

Approved by Curriculum & Progress Committee meeting: 10th April 2019

Minute No.: 24.3/19 (C/P)

To be reviewed by: Spring 2021

Introduction

Science provides a way for pupils to look at the world and question and investigate what they see. It encourages enquiring and exploring the world around them.

Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.

National Curriculum May 2014

Purpose

This policy is intended to ensure consistency of teaching and progression across the school for science.

Aims

- For students to achieve and progress in science
- That pupils experience all aspects of science – How science works, Organisms, their Behaviour and the Environment, Materials, their Properties and the Earth and Energy, Forces and Space
- Learn about ways of thinking, finding out and communicating ideas
- For students to develop a curiosity and understanding of their environment and their place in the living, material and physical world
- For students to develop thinking skills when working scientifically
- To investigate using practical techniques
- For students to recognise the impact the sciences make on their lives, the lives of others, the environment and on society
- For students to express opinions and make decisions on social, moral, ethical, economic and environmental issues based upon sound understanding

Procedures and Practice

Science at Ashgate Croft School offers pupils opportunities to think and learn and develop an interest in and a curiosity about the world around them, through exploratory and investigative experiences and activities.

The delivery of Science should in its simplest form be a stimulation of the senses and opportunity for exploration. Where possible this should be hands on, learning by exploration and by trial and error.

In response to these opportunities pupils can make progress in science by:

- Experiencing that personal actions have consequences, leading to the seeking of explanations, and an understanding of the links between cause and effects
- Increasing the breadth and depth of their experience, knowledge and understanding
- Linking and applying scientific knowledge and understanding of everyday life, *for example, to cooking, to their own health, in the use for functional purposes*
- Investigating the familiar, and later developing a broader environmental and technological perspective
- Developing an understanding of the more abstract as well as the concrete and practical
- Moving from description to explanation of events and phenomena

Science planning, teaching and assessing the curriculum for pupils with learning difficulties DfEE 2001

Planning

Each department has a long-term plan in place for science. Teachers are responsible for completing Medium Term Planning on the school format each term. Teachers use the EYFS curriculum, Astra Zenica units for PMLD classes or Learning Pathways for all other students. All staff receive regular, concise termly feedback on Medium Term Planning from the subject leader responsible for science.

The science topics on the LTP have been closely monitored by the science subject leader and Primary Assistant Head. From these LTPs for each department, Learning Pathways have been created. These have links to assessment opportunities and cover a range of weekly learning opportunities related to the general half termly topic. The units are then tweaked by the class teacher to ensure the work is taught at the correct level and meet the diverse needs of the pupils.

This also encourages staff to share ideas and resources.

What/When is science taught?

EARLY YEARS FOUNDATION STAGE (EYFS):

What:

The EYFS pupils follow a sensory approach to learning. Pupils are encouraged to ask questions about why things happen and how they work. Science in the EYFS is introduced indirectly through activities that encourage pupils to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Pupils are guided to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment. Children learn about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one to another. They make observations of animals and plants and explain why some things occur, and talk about changes.

When:

Students in the EYFS follow the same curriculum and timings as the primary department. They are assessed through B squared on the progression or engagement steps.

PRIMARY DEPARTMENT (Key Stages 1 & 2):**What:**

Primary pupils follow topics within a 4 year rolling program, covering a topic each half term. The topics cover all aspects of science and include lots of practical elements of learning.

When:

Pupils are taught the equivalent of three science lessons a week across each term. Science will be included in other lessons and will be taught through cross-curricular links.

MIDDLE DEPARTMENT (Key Stage 3):**What:**

Middle pupils follow topics within a 3 year rolling program, covering a topic each term. The topics cover all aspects of science and include lots of practical elements of learning.

When:

Pupils are taught science under the heading of 'Environment' which works alongside geography. This will be taught for a whole morning or afternoon although science will be included in other lessons and will be taught through cross-curricular links following a main theme of a topic.

UPPER DEPARTMENT (Key Stages 4, KS5 are no longer required to be taught discrete science lessons):**What:**

Upper students follow topics within a 5 year rolling program, covering a topic each half term. The topics cover all aspects of science and include lots of practical elements of learning. There are different long term plans for SLD/MLD, PMLD and Specialist learners to ensure teaching is individual and allows each student to learn.

When:

Students are taught a discrete science lesson each week. Science will be included in other lessons such as Independent Living Skills (ILS) and will be taught through cross-curricular links.

SENSORY CURRICULUM:

Science in the Sensory Curriculum is taught for one whole morning or afternoon per week. It comes under the 'knowledge and understanding of the world' heading and incorporates the development of the senses of taste, smell, touch, vision, sound and bodily experience. It also covers the development of the integration of all these senses to form a multisensory approach for the child to use in learning situations.

