Science at Much Birch – Curriculum Statement

Children have a naturally enquiring mind that constantly asks questions. Watch them play and you will see them naturally changing, modifying what they do in order to achieve what they want. Through the teachings of the values of Perseverance, Hope, Friendship and Humility our intent at Much Birch is to keep them asking those questions and to channel that inquisitiveness into a systematic scientific approach.

CURRICULUM INTENT

Through science we want to develop a knowledge that is essential to our understanding of ourselves and of the world around us. This is achievable through the development of the concepts, skills and attitudes, which enable pupils to engage in activities and investigations. These scientific skills are important if we are to prepare our children for a world that is becoming increasingly technological and one in which science has an important role in shaping the future of society and the world in which we live.

Cultural Capital:

Science is important because:-

- It is part of modern culture, providing employment and opportunities to shape the future of the world.
- It enables us to have a better understanding of our surroundings and the world in which we live.
- It encourages questioning and discussion skills.
- It encourages creative and imaginative thought.
- It enables us to have a better understanding about ourselves.
- It provides an understanding of how past and future technological change and medicine impacts on the development of the world and the quality of our lives.

Our aim:

All children will have **fostered a love of science** and be able to:-

- Understand that science relates to their everyday lives, the real world, to everyday situations and will provide employment opportunities.
- Acquire a progressive understanding of scientific ideas, knowledge and skills.
- Be encouraged to use their natural curiosity to develop a scientific approach to solving problems.
- To have the right to equal opportunities in Science in our school regardless of their background, religion, race, gender, physical or intellectual ability.
- Be encouraged to care for and enjoy the environment, targeted through forest school.
- To be able to build their self-confidence to enable them to work both independently and co-operatively with others.
- Become effective communicators of scientific facts and data through mathematics, literacy and IT.
- Be encouraged to develop a responsible and considerate attitude towards their work, with an awareness of the safety to themselves and others.

At the end of

Reception

- Find out about, and identify some features of living things, objects and events they observe
- Look closely at similarities, differences, patterns and change
- Ask questions to gain information about why things happen and how things work

Key Stage 1

- Pupils observe, explore and ask questions about living things, materials and phenomena.
- They work together to collect evidence to help them answer questions and to link this to simple scientific ideas.
- They evaluate evidence and consider whether tests or comparisons are fair.
- They use reference materials to find out more about scientific ideas.
- They share their ideas and communicate them using scientific language, drawings, charts and tables.

Key Stage 2

- Pupils learn about a wider range of living things, materials and phenomena.
- They make links between ideas and to explain things using simple models and theories.
- They apply their knowledge and understanding of scientific ideas to the world around them, familiar phenomena, everyday things and their personal health.
- They think about the positive and negative effects of scientific and technological developments on the environment and in other contexts.
- They carry out more systematic investigations, working on their own and with others.
- They talk about their work and its significance, and communicate ideas using a wide range of scientific language, conventional diagrams, charts and graphs.

How children of all abilities are supported and challenged.

All pupils take part in the science lessons and make progress in a lesson.

- Children with SEND or EAL have support with the scientific vocabulary, the investigative processes and extra time.
- In oral and discussion work, teachers plan a range of differentiated questions, with some targeted at specific pupils.
- Teachers use a wide range of teaching styles, strategies and resources
- Teaching assistants, when and where appropriate, can reinforce or extend a pupil's learning.
- Safety issues/risk assessments must be made and addressed to ensure inclusion of all pupils into activities.

CURRICULM IMPLEMENTATION

Learning Environment

The school aims to produce a scientifically stimulating environment:

- Through displays and practical investigations that promote scientific thinking and discussion.
- Through the display of pupils work that celebrates achievement.
- Using other areas of the curriculum to embed their understanding e.g. art, geography and drama.
- By providing an appropriate range of resources for the teachers and pupil use.
- By providing IT hardware and software that enables the teachers to deliver science in a modern and stimulating way and met the requirements of the National Curriculum.
- By providing vocabulary prompts for key science words that can be displayed in the classroom (temporarily/permanently) or on the table for individuals to use.
- Through the use of the school grounds:-especially the conservation area, the raised beds and composting area.

Teaching and Learning

Science is taught weekly through

- Scientific enquiry
- Science content - biology, chemistry and physics

Cross-curricular links are also made where possible to enhance the learning of Science.

'Working Scientifically'
is the vehicle by which the children will acquire their knowledge of scientific concepts.

Practical or investigative work is at the heart of all science activities. Learning activities and outcomes for lessons will relate to both the content and to scientific enquiry.

Children will be taught:
- As a whole class
- In groups
- In pairs or as individuals

The Role of Forest Schools in the science curriculum
The Forest School philosophy meets many of the science aims at Much Birch,

- *'Understand that science relates to their everyday lives, the real world, to everyday situations and will provide employment opportunities for some of them'.*

- *'To be encouraged to care for and enjoy the environment'.*

- When appropriate science can be taught through Forest School.

CURRICULUM IMPACT

What you might typically see:-

Pupils (at a level appropriate to age)
- Engaged learners
- Children will be able to recall specific scientific facts and vocabulary
- Children will be able to relate learnt facts to new learning
- Children will be able to use their natural inquisitiveness to formulate questions and know how to find the answers using scientific skills.

Scientific vocabulary will be seen within the classroom in different forms depending on their age. KS1 and year 3 will have scientific vocabulary displayed on walls, year 4/5/6 will have knowledge organisers placed into the back of books.

We know how well our pupils are doing through **assessment**

Reception

Teacher observations, photos narratives through child initiated play/ teacher focused activities.

Key Stage 1 and Key Stage 2

Assessment is made at the end of each science topic and based on:-

Scientific Content

- The statutory requirements are matched to the objectives for each Key Stage.
- Each statutory requirement of the programme of study is assessed based on:-
  1. Less than expected outcome
  2. Expected outcome
  3. More than expected outcome

Scientific Enquiry

- The different strands of scientific enquiry: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources are matched to the objectives for each Key Stage.
- Each strand of scientific enquiry is assessed based on:-
  1. Emerging
  2. Expected
  3. Greater Depth

Progress sheets are filled in electronically in order to form an end of Key Stage judgement.