



# Wimboldsley Primary School

'United in Achieving Excellence'

## **Science Policy**

This policy document was updated by the Science Learning Team of William Stockton and Wimboldsley Federated Schools in September 2016. The policy has been discussed and approved by the Governors. This policy outlines the guiding principles by which this school will implement Science in the National Curriculum (2014). It will continue to be reviewed annually.

### **Our rationale for teaching science**

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through working scientifically, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

### **Our aims in teaching science include the following:**

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for, our environment.
- Helping our children acquire a growing understanding of scientific ideas.
- Helping develop and extend our children's scientific concept of their world.
- Developing our children's understanding of the international and collaborative nature of science.

### **Attitudes**

- Encouraging the development of positive attitudes to science.
- Developing a sense of excitement and curiosity about science.
- Building on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, resilience and responsibility.
- Building our children's self-confidence to enable them to work independently.
- Developing our children's social skills to work cooperatively with others.
- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

### **Skills**

- Giving our children an understanding of scientific processes.
- Helping our children to acquire practical scientific skills in order to work scientifically.
- Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, classifying, identifying, interpreting, explaining and evaluating.

- Developing the use of scientific language, recording and techniques.
- Developing the use of ICT in investigating and recording.
- Enabling our children to become effective communicators of scientific ideas, facts and data.
- To use and apply skills from other areas of the curriculum, particularly mathematics and literacy in their science learning.

### **Our Teaching Aims**

- Teaching science in ways that are imaginative, purposeful, well managed and enjoyable.
- Giving clear and accurate teacher explanations and offering skilful questioning.
- Making links between science and other subjects, particularly mathematics and literacy.
- To ensure that children not only have the necessary knowledge of a concept, but also that they understand its value.
- To challenge children wherever and whenever necessary to ensure that children remain fully engaged with their learning.
- To provide purposeful feedback both orally and through marking to ensure children know how to improve their work.
- Clear, purposeful and achievable targets are set.
- Pupils attainment and progress is tracked against assessment.
- Plan lessons that are informed by assessment and progress.

### **Science curriculum**

Science is a core subject in the National Curriculum.

It has four attainment targets and a statement of breadth of study.

These are:

- Working Scientifically
- Biology
- Chemistry
- Physics

Our role is to teach working scientifically through the contexts of the three main content areas.

The breadth of study statement in the National Curriculum is concerned with issues such as the use of ICT, scientific language and health & safety.

Children in the Early Years Foundation Stage - the nursery and reception classes - are taught the science elements of the curriculum through the EYFS Curriculum Area of Learning and Development - Understanding the World.

### **How Science is structured through the schools**

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of the National Curriculum 2014. Science teaching in the school is about **A Climate of Enquiry, Exploring Ideas, and Finding Solutions.**

We adapt and extend the curriculum to match the unique circumstances of our school.

Through the Learning Challenge Curriculum we use Science as a subject driver. If Science is driving our enquiry based topic then it will underpin all teaching and learning and a significant amount of discrete and embedded Science will be taught. If a Humanity is driving the unit an overarching Science questions will run alongside this and throughout other half terms during the year.

Therefore, as a guide, KS1 teachers should be teaching science for a minimum of forty five minutes each week. KS2 teachers should be teaching science for a minimum of one hour per week. If Science is driving the Learning Challenge Science teaching time will equate to far more. Lessons should include opportunities for children to develop their skills of working scientifically.

The school follows the Learning Challenge Curriculum for National Curriculum Science (in England).

We have modified the scheme of work to suit the uniqueness of our school.

Generally, one unit will be taught in each half term. The unit will be driven by Science in one half term and driven by a History or Geography in the other half term. A Science Learning Challenge will run through the year and will be taught alongside units being driven by History or Geography.

Some units may have been moved between years, or amalgamated, where appropriate. Units on Life and Living Processes are commonly taught in the spring and summer terms.

Because of mixed-age classes in the school, some units may be taught out of their year group.

Some units may be taught in collaboration with outside agencies, including neighbouring secondary schools.

### **Our Science Principles**

Our Principles underpin the Science curriculum at William Stockton we believe that Science is good when it ....

- Is relevant and related to real life, current topics of interest, and means something to us
- Allows us to ask lots of questions and develop our vocabulary
- Lets us investigate and explore in a practical, hands on and experimental way
- Challenges our understanding and encourages us to think about our scientific ideas
- Encourages us to apply our knowledge, skills, and understanding at home and at school
- Gives us opportunities to work with others
- Enables us to use appropriate, high quality resources

## **Our approach to Science**

The essential elements describing how science is taught in our school are described below.

1. Teachers' notes and pupil task sheets are networked and are available electronically.
2. Teachers' notes and pupil task sheets have been adapted to the needs of our children.
3. Task sheets may sometimes be translated for first-language use if this is appropriate.
4. We use ICT widely in science. Children are given the opportunity to practice science skills and enhance their presentation using carefully chosen software.
5. We use ICT for enquiry work, including microscopes with digital cameras, video capture of images and activities, and data logging.
6. Other resources include selected video and wallchart resources; short video sequences and other teaching resources have been networked for interactive-whiteboard use.
7. The school combines these secondary sources with first-hand scientific enquiries, building children's science skills.
8. We actively teach science skills, and reinforce learning with selected enquiry simulations.
9. We encourage children to ask and answer their own questions as far as practicable.
10. Children complete at least two full enquiries each term, taking increasing responsibility for their planning, carrying them out and recording/interpreting the results.
11. We use homework to support school and class activities. This relates to the school's overall homework policy.
12. We use cross-curricula links to science with, for example, design and technology units.
13. We develop science informally through science clubs, school visits, parent meetings and other out-of-school activities.

## **Equal opportunities in Science**

Science is taught within the guidelines of the school's equal-opportunities policy.

- ✓ We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- ✓ Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- ✓ We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- ✓ We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- ✓ We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.
- ✓ In our teaching, science is closely linked with literacy and mathematics.
- ✓ We recognise the particular importance of first-hand experience for motivating

- children with learning difficulties.
- ✓ We recognise that science may strongly engage our gifted and talented children, and we aim to challenge and extend them.
  - ✓ We exploit science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

### **Assessment and recording in Science**

We use assessment to inform and develop our teaching.

- Topics commonly begin with an assessment of what children already know.
- We assess for learning (AfL). Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve.
- We mark each piece of work positively, making it clear verbally, or on paper, where the work is good (tickled pink), and how it could be further improved (green for growth). Children respond to given next steps using a purple pen to show pupil feedback.
- We have an online tracking system to follow children's progress. The school Science team monitors progress through the school by sampling children's work at regular intervals and checking the online tracker for an overview. Children who are not succeeding, and children who demonstrate high ability in science, are identified and supported.
- Of utmost important is the continuous assessment of children's work, much of which is informal. This assessment is used to inform teaching throughout the school.
- A summative judgment will be made against key objectives at the end of each term.
- Reports to parents are made verbally each term, and written once a year, describing each child's attitude to science, his/her progress in working scientifically and understanding of the content of science.

### **Review**

This science policy will be reviewed by the science curriculum team and the senior management team annually.

It was reviewed in September 2017.

Date for next review of this document September 2018.