Sensory science is assessed using B squared engagement steps or the sensory assessment.

Whole school teaching and learning

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand.

It is taught throughout all of the 4 areas of science and through many cross curricular links. Pupils are taught that it is important to collect evidence by any means when trying to answer a question.

Pupils are taught about investigation and are encouraged to think and learn by answering questions throughout the lesson. Pupils are encouraged to ask and answer why/what and how questions. If they can't answer them verbally they will be encouraged to think about how they can find the answer out. PMLD students will experience science through using their senses and encouraged to problem solve.

Pupils are taught about everyday activities such as forces, light and dark, sound and electricity, pushes and pulls. Students are encouraged to learn through observation and explore ways of finding things out. Pupils are encouraged to use all of their senses and explore similarities and differences between materials. Students look at properties of materials and their uses. Students look at how materials can be changed within formal science lesson and through cross curricular links within cookery and art. Pupils look at the differences between living and non-living things, exploring plants, humans and animals. They are taught about sensitivity when caring for a human or animal.

As much as possible science lessons are taught through practical activities. All classes are encouraged to use the sensory garden or in primary the EYFS outdoor learning area already set up for outside learning.

Cross curricular links including Computing

Computing is used in most subjects to engage and accelerate learning. Pupils may explore online software, play scientific based games, watch science clips or simply use technology such as cameras or Ipad to record their observations.

The activities and experiments are modified within the classes to take into account the individual needs of the pupils in that class. This may mean that pupils who cannot eat certain foods because of allergies or the way they are fed will experience these through sight, smell and texture.

Wherever possible the curriculum will include multi-sensory experiences for the SLD and PMLD groups.

Assessment and Recording

Sensory learners are assessed through engagement steps on B squared or the sensory assessment tool.

For all other pupils in Key Stages 1-4, assessment is with the B squared progression steps assessment tool. This is updated as per the attainment and progress guidelines. Individual lessons are assessed for all pupils to build up the knowledge of their achievements against the outcomes.

Parents/carers are informed of student's progress via annual reports and informally during Parents/carers' evenings.

Role of the Subject Leader

The subject leader tries to ensure sufficient equipment and resources are ready as each new topic approaches and this is regularly checked by them. Each year a survey is sent for requests from staff.

Time was spent to revise the Middle curriculum and make it relevant to the diverse needs of all the pupils and ensure all areas to assess are taught. Middle school now follow a topic that works across all lessons encouraging cross-curricular teaching. The LTPs have been revised to ensure the teaching of topics fits in with the new style of teaching and our assessment. Teachers have a general science topic but use it how they wish to allow each pupil to achieve as every class is so diverse.

LTPs have recently been reviewed for Primary and Uppers to ensure we are teaching relevant topics. All teachers were asked to give an input into this to ensure lessons are taught to best suit the pupils. Regular chats take place with teachers to ensure the teaching of science is worthwhile and relevant to the students.

External moderation took place in 2019. Moderation was hard to compare as each school used a different method of assessment. All we could do was look at what each school moderated against and level the work to that. Teachers at Ashgate Croft were secure within the levels they had given science work.

The subject leader monitors teachers MTP each half term and gives support where necessary for advice or to share resources. This ensures that MTPs are completed for all classes and handed in on time; reflect curriculum coverage, include outdoor learning where possible and include continuity and progression in the subject for pupils of all abilities.

Pupil achievement and progression in the subject is evaluated throughout the year and interventions set up where necessary. Regular meetings happen between the subject leader and co-ordinator to look at targets and how we can raise standards across the school.

Parental Involvement

Parents / carers are informed of Science work undertaken through the home school diaries and the curriculum coverage for the year. In April 2016, Parents were given a password to Education City which is an online resource that is used within lessons. This has science games and activities that reinforce the topics taught at school. This has been used very little out of school.

Equal Opportunities

Pupils have differentiated work, are supported appropriately and are given equal opportunities through this support to explore and observe and experience and develop their scientific knowledge and skills.

All pupils in school, irrespective of age or ability have access to a curriculum which is differentiated to meet their individual needs.

See Equality Policy.

Children's Rights

Article 12- Children have the right to say what they think

Article 23 - Children with disabilities are provided support to participate

Article 28 - The Right to education

Article 29 – Education must develop every child’s personality, talents or abilities to the full

Monitoring of the policy

Monitored by Vicky Bridge

REFERENCES

- EYFS Curriculum policy
- National Curriculum 2014
- Education Scotland.gov.uk
- Equals