded across the teaching of all content.

Asking Questions
Developing methods of enquiry
Identifying variables.
Use appropriate techniques safely.
Presenting and calculating Results.
Writing conclusions.
Evaluating Investigations.
Use and understand SI units



Particle Theory

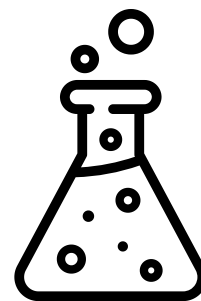
This topic is foundational knowledge for almost all topics that follow in KS3. The study of particles and their behaviour is one which has far reaching links into all 3 disciplines. This topic builds on Year 6 materials where S/L/G are taught at the non-partical level.

Pupils learn about the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure.
They apply the particle model to understand changes of state, Brownian motion and diffusion.

Atoms, elements and compounds.

This topic builds on the learning of particle theory, developing the concept of atomic structure and how substances are built up from atom to element to compound. Pupils learn about a simple (Dalton) atomic model, differences between atoms, elements and compounds, chemical symbols and formulae for elements and compounds. Pupils are also introduced to the periodic table.

This topic is foundational knowledge for chemical reactions and further chemistry learning in Year 8.



Formal Assessment

Chemical Reactions and Acids and Alkalis

This topic develops foundational knowledge of chemical changes first studied in Year 6 materials. Pupils learn about chemical reactions as the rearrangement of atoms, representing chemical reactions using formulae and using equations, what catalysts do, combustion and thermal decomposition.

They define acids and alkalis in terms of neutralisation reactions, describe the pH scale for measuring acidity/alkalinity; and learn how to use indicators. They carry out reactions of acids with alkalis to produce a salt plus water.

Reproduction

This topic uses foundational knowledge from Year 5 life cycles and builds on the cells and bodys systems topic. Pupils learn about reproduction in humans, including the structure and function of the male and female reproductive systems, the menstrual cycle fertilisation, gestation and birth. Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal.

Formal Assessment



Skeletal and muscular system

This is the second body system studied in KS3. Pupils learn about the structure and functions of the human skeleton, biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles The function of muscles and examples of antagonistic muscles are explored.

Forces

This topic builds on the foundational knowledge from Year 5 forces. Pupils develop their knowledge of forces, measured in Newtons, friction between surfaces, resistance to air, floating, sinking and upthrust. They use force arrows in diagrams and describe and calculate balanced and unbalanced forces. They expand on their understanding of simple machines and calculate moments. They learn about speed, distance and time and how forces cause objects to change direction, stop or start moving.. They investigate Hooke's law, springs, squashing and stretching.

Formal Assessment



Year 7 Science

Assessment in Year 7 has two approaches. We assess for foundational knowledge retention following each unit studied.

Additionally pupils are formally assessed 3 times in a year.

Cells and Body Systems

This topic builds on the simple study of body systems in UKS2. Pupils learn about cells as the fundamental unit of living organisms, including how to observe and record cell structure using a light microscope. They describe the functions of parts of the cell and the similarities and differences between plant and animal cells. They learn about the role of diffusion in the movement of materials in and between cells and the structural adaptations of some unicellular organisms. The unit is completed with learning of the hierarchorganisation of multicellular organisms: from cells to tissues to organs to systems to organisms.

Working Scientifically skills are embedded across the teaching of all content.

Asking Questions and developing methods of enquiry
Identifying variables.
Use appropriate techniques safely.
Presenting and calculating Results.
Writing conclusions.
Evaluating Investigations.
Use and understand SI units

Healthy Lifestyles, Digestion and the Respiratory System

This topic develops foundational knowledge of digestions and circulation , first studied in Year 6. Pupils learn about the content of a healthy human diet and why each food group is needed and the consequences of imbalances in the diet. The tissues and organs of the human digestive system are explored, including adaptations to function. The topic continues with pupils describing the effects of recreational drugs on behaviour, health and life processes. Pupils complete their learning with the structure and functions of the gas exchange system in humans and the impact of exercise, asthma and smoking.



Respiration, Photosynthesis and Ecosystems

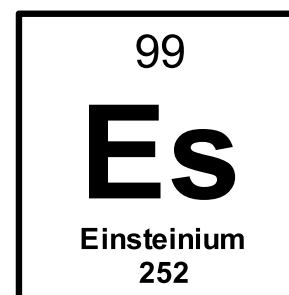
This topic uses knowledge gained in digestion and the respiratory system to simply describe the process of respiration where oxygen and nutrients are used to provide energy for life. Pupils then go further in learning the process of photosynthesis in plants and how they work together as a continuous energy cycle. Learning is completed with the understanding of how organisms in an ecosystem are dependent on each other.

Formal Assessment



The Periodic table

This topic begins by revisiting foundational knowledge around elements, compounds and mixtures completed in Year 7. Pupils then describe the varying physical and chemical properties of different elements and the principles underpinning the Mendeleev Periodic Table. They explore the Periodic Table: periods and groups; metals and non-metals and explain how patterns in reactions can be predicted with reference to the Periodic Table. They describe the properties of metals and non-metals and how this affects their uses, building on learning in Year 5.



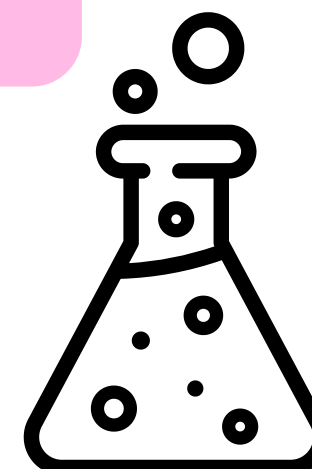
Separating techniques

This topic builds on foundational knowledge from Year 6 materials. Pupils revisit learning on filtering and evaporation techniques and combined with their knowledge of pure substances and boiling points from Year 7, they explain simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography.

Formal Assessment

Chemical Reactions

This topic builds further on learning in Years 7 and 8. Pupils learn about the order of metals and carbon in the reactivity series and use this to describe reactions of acids with metals to produce a salt plus hydrogen, oxidation, displacement reactions and the use of carbon in obtaining metals from metal oxides.



Year 8 Science

Assessment in Year 8 has two approaches. We assess for foundational knowledge retention following each unit studied.
Additionally pupils are formally assessed 3 times in a year.

Electricity and Magnetism

This topic builds on foundational knowledge from Year 6 Electricity and Year 5 Materials. Pupils learn about electric current and potential difference in series and parallel circuits and resistance as the ratio of potential difference to current They investigate differences in resistance considering different variables. They describe static electricity as the separation of positive or negative charges when objects are rubbed together and the transfer of electrons. Learning is completed with explaining magnetic poles and fields, Earth's magnetism, the compass and navigation and the magnetic effect of a current,

Formal Assessment

Earth as a source of Natural Resources

Pupils learn simply about the composition of the Earth and its atmosphere. they use this knowledge to explain our Earth as a source of limited resources and the efficacy of recycling, whilst considering the production of carbon dioxide by human activity and the impact on climate. This knowledge is further developed during through a transition projecy with the high school.