Hey with Zion Church of England & Methodist Primary School

Science Policy

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Hey with Zion has a joint Church of England and Methodist Foundation.

The values of LOVE, HOPE and ASPIRE alongside British Values (democracy, mutual respect, tolerance, individual liberty and the rule of law), permeate the school's ethos.

We are a loving, inclusive family, rooted in our Christian Values and nurturing ethos. We provide a positive learning environment where all children can achieve their full potential.

Hey with Zion's Vision Statement

Jesus said, " I have come that they may have life, and have it to the full." John 10 verse 10

Within the love of God, we aspire to do the best we can for ourselves and others.

Our Mission:

Hey with Zion is a family in which everything we do is built upon our Christian values and ethos. We endeavour to create a place where everyone feels they belong, they are happy, nurtured, safe and valued.

Our mission is to:

- Kindle a love of learning for all children; enabling them to develop creative, inquiring minds and achieve high personal success through an excellent and enjoyable curriculum.
- Develop individuals to have self-knowledge to sustain a happy and healthy lifestyle filled with awe and wonder.
- Develop positive attitudes and behaviours and encourage children to form caring relationships as active citizens in the local and wider world.
- Enable our children to make right choices and take safe actions within their life experiences.
- Through challenge and high expectation prepare our children to reach their full potential by teaching academic and life-skills

Epworth Education Trust Mission Statement

The Epworth Education Trust is a multi-School Trust established with the aim of providing outstanding learning and opportunities for the children within its care.

Children are our nation's most precious resource. Their school life and learning experience will shape them for the whole of their lives

Safeguarding Statement:

At the Hey with Zion we recognise our moral and statutory responsibility to safeguard and promote the welfare of all children.

We work to provide a safe and welcoming environment where children are respected and valued. We are alert to the signs of abuse and neglect and follow our procedures to ensure that children receive effective support, protection and justice.

The procedures contained in the Safeguarding Policy apply to all staff, volunteers and Local Advisory Board.

Our core Christian Values at Hey with Zion Church of England and Methodist Primary School are Love Hope and Aspire, we believe that to facilitate teaching and learning, acceptable behaviour must be demonstrated in all aspects of school life. We base our behaviour approaches on clear, specific expectations which can be seen in our School Rules, Habits for Learning and underpinned by our Christian values. This unique approach is bespoken to our school in line with how we 'do all we can' to support pupil development.

Science Policy

The importance of Science in the curriculum

Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to critical and creative thought. Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Aims: The school aims to:

- Stimulate and excite pupils' curiosity about changes and events in the world.
- Satisfy this curiosity with knowledge.
- Engage pupils as learners at many levels through linking ideas with practical experience.

- Help pupils to learn to question and discuss scientific issues that may affect their own lives.
- Help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought.
- Show pupils how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives.
- 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.
- Equip pupils with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- Help pupils recognise the cultural significance of science and trace its development.

Strategy for implementation

Science is a core subject of the National Curriculum and pupils undertake science activities every week alongside science weeks or days. The work covered in Key Stage 1 builds on the nationally recognised curriculum for pupils aged under five. Pupils in the EYFS develop their knowledge, understanding and skills through play activities and direct teaching from which the pupils undertake planned tasks.

Science is allocated ten per cent of the taught time at both key stages and this amounts to about 80 hours per year at Key Stage 1 and about 90 hours per year at Key Stage 2.

The programmes of study are covered in units of work using the new National Curriculum.

Planning takes into account that the school places a high emphasis on the development of pupils' skills of working scientifically. In the substantial majority of lessons, the skills for working scientifically are taught alongside the knowledge and understanding in area from the national curriculum including; plants, animals including humans, everyday materials, light, seasonal changes, all living things and their habitats, sound, rocks, forces and magnets, states of matter, electricity, earth and space and evolution and inheritance. In this way there is an equivalent emphasis on working scientifically as there is on the knowledge and skills being introduced.

