St. Hubert's Roman Catholic Primary School

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A Policy for Science

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Believe to Achieve: Love God, Love Learning, Love One Another

Our Lady and St Hubert's R.C. Primary School Science Policy

This policy document was adopted by the staff of St Hubert's RC Primary School by the Science co-ordinator.

At St Hubert's RC Primary School, we believe that 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 Hubert's RC Primary School, we believe that good science teaching and learning happens when:

- Children can discover for themselves through trial and error.
- Children use scientific vocabulary.
- Teachers are confident about what they are teaching.
- When children talk, ask questions, share ideas, explain.
- When children are inspired to do and know more, transfer knowledge.
- When children work in groups.
- When children work practically.
- When children are engaged, excited, involved.
- When children record their learning in a variety of ways using their own words.

AIMS

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.

CURRICULUM AND SUBJECT CONTENT

Children have weekly lessons in Science throughout Key Stage 1 and 2, in line with the wider curriculum school planning. In KS2, our mixed year group classes are split into year groups so that science is streamed.

In Early years, science is taught through the children learning about the world around them in their learning through play, in line with the Understanding the World, Physical Development and Expressive Arts and Design areas of the EYFS Framework. Additional opportunities are provided in Science, Mad Science clubs, whole school science weeks and assemblies to celebrate science in school.

We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences.

St Hubert's use the 'Planning for Assessment Scheme' which provides a structure and skill development for the science curriculum being taught throughout the school. Teachers use the PLAN Knowledge matrices for their units of work.

WORKING SCIENTIFICALLY WITHIN THE CURRICULUM

Class teachers must ensure that there are frequent opportunities for pupils to 'work scientifically' within the curriculum. 'Working scientifically' specifies the understanding of the nature, processes and methods of science. Pupils are required to work scientifically within all areas of the science curriculum.

Foundation Stage

Science at Foundation Stage is covered in the **'Understanding the World'** area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions, and talk about the world around them.

During their first years at school our children will explore creatures, people, plants, and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses, feeling dough or listening to sounds in the environment, such as sirens or farm animals. They will make observations of animals and plants and explain why some things occur and talk about changes. Children will be encouraged to ask questions about why things happen and how things work. Children will also be asked questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings.

KS1

Years 1 and 2

During 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.

KS2

Years 3 and 4

During 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 straight forward scientific evidence to answer questions or to support their findings.

Years 5 and 6

During 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 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.

STAFF TRAINING

The Science subject leader is responsible for ensuring that all staff are adequately trained so that they can deliver the curriculum effectively. This will include organising CPD, leading staff meetings, observing teaching and learning, moderating books, pupil interviews, sharing resources for planning and teaching, and supporting colleagues.

Regular communication with staff will be sustained and all staff can speak to the subject leader if they require any further support.

PLANNING

The curriculum map on the website outlines the units to be taught in each year group Curriculum | St Hubert's Roman Catholic Primary School (sthuberts.org.uk).

Teachers will follow the framework set out in the school's wider curriculum document in line with the National Curriculum statutory guidance.

TEACHING STYLE

Science teaching should include visual, auditory, and kinaesthetic elements to ensure access for children with different learning styles.
All lessons have clear learning objectives, to be shared and reviewed with the pupils.

Lessons will make effective links with other curriculum areas and subjects, especially English, Mathematics and Computing.

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts to progress to the next stage. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary.
They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting, and analysing data. Teachers should plan to allow for a wide range of scientific enquiry, including observing over time; pattern seeking; identifying, classifying, and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources.

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially, and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. Teachers should plan opportunities for outdoor learning wherever possible with each year group embarking on an external educational visit once per year which is Science based.

PROCEDURES FOR ASSESSMENT AND REPORTING

Teachers assess each child at the end of each academic year, using the internal Target Tracker system:

1b-1b+ (working below the expectations for the year group- starting to learn)
1w-1w+ (demonstrating an increasing understanding; yet to be secure)
1s-1s+ (secure in understanding and applying in most areas)

These grades are based on the expectations for children in that year group. Teachers will use the Lancashire Tracker and 'I can' statements' for their year group after each topic of work and regularly add data into the tracker system.

In Science we will also assess by:

- Talking to the pupils and asking questions.
- Discussing the work with the pupil.
- Looking at the work and marking against the learning objective.
- Observing the pupils carrying out practical tasks.
- Pupils self-evaluation of their work.

- Using the 'Plan Assessment Examples of Work'

MARKING WORK

Please refer to the 'Whole School Marking Policy'.

REPORTING TO PARENTS

This will be done in the annual end of year academic report and an end of term report for each pupil.

Parents receive updates on a half-termly basis on the units of work in science from class teachers on the class dojo pages and on their class pages on the school website.

EQUAL OPPORTUNITIES:

We aim to create equality of opportunity for all our children, whatever their gender, abilities or background and give them chance to demonstrate what they know, understand and can do.

SPECIAL EDUCATIONAL NEEDS:

Within Science, tasks are differentiated to ensure access to the National Curriculum and to offer activities which are relevant to the conceptual development of the child.

MORE ABLE PUPILS:

Pupils with above average ability are to benefit from a curriculum which offers challenge and opportunities for investigation in order to extend their learning. We aim to give very able pupils the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

MONITORING AND EVALUATION

The Subject Leader follows the School Self Evaluation for Subject Leaders' Guidelines and is achieved through;

- monitoring and evaluation of pupils' work.
- lesson observations.
- monitoring of planning
- meetings with Science Governor

SAFETY

All staff will follow COSHH guidance 'Be Safe'. Teachers must plan safe activities for science and complete a risk assessment if necessary. Teachers and teaching assistants need to be aware of health and safety procedures when using equipment/food in science lessons. Pupils must be aware of the need for personal safety and the safety of others during science lessons.

RESOURCES

Science resources are stored in plastic boxes on the shelves in the cupboard in KS2. An inventory of resources is kept on the front of each resource box. Equipment must be returned to the correct box and the subject leader must be informed of any changes regarding science resources i.e., missing, or broken resources and/or when new or replacement resources are required.

Subject leader will check resources annually and purchase resources as and when throughout the year.