Iveson Primary School

Science Policy

Our Vision Statement

At Ivesan Primary School, Science provides children with an in-depth view of the world. We invoke curiosity and a sense of awe and wonder. Children are provided with opportunities to develop a range of skills through practical investigations. Life-long skills of observation, questioning and research are nurtured to enable children to contribute to society. An innovative curriculum provides children with outdoor learning frequently taking place. Teaching promotes peer-led creative learning. Science teaches and values resilience; learning through mistakes and challenges is encouraged and celebrated.

Children are inspired to make good progress in every Science lesson.

Science at Ivesan provides opportunities to

- foster curiosity, awe and wonder about our World
- explore our questions through practical investigation
- use Scientific Vocabulary in discussion and thinking
- understand the importance of Science to us all
- learn about Scientists of the past and present
- understand the career opportunities in Science
- foster a life-long interest and passion for Science
- have fun and freedom to learn outdoors

Introduction:

This policy outlines the teaching, organisation and management of the Science taught and learnt at Iveson Primary School. The school's policy for Science follows The National Curriculum 2014 for Science guidelines and the Early Year's Foundation Stage Framework and 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 a variety of different scientific enquiries that help the to answer 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.
- are encouraged to understand how Science can be used to explain what is occurring, predict how things will behave, analyse causes and evaluate outcomes.

Where suitable, adaptations have been made to suit our school's environment and ethos.

Aims:

A high-quality Science education provides foundations for understanding the world. Through building key knowledge and understanding of concepts, pupils should be encouraged to recognise the power of explanation and develop a sense of curiosity about natural phenomena.

- For staff to work cooperatively to deliver a broad and balanced Science education which incorporates a range of learning styles to suit individual needs.
- For children to have the right to equal opportunities in Science in our school regardless of their background, religion, race, gender, physical or intellectual ability
- For children to become curious about the world around them and the things that they observe, experience and explore.
- For children to use their experiences to develop understanding of key scientific ideas through enquiry
- For children to develop skills of sorting, classifying. planning, predicting, questioning and drawing conclusions from a range of activities.
- For children to acquire and refine practical skills necessary to investigate ideas and questions safely.
- For children to practise mathematical skills and enhance literacy skills (where possible) within real contexts.
- For children to develop language skills through talking about their work and presenting their findings.
- For children to use progressively technical scientific and mathematical vocabulary and draw diagrams and charts to communicate scientific ideas.
- For children to use a range of media including ICT to extract and present scientific information.

- For children to work collaboratively with others, listening to their ideas and treating these with respect.
- For children to develop an understanding of how to respect the environment and living things, including themselves and each other.
- For children to develop responsibility for their own health and safety and that of others when undertaking scientific activities.

Teaching and Learning:

To provide adequate time for developing scientific knowledge, skills and understanding, each teacher will provide regular Science lessons. These may vary in length based on the objectives being explored. Techers will base their planning on the Programmes of Study for their relevant year groups and will identify the most appropriate teaching strategy to suit the purpose of each particular learning situation. Some teachers have decided to 'block' units of learning whilst others are teaching the as part of the topic for the term.

There are a variety of ways in which the teaching and learning may be effective. Our school aims to encourage learning through investigation, with an emphasis on first-hand experience. Science lessons have no imposed formal structure but should typically contain some of the following elements: whole class, group or individual learning; practical, investigative task; recording; communicating.

Foundation Stage: Science is an integral part of topic learning and should be embedded throughout activities. At this stage, the 'understanding of the world' area of learning commands at least one hour of structured time per week and is evident throughout other learning tasks. Cross-curricular lins will also be made to other subjects so that pupils can develop and apply their scientific skills.

Key Stage 1: The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They 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 simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about 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 videos. Pupils should read and spell scientific vocabulary at a stage consistent with their current reading and spelling knowledge.

Lower Key Stage 2 – Years 3 and 4: The main focus of Science teaching in Lower Key Stage 2 is to enable pupils 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 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. 'Working scientifically' must always be taught through and clearly related to substantive Science content in the programme of study. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6: The main focus of Science teaching in Upper Key Stage 2 is to enable pupils 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. At Upper Key Stage 2, they 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 most 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 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. Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking scientifically' must always be taught through and clearly related to substantive Science content in the programme of study.

