



SAINT JAMES'

Church of England School
Nursery & Pre School



Science Policy

This policy has been adopted by the governing body of
St James' CofE Primary School.
It will be reviewed annually or as required.

Date written September 2020

Signed: Mrs J Moore/ Headteacher

Signed: Mr S Rusling / Chair of Governors

Vision Statement

Walking hand in hand with Jesus, fulfilling the potential God has given us

St James'
CofE Primary School

Mission Statement

Through him we learn to live abundant lives, especially treasuring the values of **friendship, trust, thankfulness, respect, forgiveness, hope and courage.**

St James'
CofE Primary School

Mission Aim

At St James' CofE Primary School, the Christian (and indeed inclusive human) values **'friendship, trust, thankfulness, respect, forgiveness, hope and courage'** inform our whole life together.

They were chosen in dialogue with the local community which identified them as exceptionally meaningful and valuable. Therefore, as a school community, we are committed to living these out and modelling them every day in each and every activity.

St James'
CofE Primary School

Science Policy

- **The Science curriculum aims to achieve:**

The science lead has worked in partnership with the LDST colleagues to construct a science curriculum that is ambitious and designed to give all pupils, particularly disadvantaged pupils and including pupils with SEND, the knowledge and cultural capital they need to succeed in life. We aim for all pupils to be excited by science, to know more, remember more and do more because of their engagement in exciting science lessons. In line with our reading intent, we have ensured all pupils read widely and often, including regular opportunities to practice their comprehension skills, appropriate to their age or ability. Ultimately, we want pupils in Key Stage One to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. 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 should 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. 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 should 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 should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates.

Links to St James' whole school curriculum intent:

Whole school Curriculum intent

The four key principles that underpin our curriculum intent are:

- Educating for **hope** and **aspiration**.
- Educating for **community** and **living well together**.
- Educating for **dignity** and **respect**.
- Educating for **wisdom**, **knowledge** and **skills**.

The Science curriculum intent emphasises the aim for all pupils to develop their knowledge, skills and abilities. Through a wider knowledge of awe and wonder children can investigate what happens.

Science Intent

Knowledge, wisdom, skills – They should begin to 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. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Hope and aspiration – To inspire pupils to aspire to be young scientists and to question, observe and be curious about things that they see around them. To visit the places that they study e.g. Manchester science and industry museum, Scotsman's Flash to look at living things and their habitats.. To give the pupils hope for the future and 'dream big' – they can be a scientist! They can work in bio medicine, electrical designers etc. Linking technology and science together using the STEM approach has been something that our children have been enthused about. During STEM activities they have had

visitors in from 'The Bee People' throughout the visit the children learnt about the bee homes and their daily life – protection that is needed for the bee keepers whilst working alongside the bees.

Community and Living well together - To observe the different techniques of science – biology, chemistry and physics. Children to visit our local areas for our biological learning experience and have the respect for our local community – parents to come on visits with us. Use of parents who have certain expertise in the areas. Working together in class to investigate using scientific apparatus. Sharing what they have learnt in class to their parents / grandparents at home. Using the opportunities present science to further develop our school community – planting of trees in our forest area, feeding the fish in our pond, using the bug house to find mini bugs and identify them.

Dignity and respect – Respect our community when the children are on any field trip and ensure that any trips that the children attend in an enclosed setting, they act in a respectful manner with the tour guides and any other visitors. When children are using the scientific apparatus to be respectful when using it and ensuring they use it in a safe manner. To ensure that the work the children produce in their books is completed in the correct way and the presentation is appropriate for the ability of the child. Children to take pride in their work and their findings – Sticky knowledge to be completed in the correct way at the end of the session and any key vocabulary to be spelt in the correct way.

- **Long term planning and curriculum design:**

The Science curriculum is coherently planned and sequenced towards clearly defined national curriculum end points. The subject lead work in partnership with the rest of the staff to ensure that there is full coverage of all national curriculum end points across school.

- **Working scientifically**

Throughout years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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

Throughout years 3 and 4 pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Throughout years 5 and 6 pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

- **How the curriculum is sequenced towards clearly identified endpoints:**

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1 so it is fully developed throughout KS2.

