

Science Policy

Welsh House Farm Community School and Resource Base



“Inspired to grow and flourish”

Approved by:	Governors	Date: July 2014
Last reviewed on:	September 2018 (amended)	
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SCIENCE POLICY

'A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. 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. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes'. (National Curriculum 2014)

Aims

At Welsh House Farm Community School we aim to:

- Provide Science lessons and experiences that maintain children's curiosity about the world around them.
- Provide opportunities to work collaboratively and independently to explore and investigate.
- Develop knowledge and understanding of methods, processes and the uses of science in the world around them.
- Develop the children's ability to work scientifically, ensuring they are the scientists in the classroom, making predictions and testing hypotheses.
- Develop language through a creative curriculum and dedicated approach to teaching science vocabulary.
- Handle a variety of scientific equipment safely and effectively.

Curriculum and Planning

At Welsh House Farm Community School we follow the National Curriculum for England.

From January 2018 Years 1-6 will follow the Empiribox system. Units of work for each Key Stage are arranged in 'suites'. Each suite comprises of 12 lessons, which can be taught in almost any order to enable flexibility and appropriate links to topic learning. Lessons have explicit links to English and Mathematics.

In Key Stage 1 the system follows a two year cycle where half is Biology and children are also introduced to Physics and Chemistry.

Key Stage One

Term	Empiribox Suite
Term 1	Identifying and Classifying Changing Materials
Term 2	Observing Our Living Earth
Term 3	Creating and Using Data Habitats and Seasonal Change
Term 4	Identifying and Classifying Mixtures and Potions: An Introduction to Chemistry
Term 5	Observing Plants and Trees
Term 6	Creating and Using Data Toys: An Introduction to Physics

In Key Stage 2 the system follows a four year cycle of coverage, with Physics, Biology or Chemistry being taught in each term.

Key Stage 2

Year	Term 1	Term 2	Term 3
	Skills Focus: Planning	Skills Focus: Recording Data	Skills Focus: Evaluation
First	Physics <i>Forces and Magnetism</i>	Chemistry <i>The Particle Theory</i>	Biology <i>Plants and Photosynthesis</i>
Second	Physics <i>Energy and Sound</i>	Chemistry <i>Chemical Change</i>	Biology <i>Human Health and Fitness</i>
Third	Physics <i>Electricity</i>	Chemistry <i>Geology, Mixtures and Separation</i>	Biology <i>Environment, Ecology and Evolution</i>
Fourth	Physics <i>Light</i>	Chemistry <i>Acids and Alkalis</i>	Biology <i>Human Body and Senses</i>

The National Curriculum states that:

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. In addition, schools can introduce key stage content during an earlier key stage if appropriate.

In the Foundation Stage Science is ongoing and takes place every day as part of Knowledge and Understanding of the world. Children are encouraged to explore and ask questions about the world around them. They learn about various life cycles and the names of different mini beasts. Children learn the names of farm animals, pet animals, world-wide wild animals and British wild life. They are given opportunities to explore a variety of interesting scientific equipment such as magnets and magnifying glasses. They also have daily opportunities to operate simple ICT programmes to support their learning. Children also visit places such as Birmingham Think Tank to enhance their experiences.

Each class has a working wall displaying the necessary science vocabulary for the current unit of work. There should be a mixture of information, acknowledgement and celebration of children's learning and achievements. In addition every classroom has a poster displaying the 'Working Scientifically' objectives as set out in The National Curriculum.

Assessment

Teaching, learning and evidence is monitored throughout the year to ensure all aspects of the Science curriculum are covered, and that the relevant skills from the '**working scientifically**' strand are embedded through appropriate teaching and learning activities.

Children receive written and verbal feedback on a continuous basis. Skills in the area of '**working scientifically**' are assessed by the class teacher and recorded as an ongoing process on the Individual Pupil Assessment Record which is stuck inside the front cover of each child's book. In the area of 'Working Scientifically' there is a numeric system to calculate attainment. Each child is judged as: Emerging, Working towards, Expected or Greater Depth for each key objective from the National Curriculum. This attainment grading is recorded termly, on the year group electronic tracking sheet. Alongside this is a tick-list record of coverage indicating the same 4 steps of attainment against the objectives. This section does not inform the termly tracking sheet but does support teacher assessment

and inform moderation. Books are monitored throughout the year to ensure that children are making progress in all areas. There is also an opportunity here for self-assessment and children are encouraged to tick the 'I think I can' box when they feel an objective is achieved.

