

**ST LUKE'S CE  
PRIMARY SCHOOL**



**CURRICULUM  
STATEMENT FOR  
  
SCIENCE**

## **Subject Lead: Janet Murdock**

### **1. Aims**

**1.1** We are guided in our Science teaching by the National Curriculum 2014, which states:

*A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.*

**1.2** The national curriculum for science aims to ensure that all pupils:

- *develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics*
- *develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them*
- *are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future*

**1.3** At St. Luke's, we want to provoke curiosity about the world and how it works through a broad, balanced, challenging and ambitious Science curriculum. Our curriculum provides the foundations for understanding whilst developing the skills and knowledge to help them think scientifically with an understanding of scientific processes.

### **2 What will pupils be taught?**

**2.1** Pupils will be taught a knowledge-rich science curriculum, underpinned by scientific enquiry. The 5 Types of Scientific Enquiry are promoted and embedded in each unit of work:

- Observing over time
- comparative and fair testing
- research using secondary sources
- pattern seeking
- identifying, grouping and classifying

**2.2** The science curriculum at St Luke's matches the breadth and ambition of the National Curriculum. This builds upon the exploratory learning indoors and outdoors in the Early

Years.

### **2.3 Working scientifically in Y1 and Y2**

During Y1 and Y2, pupils are taught to use the following practical scientific methods, processes and skills through the teaching of each unit:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

### **2.4 Subject content in Y1 and Y2**

In Y1 and Y2, the subject content is linked to the pupils' learning in other subjects: a cross-curricular approach, which helps to develop schemata.

The science taught in Y1 includes knowledge about:

- Plants
- Animals, including humans
- Everyday materials
- Seasonal changes

The science taught in Y2 includes knowledge about:

- Living things and their habitats
- Plants
- Animals, including humans
- Uses of everyday materials

### **2.5 Working Scientifically in Y3 and Y4**

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They will ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.

They will draw simple conclusions and use some scientific language, first, to talk about

and, later, to write about what they have found out.

Pupils are encouraged to read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

## **2.6 Subject Content in Y3 and Y4**

From Y3 the subject content is sometimes linked to cross-curricular topics, but increasingly taught as a discrete unit of work.

The science taught in Y3 includes knowledge about:

- Plants
- Animals, including humans
- Rocks
- Light
- Forces and magnets

The science taught in Y4 includes knowledge about:

- Living things and their habitats
- Animals, including humans
- States of matter
- Sound
- Electricity

## **2.7 Working Scientifically in Y5 and Y6**

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They will also begin to recognise that scientific ideas change and develop over time. They will select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils will draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Pupils will increasingly read, spell and pronounce scientific vocabulary correctly.

## **2.8 Subject Content in Y5 and Y6**

By this stage, science learning is only occasionally linked to a cross-curricular theme and is more often taught as a discrete unit of work. We do not want to make tenuous links in learning which may dilute or confuse pupils' understanding.

The science taught in Y5 includes knowledge about:

- Living things and their habitats
- Animals, including humans
- Properties and changes of materials
- Earth and space
- Forces

The science taught in Y6 includes knowledge about:

- Living things and their habitats
- Animals including humans
- Evolution and inheritance
- Light
- Electricity

## **2.9 Progression**

Whilst many of the units taught have similar names and themes, progression between the year groups is carefully thought-out.

[See the Progression in Vocabulary and Science Knowledges Matrices for details.](#)

## **3 How Will Pupils Be Taught?**

- 3.1** Connections between other subjects can also be made as the children's experiences have increased. For learning to be secure it needs to be 'effortful', so we at St. Luke's have high expectations of our children. Our children feel they can have a go in lessons as they feel safe and reassured with adequate scaffolding and support. Key scientific vocabulary is taught explicitly and frequently revisited to promote conceptual understanding so that pupils can explain concepts accurately in both written and spoken work.
- 3.2** The curriculum is structured and sequenced so that each unit builds upon the previous units and important vocabulary is identified and frequently revisited in order that children learn and remember it.
- 3.3** Science learning is often through investigations but subject knowledge can also be taught through English, particularly Guided Reading, where carefully chosen texts can enhance learning in science.
- 3.4** Pupils will usually be taught science by their class teacher(s) but sometimes this is enhanced through visits to science museums or the use of experts coming into school.