Home Learning Opportunities

The regular Science lesson(s) will provide opportunities for the children to develop scientific skills, knowledge and understanding. According to the National Curriculum and are a vehicle to motivate children to extend their learning beyond the classroom.

Through the use of 'Home Learning Grids,' teachers will encourage children to find out information and practise scientific skills out of school time. In addition, they will provide opportunities to share and value the children's efforts outside school, within future lessons or during class time.

School Overview of Science

The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. 'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group and should not be taught as a separate strand. This element will be embedded throughout the delivery of the Science curriculum at Iveson Primary. Cross-curricular links are also made where possible to enhance the learning of Science.

Planning

It is the responsibility of the class teacher/ year group teachers to undertake the Science planning for their class, or oversee it where a student may be taking the class.

Long term plans:

Long term plans (or yearly plans) are shown on the curriculum overview for each year group.

Medium term plans:

Medium term planning should show an overview of what will be covered week by week. An objective or title for each week will suffice. Opportunities for 'Scientific Enquiry' should be included wherever possible.

Short term plans:

Short term plans (or weekly plans) should contain more detailed information about what will happen in the lesson. Teachers may also wish to include relevant vocabulary, questions they wish to ask and a resource list. Opportunities for cross-curricular links may also be identified. Where there are health and safety issues, these should be clearly shown on the planning and acted upon accordingly.

Assessment

It is the responsibility of the class teacher to maintain an overview of each child's progress in Science.

Formative assessment (informal):

Assessment in Science can take both formal and informal forms. Informal assessment can be done through pre-assessment tools, observations of the children, marking their work and questioning children to identify what they have understood. Recordings of significant progress or events can also be evidenced in the lesson evaluation.

Summative assessment (formal):

Currently, formal assessment in years 1 to 6 is completed in a number of ways; usually after each unit of Science learning. Class teachers should track, monitor and update children's

progress on a regular basis using end of unit assessments or through the use of self and teacher response success ladders/ feedback. Individual progress should also be reported back to parents on a regular basis either through parents' evenings or a written report.

Children's knowledge and skill level is recorded on the school's tracking system online (SPTO) and auto filled at the end of each term to track individual progress in relation to specific National Curriculum 2014 objectives.

Marking

Refer to the Whole School Marking Policy.

Resources

The school holds a central bank (Science cupboard) of teachers' resource books and frequently used resources including hand lenses, magnets, thermometers and measuring equipment. Children are encouraged to choose from a range of equipment and are trained in the safe and considerate use of animals, plants and consumable materials. Expensive and less frequently used items are also kept within the central store. Objects which are specific to a single year group may be kept within those class rooms (eg: Sex Education videos are stored in Y6). The Science coordinator is responsible for maintaining this area and ordering any necessary items that have been identified as a need.

All staff members have a shared responsibility for collecting and returning necessary items to the correct place to ensure that resources are easy for all staff to access.

Health and Safety

The safe use of equipment and consideration of others is promoted at all times. The Association for Science Education publication, "Be Safe!", should be used by staff as a point of reference for issues regarding health and safety. A copy of this is held in the Science cupboard and teachers are encouraged to use this as an aid. The school's "Health and Safety Policy" should be consulted for details regarding scissors, craft tools, electrical equipment, wet areas, heavy equipment and use of other tools. When planning activities, safety issues should be identified in detail in the weekly plans and acted upon accordingly. Children should be made aware of safety issues and, where appropriate, the reasons behind them. Activities which take place away from the school's premises will require a separate risk assessment form to be filled in.

Monitoring and Evaluation

Role of Science Lead:

- To be enthusiastic about Science and demonstrate good practises.
- To work alongside colleagues in planning where needed (progress and activities).

- To work alongside teachers in the classroom (this will depend on release time and other available help), monitoring the planning and delivery of lessons.
- To coordinate and arrange staff in-service training as required.
- To audit resources, identify needs and order equipment in school after consultation with colleagues.
- To manage the Science budget.
- To "sample" the work of children across the age range (curriculum monitoring).
- To review and evaluate the effectiveness of teaching and learning of Science, including opportunities for children to develop their spiritual, moral, social and cultural well-being.
- To provide guidance on the implementation of the Science policy.
- To suggest appropriate assessment activities where needed.
- To provide support to those colleagues who request/require it, including help with planning and organisation.

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