



Science Policy

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Information Page

Links to other policies / documents:

Risk Assessment Folder

Health and Safety Policy

School Development Plan

Whole School Vision Statement

Curriculum Maps

Teaching Learning and Assessment Policy

Rationale and Intent

At William Reynolds Primary School and Nursery, we recognise the importance of science in every aspect of daily life. We give the teaching and learning of science the prominence it requires by teaching lessons in the morning.

Our three principle aims - from the National Curriculum in England for pupils in science are:

- to have good **scientific knowledge and conceptual understanding** of biology, chemistry and physics.
- to develop understanding of the **nature, processes and methods of science** through different types of science enquiries to help them 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.

The core of our Science Curriculum is the National Curriculum for England. The curriculum has been specifically sequenced in a logical progression to ensure that new knowledge and skills build on what has been taught before: Early Years to Year 6. This enables our pupils to know more and remember more. End points are clearly identified for each year group; time allocation has been carefully considered to provide children with opportunities to master key concepts.

All children have access to an ambitious Science Curriculum that is both challenging and enjoyable and raises pupil's aspirations. We widen their horizons through a context rich curriculum, that gives purpose to their learning, through high expectations for every child to succeed.

Our school values are interweaved with science to ensure all learning stimulates and excites pupils' curiosity about the world around them. Pupils are provided with a variety of scientific opportunities, enabling them to develop the ability to pose questions, investigate these using correct techniques, accurately record their findings using appropriate scientific language and analyse their results. Pupils work in science through collaboration as well as independently learning to build on previous knowledge. This means that pupils can reason and use their knowledge to work scientifically.

Throughout school, we develop resilience that enables all children to investigate scientifically with increased confidence. A high focus on reading fluency throughout school enables our children to read and be immersed in science vocabulary. Teachers plan opportunities for science texts to be used within and beyond lessons. Each classroom promotes reading in science through vocabulary on working walls along with texts linked to the strand of science for that term.

As a result of the pandemic, our curriculum has not been narrowed however missed units of work were taught additionally in the following year group.

Teaching and Learning

Foundation Stage

At William Reynolds Primary School and Nursery, the Foundation Stage pupils investigate science as part of Understanding of the World. This provides a number of rich contexts for pupils to learn a wide range of vocabulary. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. Pupils are supported to develop an understanding about things occurring around them in their day-to-day lives. Pupils are encouraged to be creative and inquisitive as they participate in activities. Pupils are encouraged to use their natural inquisitiveness while taking part in exploratory play in specific Scientific areas as well as areas that link across the EYFS framework.

In Foundation Stage, Learning Journals are used to capture evidence of pupil's development of "Understanding the World". This will also include work linked to forest school.

Key Stage 1

The principal focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. Pupils are encouraged to be curious and ask questions about what they notice. Pupils are supported to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. Pupils use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a

variety of ways. Pupils progress in science through the use of first-hand practical experiences, along with the use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is always taught through and clearly related to the teaching of substantive science content in the Science curriculum.

Scientific vocabulary is progressively planned from EYFS to Y6. Children use and apply scientific vocabulary throughout their learning.

Lower Key Stage 2

The principal focus of Science teaching and learning in lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. Pupils 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. Pupils are encouraged to 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. Pupils draw simple conclusions and use scientific language, first, to talk about and, later, to write about what they have found out.

Upper Key Stage 2

The principal focus of science teaching and learning in upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. Pupils 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, pupils encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. Pupils also begin to recognise that scientific ideas change and develop over time. Pupils 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 are encouraged to 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.

