Science

Lead	Andrew Fearn

Curriculum Intent

At Bentley High Street Primary School, our intention is to deliver a science curriculum which enables pupils to confidently explore and discover the world around them, so that they have a deeper understanding of the world we live in. Our ambition is that all pupils develop a sense of excitement and curiosity about Science.

At Bentley, we follow the National Curriculum for Science in KS1 and KS2 with the aim to develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Science teaching and learning is mapped from pupils joining school in EYFS progressively to Year 6. Pupils will acquire specific knowledge that has been carefully mapped out so learning is focused and builds on prior learning. Disciplinary knowledge is mapped out alongside substantive knowledge to ensure knowledge is interwoven.

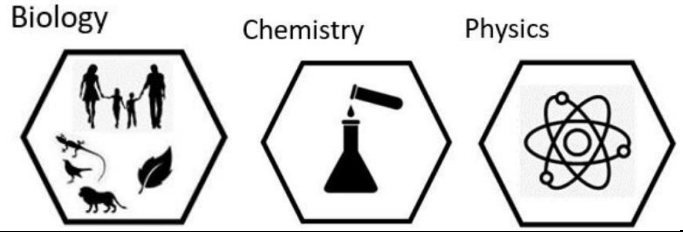
We strive to provide the pupils with the best possible disciplinary knowledge so we have selected important and diverse scientists for pupils to study. All of the scientists are experts in their field and support the pupils in understanding how scientific discoveries are made. During disciplinary aspects of science lessons, prior mathematical knowledge will be used in science enquiries and to record information.

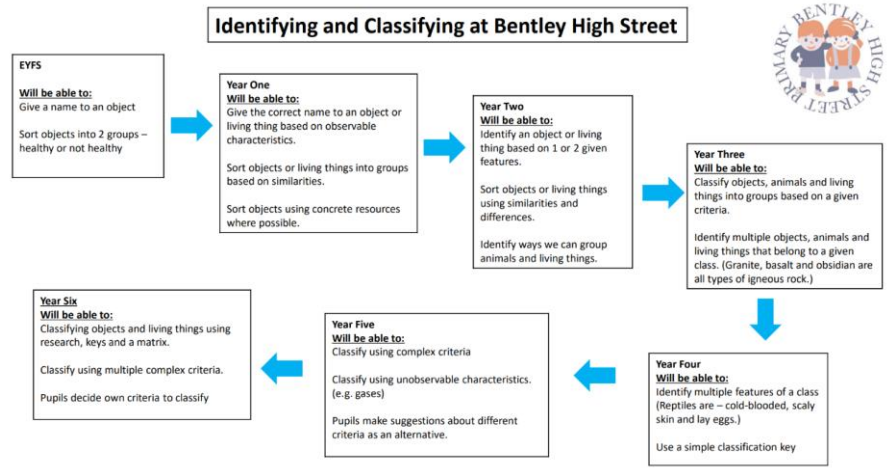
By the end of Key Stage 2, pupils will encounter five types of scientific enquiry: observation over time, comparative and fair testing, identifying and classifying, pattern seeking and researching.

Curriculum Implementation
Subject Content and Organisation Across School

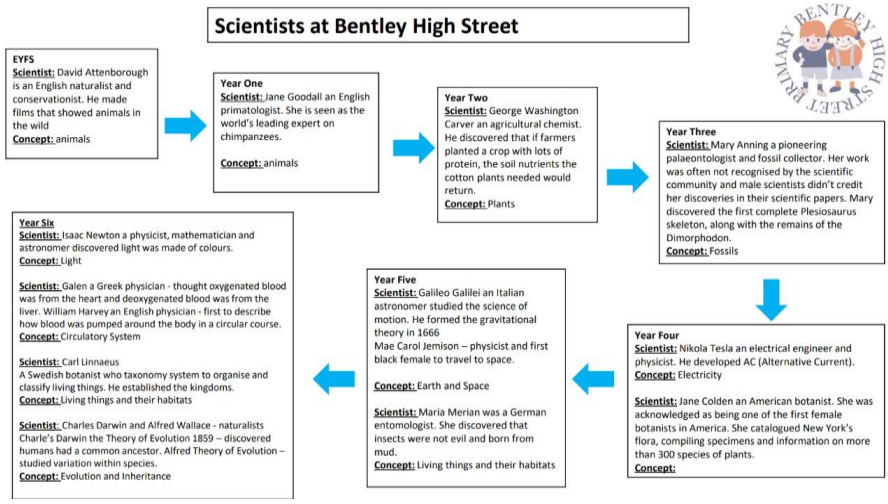
We teach Science in regular sequences of learning throughout the year. In EYFS, Science is taught through understanding the world in every term. Each block builds on previous learning and teachers provide time between blocks for retrieval. Substantive and disciplinary is interwoven into the sequence of learning and is not taught as one-off lessons.