In EYFS

The aim of science in EYFS is to help children make sense of the world around them through free and directed play and exploration using all their senses. Although it is classified as 'Knowledge and Understanding of the World' it is about developing skills (raising questions, observing, describing, verbalising, predicting, sorting, matching, handling everyday utensils, critical thinking, communicating their findings) and attitudes (curiosity, cooperation, respect for the opinion of others, perseverance and determination). The knowledge should be seen as the context through which the skills should be developed, and the understanding of the knowledge is not the key feature at this stage. It is about developing an enthusiasm for learning and an awe and wonder of the world around them.

At Key Stage 1

Pupils are able to experience and observe phenomena, looking closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. Pupils should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use scientific language to talk about what they have found out and talk about their ideas to a range of audiences in a variety of ways. Most of the learning of 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 video clips. Working scientifically must always be taught through and clearly related to the teaching of substantive science content in the programme of study.

Lower Key Stage 2

Pupils are able 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. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Upper Key Stage 2

Pupils are able 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. Pupils should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings and they will learn to work and think scientifically throughout.

Standards

Pupils will be assessed on whether they are entering, developing or secure in their year groups' expectations in science. These are recorded on the progress sheets provided and then passed onto the science subject lead. SEN children and gifted children may be assessed outside their chronological year group if it is decided that this will help them achieve their full potential.

By the end of each year the performance of the great majority of pupils should be secure.

By the end of Key Stage 2, the performance of the great majority of the pupils should be secure.

Teaching and learning

All lessons have clear learning objectives also known as learning questions which are shared and reviewed with the pupils effectively.

A variety of strategies, including questioning, discussion, concept mapping and marking, are used to assess progress. The information is used to identify what is taught next.

Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?".

Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings.

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

Activities are challenging, motivating and extend pupils' learning.

Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

Assessment and recording

- In Key Stage 1 and 2, assessment takes place during and at the end of each unit of work. This highlights any attainment and progress which is significantly lower or higher than expected.
- Information from test analysis and teacher assessment of progress throughout the year is used to complete the annual report to parents. This report provides information on effort and attitude, as well as progress and attainment.

In addition, children are involved in their own self-assessment and peer assessment.

Continuity and progression

The school ensures curriculum continuity through monitoring procedures (such as observations, pupil interviews, book, mark book and planning scrutiny) and close liaison with staff.

Inclusion

Planning at all levels ensures that the interests of boys and girls are taken into account. The pupils work individually, in pairs, as part of a small group and as a whole class each term. They use a variety of means for communicating and recording their work.

Educational support staff, when available, work as directed by the teacher.

All pupils, including those with special educational needs, undertake the full range of activities. Teacher assessment determines adaptations to each unit of work.

Organisation

Science is generally taught as a discrete subject, although cross-curricular opportunities are positively explored. The programmes of study are covered through units of work using the National Curriculum and supplementary resources.

Curriculum

Long term planning: and medium-term planning follows the schools bespoke made EYFS planning and the Epworth Education Trust Science Curriculum and these are supplemented with other resources. These identify within each unit of work: learning objectives or learning questions, working scientifically, science activities, assessment opportunities, the vocabulary to be taught and used, safety issues, how computing can be used and resources should be used.

Weekly planning: This contains elements of the overall learning objectives or learning questions for the unit of work which have been broken down into steps or adaptations that are appropriate for the age and stage of the pupils. They also include the practical scientific methods, processes and skills taught (working scientifically).

Learning resources

Learning resources are kept in the science cupboard or individual classrooms if they are appropriate only to that year group. Relevant equipment is taken to the class by teachers. Teachers are responsible for the maintenance of these areas.

The scheme of work also covers the training of the pupils in the safe and considerate use of animals, plants and equipment. Pupils are taught not to be careless and to use consumables efficiently.