## **4 Inclusion**

**4.1** In line with our ethos of inclusion, it is important that our ambitious Science Curriculum can be accessed and enjoyed by **all** pupils. We have the same learning intentions for all pupils, with no lowering of expectations.

#### **4.1 Pupils with Special Educational Needs and / or Disabilities (SEND)**

Just as in all other areas of the curriculum, for the delivery of Science, teachers need to anticipate barriers to participation for pupils with particular SEND. Planning that takes account of individual needs will minimise those barriers so that all pupils can fully take part and learn.

For all pupils to be able to achieve the same learning intentions, it will be necessary to 'adapt teaching' to ensure access through the use of strategies such as:

- Breaking down content into smaller chunks or steps
- Varying levels of support, including effective support from TAs as well as the teacher, eg directing a TA to scaffold the learning for a specific pupil or group of pupils while ensuring that the development of the pupil's independence and their confidence in themselves as a learner is not compromised as a result
- Removing unnecessary expositions, i.e. keeping spoken language at an amount and at a level that will enable maximum access, with visual support
- Supporting different means of expression / methods of recording
- Intervening appropriately, i.e. checking on the understanding after a whole class introduction, and providing access to key information to support the learning; observing when a pupil or group of pupils seems to be struggling with a new concept or idea, and creating opportunities to dig deeper into any misconceptions that may have arisen, before these have the chance to become entrenched

Similarly, when assessing pupils with SEND, an altered or alternative method of assessment or recording may be appropriate.

#### **4.2 Mastery**

In line with our commitment to 'Teach to the Top', children will be encouraged to aim high in Science. During investigations, science learning will be challenged in line with the pupils' level of understanding.

### **5 Assessment and Reporting**

**5.1** The purpose of assessment should be to:

- ensure and evidence progression against the programme of study
- track progression of cohorts and individual pupils
- identify lack of progression in order to trigger catch-up strategies

**5.2** Progression in the learning of Science can be evidenced in two main ways:

- a) Formative assessment through talking to pupils to see what they have learned and remembered and by looking at their books  
Topic books Years 1-3, Science Books Years 4-6

Books allow systematic recording of vocabulary, useful not only for encouraging word retention, but also useful for looking up words that have been forgotten. Investigations may be recorded in ways to suit the needs of the pupil.

Feedback, including marking, will promote learning rather than focus solely on presentation. Marking also allows the teacher to comment on or celebrate written work. Some written work or comprehension tasks may also be within English books. Formative assessment from books and talking with pupils will be used to inform planning.

b) Regular summative assessment

We are trialing an assessment activity per unit from the Teacher Assessment in Primary Science (TAPS) resources. Timing is suggested just before the unit end (rather than the very end) allowing time for misconceptions to be addressed.

Summative assessment allows not only for the evidencing of progression, but also for identifying when progression is not being made, either at a class or individual level.

- 5.3** In line with the assessment policy, a verbal report may be given to parents in the autumn and spring parent-teacher meetings. Comments on science subject knowledge and on working scientifically form part of the full annual written report in the summer term for pupils from Y1 to Y6.

## **6 Impact**

As a result of high-quality Science teaching, all pupils at the end of Year 6 will be able to work scientifically and have an understanding of the NC Statutory Requirements. They should also be able to read, spell and pronounce scientific vocabulary correctly.

## **7 Subject delivery monitoring**

The school's Science lead has responsibility for the implementation of the Science curriculum, the quality of teaching, and levels of pupil progress and achievement. Monitoring the quality of delivery and outcomes can comprise:

- lesson visits
- oversight of planning
- scrutiny of pupils' work
- discussion with teachers
- discussion with pupils

These activities also ensure the Science lead is well-placed to identify any CPD needs.