Before the start of a new topic teachers are encouraged to assess prior knowledge. This is carried in a variety of ways including, brainstorming, mind maps, concept maps, questions and quizzes. Teachers use this information to inform planning of future lessons and address misconceptions, in order to enable accelerated progress.

In the Foundation Stage children work towards achieving the Early Learning Goal for 'Knowledge and Understanding of the World' from the Development Matters Document by the end of Reception class.

Children know 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 another. They make observations of animals and plants and explain why some things occur, and talk about changes.

ELG14 The World

Resources

The Empiribox system enables teachers to deliver practical lessons using up-to-date equipment which is delivered to the school and provides practical resources for up to 30 children working in pairs.

Additional resources can be found in the science cupboard situated on the first floor corridor. These are practical resources that can be used to carry out investigations, measure and record results. There are also visual resources to support science lessons such as a human skeleton. Science information books, posters and general resources are available to be booked out and used.

Children in all year groups have access to our Learning Garden; this gives opportunities to observe the changes within their local environment across the year. The Learning Garden is an excellent tool for developing specific scientific knowledge and understanding and practical experiences of science. Children are given a wealth of real life science experiences through educational visits and visitors to school. Children also have the opportunity to attend various after school Science clubs and at lunch times can join the Gardening club.

Out of class and Homework

The weekly Science lesson(s) provide opportunities for the children to develop scientific skills, knowledge and understanding according to the National Curriculum. However, Science lessons should be a vehicle to motivate children to extend their learning beyond the classroom.

In addition to one piece of science homework per topic, teachers will encourage children to find out information and practise scientific skills out of school time. They will encourage children to bring in what they do at home or in clubs and provide opportunities to share and value the children's efforts outside school, within future lessons or during class time.

Science Ambassadors

Since September 2017 Welsh House Farm has become a partnership school, involved with the work of The Ogden Trust. Each class from Years 1-6 has two designated science ambassadors who have the opportunity to take advantage of outreach opportunities with other fellowship schools.

Equal Opportunities

Each class is diverse. Therefore consideration should be given to their needs. Teachers must ensure that tasks are differentiated appropriately so that the Science curriculum is accessible by all regardless of gender, cultural background or any additional educational need.

All children should have the opportunity to:

- Participate in practical sessions, including open-ended investigations.
- Gain scientific knowledge that is relevant to their everyday life.
- Work in small groups to plan, carry out, record and evaluate investigations.
- Develop scientific skills such as observing, classifying, recording, testing, predicting, and evaluating.
- Use a range of equipment safely and with increasing accuracy.
- Ask questions to show curiosity and promote their thoughts to inform future sessions.

Displays and Vocabulary

All classrooms must have a Science display or working wall showing current learning, which can be used as a resource by the teacher and children. There is a Scientific Vocabulary booklet in Staff Shared (T drive) which shows all new vocabulary introduced in each year group.

Classroom posters showing skills for each year group, from the same electronic location, in the area of 'working scientifically' are to be displayed in each classroom.

Health and Safety

Safety of children in all lessons should be of paramount importance and all staff should be aware of these issues.

Risk assessments should be carried out before practical sessions and online risk assessments for each practical session in the Empiribox system used. Empiribox published risk assessments for both key stages are also available inside the science cupboard on KS2 landing; these are signed by the Head teacher and all relevant staff delivering Science before each suite is taught. During the lesson, children should be actively involved in assessing risks.

Children are not permitted to enter the science cupboard. There is a coded lock on the door. Teachers should remove the resources they need for a specific lesson and return resources afterwards. Science equipment must not be stored in classrooms. Staff should report any damages or missing equipment to the science subject lead as soon as possible. Damaged, depleted, missing or broken items must also be recorded so that resources can be replenished.

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.

Any concerns should be discussed with the Health and Safety officer.

R. Floyd

September 2018