Teachers will use sentence stems to support the teaching of science but with a focus on using disciplinary knowledge. They build progressively from EYFS with 'I can see' up to year 6 'Through doing research' to support pupils in writing about their knowledge and the results of scientific enquiry. This is supported by icons to ensure that the children know which area of "thinking like a scientist" they are focusing upon:





A range of scientists are mapped into the curriculum to ensure that pupils have the opportunity to learn from scientists methods to support disciplinary knowledge.



Teacher's will assess children's knowledge through a range of observation notes, quizzing, retrieval practise and end of year assessment.

Key concepts of plants, animals and humans are built on from EYFS to Year 6.

- Plants – Pupils begin learning about the seasonal impact on plants by observing the leaves falling from trees in EYFS. In year 1, they build on this knowledge by learning about a wider variety of trees and common plants. In year 2, more knowledge is acquired about how seeds grow and what they need to grow into a healthy plant. Building on this in year 3, they move on to understanding how plants make their own energy through photosynthesis and how pollination helps plants to reproduce. Year 5 end with the knowledge about plants having male and female reproductive cells.
- Every year group has a biology block of learning about animals and humans beginning in EYFS with learning about facial features and simple body parts. This supports the learning in KS1 where they begin to learn about different types of animals and what they eat. Year 2 and 3 learn about how to be healthy and the different food groups. Year 3 and 4 learn about the human body through the understanding of the skeleton as a means to protect, support and enable movement and how the teeth and the digestive system work to digest food. Year 5 builds on year 2

knowledge about life cycles of animals and the stages of the human life cycle. Year 6 work to understand the body further by learning about the circulatory system and the kidneys.

- Linking with the biology block focused on animals and humans, the pupils will acquire more focused knowledge about animals. This begins in EYFS where they learn about the lifecycle of a butterfly moving into year 2 where they learn about MRS GREN to understand what animals need to survive. Year 4 build on this by learning about the different types of animal groups and which animals are vertebrates. Year 5 build on year 2 and 4 knowledge of the life cycle of the different animal groups. Year 6 use all of the prior knowledge learnt to classify animals.

There are other concepts that are not taught in every year group but are just as important.

- Electricity is taught in year 4 and 6. In year 4, the pupils will learn the components of a simple series circuit and how to build one to light a bulb. Year 6 will build on this by learning about atoms and electrons and learning the correct symbols for components.
- Light is taught in year 3 and 4. Year 3 learn about the sources of light and how shadows change. Year 6 build on this simple knowledge to understand reflection and refraction.
- Rocks is a concept only taught in year 3. They learn how rock is formed and the properties of different types of rock.
- Materials and states of matter – year 1 start by simply describing materials and this is built on in year 2 when they move on to more complex properties including waterproof materials. Year 4 uses this knowledge to them teach children about the three different states of matter. They begin to understand matter can change through heating and melting. Year build on this by exploring and learning about reversible and irreversible changes.
- Sound is only taught in year 4 and the pupils learn about sound being a vibration but this does link to study of matter.
- Year 5 are the only year group to study space however it does build on the year 3 knowledge about the sun being a light source and how the earth rotates. Year 5 learn about the solar system and how the earth moves to show day and night.
- Year 6 study evolution and inheritance exploring Darwin's theory of evolution and understanding variation and natural selection.

Retrieval practice is used systematically to ensure that children recall and practice their scientific knowledge