

**Why is Science important?**

At St. Bernadette we want our children to be naturally curious about the world around them. Our curriculum has been developed by staff to ensure full coverage of the National Curriculum and to foster a sense of wonder about natural phenomena. We are committed to providing a stimulating, engaging and challenging learning environment. Throughout our school children are encouraged to develop and use a range of working scientifically skills including questioning, researching and observing for ourselves. We promote and celebrate these skills. We want our children to have a broad vocabulary. Scientific language is to be taught and built upon as topics are revisited in different year groups and across key stages. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability with a broad and balanced science curriculum.

**When is Science taught?**

Science is taught consistently, once a week for up to two hours, but is discretely taught in many different contexts throughout all areas of the curriculum. For example, through English, i.e. writing a letter to a local politician regarding the closure of a park/biography of a famous scientist’s life, etc.

**Early Years Foundation Stage (EYFS)**

In the EYFS, science is included within the Understanding the World area of learning. As with other learning in Reception, your child will mainly learn about science through games and play – which objects float and sink during water play, for example. Activities such as these will help your child to develop important skills such as observation, prediction and critical thinking.

**Key Stage 1 (Years 1 and 2) and Key Stage 2 (Years 3 to 6)**

The content of science teaching and learning is set out in the 2014 National Curriculum for primary schools in England. Within this, certain topics and areas are repeated across year groups, meaning that children may revisit a particular topic in each year of primary school but with increasing difficulty and with a different focus each time.

For example, the area of animals, including humans is examined in every single year group, with a very clear progression of knowledge and understanding over the six years:
In Year 1 this involves: looking at the human body, recognising animal groups and sorting these animals.
By Year 6, this will have developed into knowing the internal structure of the human body in relation to circulation, classifying living things based on more complex characteristics and exploring scientific research into this classification.

**How is Science taught?**

To ensure high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the school. Planning for science is a process in which all teachers ensure that the school gives full coverage of The 2014 National Curriculum programmes of study for Science and Understanding of the World in the Early Years Foundation Stage. Wherever possible, Science is linked to class topics. At the start of each topic teachers take time to find out what our children already understand and want to find out. Our teachers use this to adapt and extend the curriculum to match children’s interests and needs, current events, the use of any support staff and the resources available. We include the use of technology, wherever appropriate, to aid teaching and learning. Through teacher modelling and planned questioning we want our children to wonder about and be amazed and surprised by the world around them as we recognise that our children sometimes lack experiences. Key scientific language is modelled throughout lessons enabling our children to be familiar with and use vocabulary accurately. Teachers are also encouraged to plan in trips and visitors to enhance our children’s learning experience.

At St Bernadette we aspire to promote children’s independence and for all children to take responsibility in their own learning. Pupils often mark against success criteria how they feel about their learning in a lesson. Attainment is tracked through Insight online pupil trackers against National Curriculum expectations and Working Scientifically skills.

**What do we learn about in Science?**

**Year 1**

* Plants (basic structure)
* Animals including humans (basic knowledge of parts of human body and comparing animals)
* Everyday materials (describing properties)
* Seasonal changes.

**Year 2**

* Plants (what plants need to grow)
* Animals including humans (needs for survival, food and hygiene)
* Use of everyday materials (explore and compare materials for uses)
* Living things and their habitats (explore variety of habitats, simple food chains).

**Year 3**

* Plants (life cycles)
* Animals including humans (nutrition, skeleton and muscles)
* Rocks (fossils and soils)
* Light (reflection and shadows)
* Forces and magnets (magnetic materials, attracting and repelling).

**Year 4**

* Animals including humans (digestive system, teeth and food chains)
* Living things and habitats (classification keys)
* States of matter (changes of state, evaporation and condensation)
* Sound (vibration, pitch and volume)
* Electricity (simple circuits, insulators and conductors).

**Year 5**

* Animals including humans (human development from birth to old age)
* Living things and their habitats (life cycles and reproduction in humans and plants)
* Properties and changes of materials (dissolving, separating materials, reversible and irreversible changes)
* Forces (gravity, air resistance, water resistance, friction)
* Earth and Space (Earth, Sun and Moon, the solar system).

**Year 6**

* Animals including humans (circulatory system, diet and exercise, healthy living)
* Living things and their habitat (classification, characteristics of plant and animal groups)
* Light (how it travels, how we see, shadows)
* Electricity (voltage and power in circuits, circuit components, symbols and diagrams)
* Evolution and inheritance (how living things have changed over time, fossils, dinosaurs, adaptation to environment).

Alongside these areas runs the Working Scientifically element. This focuses on the skills the children need to become accurate, careful and confident practical scientists. Children are expected to master certain skills in each year group and there is a very clear progression of these set out for each school to refer to. For example:
In Year 1 a child may have to ask questions, carry out a simple test, record simple data and then try to answer questions.
By Year 6, they should be able to plan and carry out a fair test by using equipment accurately and taking exact readings or measurements. They are also expected to be able to draw conclusions from their results and record them using a range of graphs and charts.

**How do we assess and monitor Science?**

***Assessment can affect pupils’ motivation to learn. It plays a crucial role in improving learning and raising standards.’ Stiggins, 2008***

In our school all assessments is teacher based.

**Our principles of good learning in Science**

**Science in our school is good when:**

* All year groups experience **regular science lessons** that make the most of the school’s science **curriculum.**
* Children and teachers are able to access and use a range of **appropriate resources safely**.
* Children are **engaged** in fun, interactive science lessons.
* Children are **inspired** to show their own **curiosity of the world** around them and **explore** this, through scientific enquiry based approaches and **questioning**.
* All children are **engaged** in **practical** investigations that develop **curiosity** and **inquisitive** minds.
* **Knowledge** is gained by the pupils and they are keen to find out more.
* Staff **subject knowledge** is **secure** and teachers feel **confident** to teach Science.
* There is a clear **progression** of transferable science skills taught.
* The school’s science **assessment** system supports **progress** in Science.