The learning environment

Classrooms will have displays of current science teaching with key learning, vocabulary and examples of prior learning. The profile of science should reflect its place as a core subject. Resources for the unit of work being covered should be appropriately accessible. Other sources of information should be available.

All classrooms should display prominently the relevant scientific vocabulary being introduced in current units of work.

Health and Safety

Safe practice as indicated in The Association of Science Education publication, "Be Safe!" must be promoted at all times. Teachers must also take into account the school's Health and Safety policy. Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies. Safety issues have been identified in medium-term planning and risk assessments must be completed in weekly planning, when activities are identified that are unusual and beyond the scope of normal safety practice.

Extra-curricular opportunities

There may be opportunities for children to visit places of scientific interest and for visitors to come into the school in order to support the learning objectives for units of work where relevant. Chemistry with Cabbage and science museums and the local Sixth form Science college. In addition, the school holds 'science days', the aims of which are to increase awareness of science in everyday life and to encourage curiosity and enthusiasm for science.

Homework

Homework is set on a weekly basis in Key Stage 1 and 2. In Key Stage 2 this will sometimes relate to current science objectives. From time to time the homework which is set at Key Stage 1 may relate to science topics covered in class (e.g. small investigation activities with parents/carers).

Parents and carers

Parents and carers have an important role to play in helping their child learn about science. Their role is enhanced by the use of science displays around the school to raise their interest and the interest of their children in the subject. Matters of topical scientific interest are raised for parents and their children to investigate or observe together.

Science across the curriculum

The teaching of English, Maths and computing is promoted strongly in science as part of this school's drive to maintain high standards. Science is used to extend and enable the pupils to practise the skills of language and literacy and numeracy.

English

In particular, at Key Stage 1, the pupils are encouraged to use their speaking and listening skills to describe what they see and explain what they are going to do next. At Key Stage 2 the pupils are encouraged to develop their skills of writing to record their planning, what they observe and what they found out. In relation to science, they should be applying their literacy skills at levels similar to those which they are using in their English work.

Maths

At both key stages the pupils are expected to use their knowledge and understanding of measurement and data handling at appropriate levels. In science, they should be applying their numeracy skills at levels similar to those which they are using in their mathematics lessons.

Computing

The pupils' computing skills are applied as identified in the medium-term/weekly planning. At both key stages this involves the pupils using computing to locate and research information (internet); record findings (using text, data and tables); log changes to the environment over time (sensing equipment); gain confidence in using calculators, iPad, digital cameras, and sound-recorders, as well as the computer.

Thinking Skills

The teaching of science provides numerous opportunities for the development of higher order thinking skills. Scientific enquiry demands a range of different types of thinking and processes that can be developed through thoughtful questioning. Questions for thinking may be included in science plans and can be further developed by the teacher.

Spiritual development

Spiritual development is encouraged through reminding pupils of the wonder of science and the effect of scientific discoveries on the modern world. Topical scientific issues are also discussed as appropriate.

Personal, Social and Health Education

Health education is taught as part of the units on animals, including humans.

Leadership and management

The role of the Science Subject lead is to:

- Take the lead in policy development and review, including the continuing successful implementation of the science curriculum.
- Support colleagues in the development of weekly plans from schemes of work.
- Keep up-to-date on local and national initiatives, Ofsted publications and the latest research from EEF and then to disseminate information.
- Take responsibility for the purchase and organisation of scientific resources.
- Encourage the professional development of staff.

Staff development and training opportunities

The Senior Management Team discusses staff development needs and, where appropriate, these are built into the school's staff development programme. Staff attending training are expected to share the useful points with colleagues at staff meetings. The science lead puts in a bid, to the Head teacher, so that funds are available for science equipment. KS1 & KS2 teachers discuss needs with the Science Subject Lead and Head teacher and ensure planned units of work are adequately resourced.

Reporting to Governors

The Science Subject Lead will report to Governors on standards and progression, using evidence from their monitoring.