LONDON BOROUGH OF HAVERING

ST. URSULA'S CATHOLIC PRIMARY SCHOOL

SCIENCE POLICY

"With God at the heart of our St Ursula's family, we welcome all as we learn and grow together"

Autumn 2020

St Ursula's Catholic Primary School

Science Policy

Mission Statement

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Our Vision

At St. Ursula's Catholic Primary School, we believe that our children should have a broad and balanced science education. As teachers we work hard to inspire our students so that they can reach their full potential, plus we encourage them to be active participants in taking charge to help protect our world. We hope to ignite pupil's natural curiosity to explore, and advocate questioning and practical work to obtain answers.
As Albert Einstein said:
"The important thing is not to stop questioning. Curiosity has its own reason for existing."

Key Principles

The following are the key principles as agreed by children and staff. They broadly outline the vision of both pupils and staff, of what science is in our school. These principles are reviewed and updated annually.

We make science fun and practical.

We are 'wowed' by our findings.

We make links with our lives – science is 'real'.

We always ask questions and are resilient learners.

We have a wide range of resources to enable us to explore.

We develop our understanding through outdoor learning.

We create our own projects and enhance our science skills.

Aims

- To encourage our pupils to take an active role in protecting our wonderful planet through engaging with scientists, companies and other schools (locally, nationally and internationally);

- To build on pupils' curiosity and sense of awe of the natural world;

- To prepare our pupils for an ever-increasing scientific and ICT world;

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life;

- To plan and carry out a range of investigations / practical activities to develop, extend and consolidate pupils' science knowledge;

- To develop pupils' investigative skills – predicting, experimenting, observing, measuring, analysing and concluding;

- To continue to raise science capital by immersing pupils in science and showing them the wider opportunities available to scientists.

Planning and Purpose of Science

Science is planned and structured to ensure clear progression of scientific enquiry and understanding from EYFS through to KS2. Our half-termly units of work ensure that the 5 lines of enquiry are included:

- Observation over time
- Pattern seeking
- Identifying, classifying and grouping
- Comparative and fair testing
- Research using secondary sources

Where possible science is taught in a cross-curricular way that helps children to fully understand the relevance of science, in our modern lives.

While planning is rigorously monitored and amended to ensure it meets the National Curriculum 2014, the school also firmly believes in a broader teaching of science that uses the national curriculum as the minimum that should be covered. Pupils are actively asked to challenge, discuss and explore areas that they see as important to their own scientific knowledge. A passionate and life-long scientific curiosity is our ultimate goal for all our pupils.

Sustainability and an awareness of environmental issues is also integral to our vision of science in our school. Pupils are taught that they are responsible for their school, community and world environment, and are encouraged to link with scientists, companies and other schools to raise awareness of environmental issues and to suggest possible solutions.

While the school acknowledges science as a factual and evidence driven subject, pupils are taught to see the presence of God in all we do. While religious belief is never substituted for scientific fact, as a faith school we believe that God gave us our planet and all the wonders of the universe. We see science as an explanation of how God's gift of life has unfolded. We believe that science and faith can be taught as separate but linked subjects.

Differentiation and SEND

Science is a subject based on scientific enquiry. As such, pupils are encouraged to explore, make mistakes, address their own misconceptions and develop scientific understanding in a safe environment.

Pupils are given a range of differentiated activities appropriate for their age and ability. Pupils at St. Ursula's are challenged within lessons and we adopt the policy of 'There is no ceiling on pupil learning'. It is our policy that all pupils should be challenged to make accelerated progress, regardless of their prior attainment. Pupils with specific learning needs or those on the SEND register have work differentiated that allows them to access the curriculum and may be given extra support.

Differentiation is outlined in termly, weekly and individual lesson plans (when required) by the class teacher. Differentiation and inclusion are monitored by the Senior Leadership Team & SENCo.

Health and Safety

Teachers deal with health and safety for each science lesson and are aware of the need to consult the Be Safe Handbook (Located in the Science Resources area) and CLEAPPS website before conducting specific experiments. Resources are checked regularly, and any damage is reported to the Subject Leader to ensure that defective equipment is not being used and so that new resources can be sourced. Risk assessments will be carried out for all practical activities where potential hazards are identified. These are sent to Mrs Claydon to ensure that the practical activity can be carried out.

Pupils also know about health and safety within science lessons and are aware of how to use scientific equipment safely during practical activities.

Assessment and Monitoring

Diagnostic assessments are carried out before the start of every topic. This enables teachers to identify pupil's prior understanding, to inform planning, to provide challenge and to put in place interventions where necessary. At the end of each unit, pupils in EYFS and KS1 reflect and talk or write about what they have learned so that teachers can assess their progress. In KS2, pupils complete an end of topic test to assess their progress. Teachers also assess pupils on the core skills (working scientifically) identified by the National Curriculum 2014 and their progress is recorded on target sheets and is included in our Pupil Progress Data which is completed half-termly.

Parents are made aware of their child's science attainment through parents evening discussions, half-termly reports and in the end of year school report – targets are also provided so that parents, pupils and teachers are aware of the pupil's next steps.