Medium Term Planning

To ensure high standards of teaching and learning in Science, detailed Medium-Term Planning supports teachers to plan a sequence of progressive weekly lessons and over time, giving the children opportunities to master new substantive knowledge alongside acquiring and progressing their disciplinary knowledge. Within this document the following are outlined:

- Specific year group objectives and vocabulary to ensure planning for correct coverage
- Misconceptions
- Famous Scientists
- Assessment for Learning opportunities
- Success criteria
- Contexts linked to other curriculum areas where applicable

Role of the Subject Leader:

The role of the subject leader is to:

- To provide up to date in-service training for other members of staff
- To attend relevant courses to improve personal subject knowledge
- To monitor classroom teaching and learning and to monitor pupil's work
- To liaise with the link Governor and inform them of work being carried out in school and further developments
- To liaise with other science teachers
- To support teachers with their planning
- To ensure staff are planning appropriately and to monitor planning.
- To be aware of any changes to the curriculum and to make sure that appropriate action is taken
- To develop a positive ethos about the teaching of science
- To monitor resources.

Spiritual, Moral, Social and Cultural Development

At William Reynolds Primary School and Nursery, we recognise that the personal development of pupils, spiritually, morally, socially and culturally, plays a significant part in their ability to learn and achieve. We therefore aim to provide an education that provides pupils with opportunities to explore and develop their own values and beliefs, spiritual awareness, high standards of personal behaviour, a positive, caring attitude towards other people, an understanding of their social and cultural traditions and an appreciation of the diversity and richness of the cultures.

Resources

Science resources are stored as labelled unit boxes and are the responsibility of the Science subject leader who has a budget available. Science equipment is audited annually. Consumables are replaced and discussions with staff determine if there are any other pieces of equipment required in order to enhance the teaching and learning of science.

Use of Information and Communication Technology

Information and Communication Technology (ICT) enhances the teaching and learning in science wherever appropriate across the school. ICT is used in science for collecting and analysing data and conducting research.

Online Safety

As part of our commitment to Safeguarding, online access during lessons is carefully planned for and monitored. To support pupils' learning in science, pupils may use specific online content, or models and images on the computer. These will be carefully selected by the teacher to ensure that they add value or consolidate the learning and that they are age appropriate and safe. Independent research, where necessary, will be monitored by the class teacher or teaching assistant and will be conducted using a child safe search engine such as 'KidRex.org'

Health and Safety

All activities need to be carried out with care and children need to be taught how to use equipment in a careful and safe manner. The class teacher will carry out risk assessments where it is deemed appropriate. The Risk Assessment is completed using the school's proforma, which requires the signature of the Head Teacher. Resources available to support this include: CLEAPSS bulletins and newsletter. The school is registered with CLEAPSS.

Equal opportunities

Equal opportunities are considered when we decide upon the resources we provide and the teaching strategies we employ. In our science curriculum planning we ensure that all children, with due respect to their culture, religion and background, have equal access to all areas of the curriculum, extra-curricular activities, all areas of the grounds, equipment and resources, the staff, and time to contribute to the whole class and group work.

Time Allocation

Science is timetabled in the morning and taught by the class teacher.

Following Government Guidelines, Science is taught using the time allocation shown below:

Key Stage 1 - 2 hours per week

Key Stage 2 - 2/2.5 hours per week

Learning Environment

There is a learning wall for science in each base, this is used as a teaching and learning aid to provide a stimulus for learning during the earlier stages of a unit, developing to include examples of pupils' work that demonstrate the progress being made.

In each classroom the Science learning wall includes:

- Examples of children's work need to be on display to model what this will look like (e.g. from Science book)
- Interactive displays e.g. testable questions, planning boards or concept mapping
- Scientific Vocabulary
- What is science definition
- Famous Scientist
- Which area of Science is being covered - Chemistry, Biology, Physics
- Floor book (KS1)

Impact

The impact of our Science curriculum is that:

- Our pupils love Science and can explain the importance of the subject in their everyday lives. They can also explain how the subject will help them in their future careers
- Pupils' attainment is in line with national expectations and pupils are prepared for the next stage of education
- Pupils have the knowledge and skills needed that allow them to go on to destinations that meet their interests and aspirations
- Our teachers have high expectations for every pupil which is evident throughout the high standard of work which pupils clearly take pride with
- Our teachers have good subject knowledge and plan well-structured lessons that build on prior learning
- Subject leaders have a clear understanding of the schools' strengths and the areas of improvement - all staff have a consistent drive to ensure pupils are the best they can be.

