St Charles' Catholic Voluntary Academy

Science Policy

Our Vision

The St Charles' way is for every child to: 'Belong, Believe and Blossom'.

Rationale

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014.

Through science, pupils at St Charles' Primary School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena.

Aims

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.
- To build on pupils' curiosity and sense of awe of the natural world.
- To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.
- To introduce pupils to the language and vocabulary of science.
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.
- To extend the learning environment for our pupils via our environmental areas and the locality.
- To promote a 'healthy lifestyle' in our pupils.

Objectives: To develop our pupils as Scientists in EYFS, Key Stage one and Key Stage Two we:

By using the following objectives derived from the above aims will form the basis of our decisions when planning a scheme of work. Assessment will also be related to these objectives through the role of Insight (our school's progress tracking system) sticky knowledge quizzes and pupil questionnaires we:

- Develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life;
- Develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures;
- Encourage pupils to relate their scientific studies to applications and effects within the real world;
- Develop a knowledge of the science contained within the programmes of study of the National Curriculum.

To build on pupils' curiosity and sense of awe of the natural world we:

- Develop in pupils a general sense of enquiry which encourages them to question and make suggestions;
- Lead with learning questions in our planning, to embed this inquisitive approach;
- Encourage pupils to predict the likely outcome of their investigations and practical activities.

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science we:

- Provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science;
- Develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'.

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts we:

- Introduce pupils to the language and vocabulary of science, and get them fluent in the use of the working wall.
- Give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science.

- Develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.
- Within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force metres and develop their skill in being able to read them.

Pupils will be involved in a variety of structured activities and in more open-ended investigative work we use:

- Activities to develop good observational skills.
- Practical activities using measuring instruments which develop pupils' ability to read scales accurately.
- Structured activities to develop understanding of a scientific concept.
- Open ended investigations.
- Whole school assemblies where enquire can develop from.

On occasions pupils will carry out the whole investigative process themselves or in small groups.

Celebrating Scientific Achievements

The school also values the contribution of famous scientists and pupils learns about their achievements and how they have influenced the world we live in. The schools location is close to the Manchester Science and Air Museum, home of the world's first computer, where the atom was split and the home of the first ever commercial train journey and the Industrial Revolution. We are proud of the contribution science has made to our local and the wider community. Science is valued and taught to a high standard in our school, including science based cross-curricular topics, visiting scientists and science week.

Minimum planning guideline:

Planning is to be completed on the generic English and Maths planning sheet and is to be accompanied by a Topic Mat (Knowledge organiser). It is to include the following: a learning question; the vocabulary needed for the topic; the key skills that will being covered (from the working scientifically statements) and an example of a minimum of one practical activity per unit. Each unit is to be ended by a quiz using the sticky knowledge that is identified. All Science units must be accompanied by an up to date working wall containing: sticky knowledge, vocabulary, diagrams, photographs and any other items that the class teacher deems relevant using their professional judgement.

Curriculum Delivery

Wherever possible science work will be related to the real world and everyday examples will be used. We aim to use our vast outside areas, where ever possible, including: the forest school area, the peace garden, the field and the KS1 outdoor provision.

Cross-curricular skills and links

Science pervades every aspect of our lives and we will relate it- where possible- to areas of the curriculum- through the use of our newly developed topic mats. We will also ensure that pupils realise the positive contribution of both men and women to science, through integrating famous and local scientists into relevant topics. We also aim to consider the contribution from those of other cultures. Finally, we will not only emphasise the positive effects of science on the world- but also include problems, which some human activities can produce.

Continuity and Progression

Foundation Stage pupils investigate science as part of Understanding of the World. 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. By careful planning, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

Pupils in Key Stage 1 will be introduced to science through focused observations and explorations of the world around them, these will be further developed through supportive investigations into more independent work at Key Stage 2. The knowledge and content prescribed in the National Curriculum will be introduced throughout both key stages in a progressive and coherent way and this structure can be accessed in the Science Coordinator File.

Through the use of topic mats, teachers will highlight how they are building on previous year groups, and they will also identify where the learning is leading to.

We have Science clubs-and whole school assemblies- that will be used to assist the curriculum. These clubs will help pupils connect new and existing knowledge.

Equality of Opportunity

All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and TAs at St Charles' Primary School are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This will be monitored by analysing pupil performance throughout the school- using Insight- to ensure that there is no disparity between groups.

Health and safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities any perceived hazards will be reported to the Head who will determine the appropriateness of said activity.

Assessment for Learning, recording and reporting

Throughout the school, teachers will assess whether children are working at/above or below the expected level for their age- based on their understanding and application of the content of the National Curriculum 2014. Progress and attainment is reported to parents through parents' evenings and end of year reports. Currently, knowledge data is assessed through end of unit quizzes- 2 weeks after its completion; this is further supplemented by the use of frequent 'Sticky Knowledge' quizzes that will include a revisit of previous taught units at the beginning of a related topic. All teachers will record their assessment of working scientifically onto Insight through the use of iPads three times a year.

Role of the subject Leader

Science will be led by the Science lead, through action planning and regular meetings with SLT and staff. Standards of teaching and learning will be adjudged using work sampling,

data review, lesson observations and pupil voice. It is the leader's role to promote the subject through: educational visits, assemblies, displays and clubs. The policy will be reviewed annually.

Resourcing

Specialist pieces of equipment and those posing a potential safety risk will be held centrally and staff can access when required. It is the class teacher's responsibility to liaise with the Science lead to order any resources in advance of planned learning. Teachers are directed to use planning support from reputable sources. These sources are: Hamilton Trust, STEM and Explorify; although teacher's professional judgement can still be use.

Below is a list of links to support planning:

https://www.stem.org.uk/primary-science

https://www.stem.org.uk/stem-clubs/

https://spark.iop.org/marshmallow-shooter

https://explorify.wellcome.ac.uk/en/activities

https://www.ase.org.uk/system/files/19-20.pdf

www.planetaria.org.uk

http://primarilyscience.co.uk

www.spacecampuk.com https://curvedhousekids.com/books/

https://www.ogdentrust.com/resources-cpd

http://stfc.ukri.org

https://stfc.ukri.org/public-engagement/activities-for-schools/borrow-the-moon/

https://www.hamilton-trust.org.uk/

Science Lead……

This policy was adopted and reviewed……

This policy will be reviewed……