Annually

Science topics and curriculum coverage are reviewed annually by the subject leader and amended in line with any changes to the national curriculum or school-based initiative. The Science Policy is updated and any changes to the curriculum are presented to staff, parents and governors. A pupil-voice questionnaire is completed each year to evaluate impact of teaching and to review areas the pupils would like to explore in more depth.

Half-Termly

Every 6 weeks (once each half-term) SLT, governors and the science subject leader review books and planning to identify progress made and to set next steps. Feedback is given to teachers to help inform their planning and to action any next steps given.

EYFS

Children in the Early Years Foundation stage are taught to understand the world around them through continuous provision. Age related objectives are taught throughout the year in all of the topics. Medium term plans in nursery and reception show which particular objectives have been achieved by the children in which term.

UNDERSTANDING THE WORLD			
	People and Communities (PM)	**The world (W)**	**Technology (T)**
16-26 months	1.16.1 Is curious about people and shows interest in stories about themselves and their family. 1.16.2 Enjoys pictures and stories about themselves, their families and other people.	2.16.1 Explores objects by linking together different approaches: shaking, hitting, looking, feeling, tasting, mouthing, pulling, turning, and poking. 2.16.2 Remembers where objects belong. 2.16.3 Matches parts of objects that fit together e.g. puts lid on teapot.	3.16.1 Anticipates repeated sounds, sights and actions e.g. when an adult demonstrates an action several times. 3.16.2 Shows interest in toys with buttons, flaps and simple mechanisms and beginning to learn to operate them.
22 – 36 months	F1.1 Has a sense of own immediate family and relations. F1.2 In pretend play, imitates everyday actions and events from own family and cultural background, e.g. making and drinking tea. F1.3 Beginning to have their own friends. F1.4 Learns that they have similarities and differences that connect them to, and distinguish them from, others.	F1.1 Enjoys playing with small-world models such as a farm, a Garage, or a train track. F1.2 Notices detailed features of objects in their environment.	F1.1 Seeks to acquire basic skills in turning on and operating some ICT equipment. F1.2 Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.

30 – 50 months	1. Shows interest in the lives of people who are familiar to them. 2. Remembers and talks about significant events in their own experience. 3. Recognises and describes special times or events for family or friends. 4. Shows interest in different occupations and ways of life. 5. Knows some of the things that make them unique, and can talk about some of the similarities and differences in relation to friends or family.	1. Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. 2. Can talk about some of the things they have observed such as plants, animals, natural and found objects. 3. Talks about why things happen and how things work. 4. Developing an understanding of growth, decay and changes over time. 5. Shows care and concern for living things and the environment.	1. Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. 2. Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. 3. Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. 4. Knows that information can be retrieved from computers.
40- 60 months	12. Enjoys joining in with family customs and traditions.	21. Looks closely at patterns, similarities, patterns and change.	9. Completes a simple programme on a computer. 10. Interacts with age appropriate computer software.
Early Learning Goal (ELG)	**Past and Present**	**People, Culture and Communities**	**The Natural World**
	- Talk about the lives of the people around them and their roles in society; - Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class; -Understand the past through settings, characters and events encountered in books read in class and storytelling;	- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps; - Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class; - Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and – when appropriate – maps.	- Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Key Stage 1

Year 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Covered	Everyday materials	Seasonal Changes – Autumn and Winter	Animals including humans	Seasonal Changes – Spring and Summer	Plants	Scientists and Inventors

Year 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Covered	Living things and their habitats	Uses of Everyday materials	The environment	Animals including humans	Plants	Scientists and Inventors

Key Stage 2

SCIENCE OVERVIEW	Year 3	Year 4	Year 5	Year 6
Topic 1	The Human Body (Skeleton and Muscles)	The Human Body (Teeth and Digestion)	The Human Body (Heart, Lungs and Major Organs)	The Human Body (Keeping Healthy; Dangers of Drugs, Alcohol and Smoking)
Topic 2	Rocks and Soils	States of Matter	Properties and Changes of Materials	Evolution and Inheritance
Topic 3	Light and Dark	Sound	Earth and Space	Light
Topic 4	Magnets and Forces	Electricity	Forces	Electricity
Topic 5	Plants - How Plants grow	Living Things and their Habitats - Classification	Living Things and their Habitats - Life Cycles of Animals and Plants	Living Things and their Habitats – Micro-organisms
Topic 6	Environmental topic	Environmental topic	Environmental topic	Environmental topic

Working Scientifically

Year 3 and 4 will cover the following line of enquiry targets:

- 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.

Year 5 and 6 will cover:

- 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.

SRE Lessons

SRE lessons usually take place towards the end of the academic year. These lessons are in line with the Diocese expectations and are linked with RE and Literacy. Parents are invited to view the lesson plans and resources so that they can see the spiritual and effective way that SRE lessons are delivered at our school.

MONITORING AND REVIEW OF POLICY

Policy Name: _____

All policies will be monitored and amended in line with the Equality and Diversity Statement and include an impact assessment, as appropriate every year, but all policies will be fully reviewed and updated as appropriate.

Signed:

Headteacher: _____

Governor: _____

Date: _____

Date for review: _____

Impact of this policy:

Signed:

Headteacher: _____

Governor: _____

Date: _____

Date for review: _____