Small steps from our focus key assessment criteria are given throughout each topic for the teacher to work through to ensure the whole coverage has been covered.

Science Implementation

- **Expectations for how learning should be sequenced within a topic or unit in the medium term:**

Learning is sequenced in a way that builds upon prior learning. Each lesson begins with reviewing prior learning before starting new learning with retrieval practice. Subject specific vocabulary for that lesson will be introduced at the start of the session and re visited at the end of the session. Children will complete a prior knowledge at the beginning of the topic – these will be the objective questions of each session. At the end of the unit the questions will be revisited and this will show immediate impact that the children have had in the science topic. We are introducing Rising Stars assessment in the summer term as an end of block assessment for the children.

- **What a typical Science lesson looks like, including how these expectations are clear across the school:**

A typical lesson would begin by examining the working wall. Looking at what we know, the subject specific vocabulary we want pupils to learn and what the pupils have learned by the end of the lesson and between lessons (KWL walls). Teachers will review the subject specific vocabulary already learned, including 'actions' to support them in learning these key words. The objective for the lesson will be introduced to the children. The lesson will be visual and exciting for the children, investigation write ups that the children will complete will follow the same structures. Lessons will be hands on to

allow the children to investigate and also very visual. At the end of the session the learning is reviewed, and new vocabulary correctly defined by pupils is moved to the learned section of the working wall, acting as feedback and celebrating success. Finally, pupils complete their sticky knowledge – writing facts they have learned, remembered, and know more about during the session.

- **How we ensure that pupils 'know more, remember more and can do more':**

Effective use of our KWL working walls supports teacher's assessment of progress and enables pupils to celebrate successes. Progress is reviewed each lesson through the use of key questions and 'sticky knowledge' work. Analysis of differences between pre-learning and post-learning provide teachers and pupils with impact measures of teaching and learning within the unit of work. When pupils transition to higher education they will have a core set of scientific facts that they can apply to future learning.

- **How the science curriculum meets the needs of all pupils, particularly disadvantaged pupils and SEND pupils:**

The science curriculum has been intelligently designed to meet in the needs of all our pupils in line with the current school key priorities. Our science curriculum is vocabulary rich and incorporates a wide variety of reading opportunities.

All class teachers are aware of the disadvantaged and SEND pupils and incorporate their needs into intelligent lesson design. Use of quality first teaching within all lesson design ensures learning is visual, kinaesthetic (by putting actions to vocabulary) and engaging for all pupils.

Subject leads access training from SEND colleagues to support pupils with specific difficulties, ensuring they have access to a full curriculum.

Use of Knowledge Based Organisers support both parents and pupils in understanding subject specific vocabulary and promoting engagement, especially in home projects, within which our families excel.

If children have a particular interest in a topic and would like to research the topic more, they have access to MyOn which is a reading tool. This allows the book to be read to the children so they can follow and listen and find new facts.

Science Impact

- **Overview of Science assessment procedures, including the expectations of teachers using both formative and summative assessment:**

Formative assessment includes – teacher questioning (open and closes questions), assessing vocabulary in a lesson, listening to the discussions of pupils and addressing misconceptions and sticky knowledge.

Summative Assessment includes. Pre and post Learning from Y1 to Y6. From summer 2021 we are rolling out science assessments linked to rising stars – this is an end of block assessment unit. The subject lead will collate and analyses the data, which will inform the science action plan.

Monitoring arrangements, including the impact:

- Action plan – impact of actions taken, reported termly to governors
- Inclusion on MER calendar – lesson observations supported by curriculum lead;
- Book looks – marking & feedback;
- Pupil voice;
- Learning walks;
- Analysis of assessment data;
- Annual review of policy and practices.

- **How the subject lead keeps their own subject knowledge up to date, and how they ensure staff subject knowledge is also up to date;**

We aim to develop and enhance our subject leads personal interest and passion in history through:

- high quality continual professional development (CPD);
- networking opportunities;
- engagement with the curriculum lead;
- staff library – signposting research literature;
- performance management discussions.

We aim to ensure all staff history knowledge is up to date through:

- high quality CPD;
- staff library – signposting research literature;
- provision of effective resources;
- engagement with subject lead;
- networking opportunities.

To be read in conjunction with Science Long Term Plan and Science Concept Map.

