

ST JAMES' SCIENCE POLICY

This policy has the School's Motto at its heart.

**Faith in action,
Growing together,
Walking in the footsteps of Christ**

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.

At St James' we aim to:

- Stimulate and excite pupils' curiosity about changes and events in the world;
- Engage pupils as learners at many levels through linking ideas with practical experience;
- Develop children's scientific knowledge and conceptual understanding through biology, chemistry and physics;
- Help pupils to learn to question and discuss scientific issues that may affect their own lives;
- Help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;
- Show pupils how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives;
- Help pupils recognise the cultural significance of science and trace its development;
- Develop pupils use of ICT to aid and enhance their scientific studies.

Delivery

At St. James' we follow the National Curriculum 2014 Programmes of Study for KS1 and KS2. Please refer to the Long-Term Plan for information on where and when each unit is taught. Scientific enquiry is an integral part of all topics, units and aspects of the science curriculum.

ICT is used as an integral part of our science curriculum across all units. Children are given opportunities to research their learning, use ICT to record data collected and use ICT to support investigation and enquiry.

Through working in our school garden throughout the year, children will experience real life science first hand. This work will link to other areas of the curriculum.

Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why ...?", "How ...?" and "What happens if ...?" Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, and making comparisons and communicating results and findings.

Lessons make effective links with other curriculum areas and subjects, especially RE, English, maths and ICT. Activities are challenging, motivating and extend pupils' learning.

Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

Teaching and Learning

At St James' we believe that the characteristics of high-quality teaching and learning of science are:

- Setting suitable learning challenges;
- Responding to pupils' diverse learning needs;
- Overcoming potential barriers to learning and assessment for individuals and groups of pupils,

The fundamental skills and concepts are set out and categorised into three attainment objectives:

Scientific Knowledge and Conceptual Understanding

Children should have a deep understanding of all three scientific disciplines. This includes, applying mathematical knowledge to science through data collection, presentation and analysis. They should be familiar with technical vocabulary and terminology accurately and precisely.

The nature, processes and methods of Science

Working scientifically is inextricably linked to all learning in science. This objective embeds the knowledge of biology, chemistry and physics, focussing on the key features of scientific enquiry:

- Observing over time;
- Pattern seeking;
- Identifying, classifying and grouping;
- Comparative and fair testing (controlled investigations);
- Researching using secondary sources.

The uses and implications of Science today

This is implicit in all units and will be linked to wider areas of the curriculum to ensure consolidation of all ideas. Children will be assisted in making their thinking clear, both to themselves and others, and build secure foundations by using discussion to probe and remedy their misconceptions.

These aims are taken directly from The National Curriculum Programmes of Study for Y1- Y6.

Progression

Regarding scientific enquiry, some independence is expected in filling in tables at Yr2 and by Yr6 children should be able to select relevant tables and graphs. In Yr2 children should carry out measurements using standard units while, by the end of Yr4 these measurements should be carried out with accuracy. By the end of Key Stage 1 ICT should be used to produce block graphs and pictograms along with the use of relevant software to find out information. At lower Key Stage 2 children should use ICT to produce bar graphs to aid scientific enquiry while in upper Key Stage 2 children should use ICT to produce line graphs and to select relevant information. Progression in knowledge and understanding, enquiring vocabulary and scientific words is covered in the Scheme of Work. A variety of strategies including questioning, discussion, concept mapping and marking are used to assess progress.

Time

At St James' we teach a lesson of science each week lasting between one and two hours. For certain topics and activities, it may be suitable to use other curriculum time for science lessons e.g. guided reading of a scientific related text, an English lesson for writing about an investigation or a computing lesson for researching.

Differentiation

The scheme of work covers differentiated learning outcomes. The pupils either work individually, in pairs, as part of a small group or as a whole class. They use a variety of means for communicating and recording their work.

Support Staff work as directed by the teacher. Where they are assigned to pupils with special educational needs, they are well briefed beforehand. All pupils undertake the full range of activities. Weekly planning shows how activities have been adapted or extended for the needs of all pupils.

More able children will be given access to challenging resource material – both texts and on the computer. When appropriate, some groups will work on investigation tasks with the Gifted and Talented teacher.

Early Learning Goals

Science at St James' supports the Early Learning Goals of:

- Communication and Language;
- Personal, social and emotional development;
- Physical development;
- Knowledge and understanding of the world.

Assessment and Recording

Teacher assessment takes place continuously and is updated onto Classroom Monitor. At the end of each term this is printed and kept in the Red Assessment Folder for each class.

Marking of written work is used sensitively and with discretion so that a child can assimilate a limited number of corrections at one time. This will vary according to age and ability (see Marking and Presentation Policy).

Resources

Science resources are held centrally - used for a specific topic and returned.

The Rising Stars scheme of work is in place for teachers to follow and adapt. A number of supporting documents are saved in the Science Subject Folder on the teacher share network. These include assessment aids, using ICT in science, outdoor learning in science and risk assessment information.

Health and Safety

Health and Safety is crucial in planning for Science investigations and research. Topics that require teachers to think about the risks for investigations can include:

- Electricity
- Food/Materials/plants (allergies)
- E-Safety (research, presenting using ICT)

All investigations are carefully planned to minimise risk and use school equipment to ensure safety.

A risk assessment of generic scientific activities has been carried out by the subject leader. Teachers will do class specific risk assessments for their cohort and specific activities.

Monitoring and Evaluation

This policy will be updated in line with any new developments in the school and/or any new government guidance.

It was last reviewed in: summer 2021


It will next be reviewed in: summer 2024

This statement of policy was approved by the Governing Body at their meeting on:-

Date: ____ 18th May 2021 _____

Signed:

_____ Mary Hutchinson _____ (Chairperson)

_____  _____ (Head teacher)

St James' Science Long Term Plan

<u>SUBJECT:</u> Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Sumer 2
Year 1	Seasons	Everyday materials	Animals		Plants	Seasons Revision Assessment Consolidation
Year 2	Uses of everyday materials	All living things & their habitats	Animals including humans		Plants	
Year 3	Animals including humans		Rocks	Forces & magnets	Plants	Light
Year 4	Animals including humans	Sound	States of matter	All living things	Electricity	
Year 5	Properties & changes of materials Reversible change Irreversible change	Forces	Earth & space		All living things plants	Animals including humans
Year 6	Living things & their habitats (classification keys)	Animals including humans	Light	Electricity	Evolution & inheritance	Revision Assessment Consolidation