

# St. Clement's C. of E. Academy

## Science Policy 2019-22

# Learning for Life, Anchored in Christ

**ST. CLEMENT'S**  
C.OF E. ACADEMY

## Our vision

Our vision is to inspire happy, **courageous**, independent, curious and creative, life-long learners. We aim for all to achieve their full potential, striving both academically and socially with **humility** and **dignity**.

We believe being anchored in Jesus Christ will guide us all with **hope**, **compassion** and **wisdom** in becoming successful members of a global community.

## 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 Clement's Academy 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 develop pupils' use of computing in their science studies.
- to extend the learning environment for our pupils via our environmental areas and the locality
- to promote a 'healthy lifestyle' in our pupils.

## Objectives

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:

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

- to develop in pupils a general sense of enquiry which encourages them to question and make suggestions
- to encourage pupils to predict the likely outcome of their investigations and practical activities
- to develop respect for the environment and living things

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

- to provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science
- to 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

- to introduce pupils to the language and vocabulary of science
- to give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- to 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 meters and develop their skill in being able to read them.

To develop pupils' use of ICT in their science studies

- to give pupils opportunities to use ICT (video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science studies
- to give pupils the chance to obtain information using the internet.

Other attitudes which teachers should seek opportunities to develop are the importance of curiosity, originality, co-operation, perseverance, open-mindedness, self-criticism, responsibility, independence of thinking and self-discipline.

### Inclusion

All children have equal access to the science curriculum and its associated practical activities. All staff 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. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence

### Breadth and Balance

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

- 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.

On some occasions pupils will carry out the whole investigative process themselves or in small groups. Wherever possible science work will be related to the real world and everyday examples will be used. Some topic areas link to the Cornerstones Curriculum. Where topics do not link to the science curriculum, lessons are taught discretely. Each class will have one taught science lesson per week.

### Cross-curricular skills and links

Science pervades every aspect of our lives and we will relate it to all areas of the curriculum. We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce. We hold a 'Science week' every year where all curriculum areas are linked to an aspect of Science and real life contexts. Parents are invited to some sort of science workshop to work alongside their child. This week culminates in a school Big Book and a Science Fayre type event for parents to look at their child's learning.

### SMSC in Science

Sometimes science and spiritual ideas do cause conflict but in a modern society it is important to understand why these conflicts arise so we can respect the views of others and move forward. Science involves the search for meaning and purpose in natural and physical phenomena. It is the wonder about what is special about life, the awe at the scale of living things from the smallest micro-organism to the largest tree and the interdependence of all living things and materials of the Earth. It concerns the emotional drive to know more and to wonder about the world and aesthetically appreciate its wonders including for example the enormity of space and the beauty of natural objects or phenomenon, plants, animals, crystals, rainbows, the Earth from space etc. It helps us understand our relationship with the world around us how the physical world behaves, the interdependence of all living things.

When carrying out modelled, intermediate or an independent investigation the children will be able to decide which variable to use to ensure the test remains fair. When carrying out an investigation children will take responsibility for their own and other safety. They are aware of the consequences of their behaviour and actions could jeopardise the results of the investigation. At the start of an investigation the children will offer reasoned views about their predictions for the test and will listen carefully to the viewpoints of others. Moral education in Science encourages children to become increasingly curious, to develop open mindedness to the suggestions of others and to make judgments on evidence not prejudice.

Scientists are collaborators. Sharing ideas, data, and results for further testing and development by others. This is a key principle of the scientific method. We encourage pupils to work together on scientific investigations and to share results to improve reliability. Pupils must take responsibility for their own and other people's safety when undertaking practical work. Science has a major impact on the quality of our lives. In Science lessons, pupils consider the social impact, both positive and negative, of science and technology.

It is important that the children understand that scientific development comes from all across the world, from people of all backgrounds and cultures. Some of science's most important discoveries have come from other parts of the world and it's important for students to understand this as many believe that progress comes largely from the UK or

America. It is also important to understand how the different cultures around the world can have different impacts on the planet and what impact more economically developed countries have on poorer areas. This will also be vital into the future as we need to monitor the impact of quickly developing cultures around the world on our environment.

### 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.

### 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 Science lead 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. The summative aspect of pupil's attainment is recorded through self-assessment/awareness of learning both at the beginning and end point of each 'unit' of work. Attainment is monitored by the SLT/Science lead using book sampling, pupil discussions and observations. Progress and attainment is reported to parents through parents' evenings and end of year

### Marking (see policy)

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work.

### Resourcing

Science is resourced with topic boxes that cover the general resource needs of the statutory objectives within the Primary National Curriculum 2014. We also have published materials to support and reinforce learning; The library has a selection of science books, which can be borrowed by class teachers to aid teaching and encourage independent learning and research.

## Review

The effectiveness of this policy will be reviewed and discussed in the Spring Term 2022, alongside any new guidance/resources schemes. Any consequent revisions to the policy will be presented to the governing body for discussion at their termly meeting in the Summer Term 2022.

