



Birdlip Primary School

'Helping each other prepare for a bigger world'

Science Rationale

Reviewed: October 2025

Intent: Why do we teach this? Why do we teach it in the way we do?

At Birdlip, Science teaching aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.

At Birdlip, scientific enquiry skills are embedded in each topic the children study and these topics are revisited and developed throughout their time at school. Topics, such as Plants, are taught in Key Stage One and studied again in further detail throughout Key Stage Two. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory. Our curriculum is ambitious and we strive to embed the scientific knowledge so that children can be successful in the subject and enjoy being scientists.

All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions.

Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught are reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. Pupils are engaged through pupil voice surveys and this further informs the planning and implementation of the subject across the school.

At Birdlip pupils show **resilience** in science by continuing to persevere if an investigation is challenging - they try to think logically through the problem, rather than get frustrated. They show **respect** in science by listening to opinions of others and ensuring they use scientific equipment in a safe and responsible manner. They show **kindness** in science by supporting the ideas of others and working well in a group when making scientific inquiries.

Implementation: What do we teach? What does this look like?

The Science curriculum has been carefully built and the learning opportunities for each class crafted to ensure progression and repetition in terms of embedding key learning, knowledge and skills based on the 2014 National Curriculum.

We use a range of teaching methods in science lessons, with an emphasis on providing a curriculum which develops the children's scientific concepts and enabling them to be curious about the world - leading to children learning to work as scientists, planning and undertaking practical investigations

In the Early Years Foundation Stage, activities are planned in relation to the "Understanding the World" area of the foundation stage curriculum. This is most evident in the strange 'The Natural World' where children are expected to make observations of the world around them, understanding similarities and differences between the contrasting environments and understanding important processes and changes in the natural world, including seasons and changing states of matter.

Children's progress and achievements are captured throughout the year using observations, photos and videos. Children are assessed against the Early Learning Goals at the end of Reception. The activities are planned in a cross curricular way through topic areas that are interesting and enjoyable as well as through the regular changes and enhancements to provision that allow children to learn through play.

During Key stages 1 and 2 science is taught predominantly through discrete science lessons. Wherever possible, links are made between science and other subjects, particularly guided reading where several weeks worth of work have a science focus, maths, DT and ICT. Learning is planned to cover the relevant key science skills and knowledge for each year group, with particular importance placed on children working practically so that they can make discoveries for themselves. Work is recorded in a variety of ways including the use of drawings, charts, graphs and photographs - this is done within science books and on Google Classroom. Children complete a variety of scientific investigations through the year, with an emphasis on assessing particular science investigational skills. By Upper Key Stage 2, children will be able to plan, carry out and then write up their full investigations. "Developing experts" is used, a web-based curriculum aligned with the National Curriculum which places a high emphasis on scientific vocabulary and skills. This scheme offers a progressive, practical and rich science curriculum incorporating key vocabulary and assessment; with the ability to link directly to Google Classroom.

Teaching & Learning

- The school has a detailed Science curriculum map and illustrates the key topics and skills taught.
- The progression documents for Science can be found on the website as a milestones document
- Pupils have their own dedicated Science book where some work is recorded in addition to Google Classroom.
- Science is taught every week
- Scientific vocabulary is introduced at the beginning of every lesson with definitions provided so the children can understand the words in context. The vocabulary is put on the classroom vocabulary wall and builds up throughout the topic; these are known as "Rocket words"
- Science is a thread within the Guided Reading curriculum with each strand being covered as its own topic in Guided reading - 6 weeks per year are dedicated to Science topics within reading.

- The school uses “Developing experts” to deliver the curriculum
- Children with SEN and disadvantaged children are supported through support from class TAs and teachers as well as with the use of technology (1-to-1 tablets provided to children in upper KS2 to allow children to work at their own pace)

EYFS, the reception year

The following table outlines some of the curriculum links that can be made between Science and areas of learning within the Early Years Foundation Stage.

- These may include prerequisite skills that are necessary to the understanding of Science.
- Children frequently have opportunities to partake in using Scientific skills such as making observations, questioning and making predictions. This is evident in use of the school vegetable garden, helping to feed the school chickens, use of the school nature area and the outside area planter.
- In the outside area, children have on-going access to a number of resources to support their Scientific development such as magnifying glasses, tweezers, baskets, clipboards and notebooks. The sand and water tray also plays a part of our continuous provision.
- Scientific vocabulary is modelled and displayed via use of the word wall in the classroom and this is frequently referred to in group and whole class sessions.
- Children develop an understanding of growth and change through use of the birthday display, baby dolls and home corner role play resources, such as puppets and masks.

Reception	Communication and Language	• Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities. Explain how things work and why they might happen. • Use new vocabulary in different contexts.
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	Physical Development	• Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine • being a safe pedestrian
	Understanding the World	• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.

ELG	Communication and Language	- Listening, Attention and Understanding
	Personal, Social and Emotional Development	• Managing Self

ELG	Understanding the World	The Natural World	• Make comments about what they have heard and ask questions to clarify their understanding.
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Parental Engagement

- We endeavour to keep parents informed as to our science curriculum by publishing our curriculum plans online, sharing information on Google Drive and during parents' evenings.
- Parents can see individual science lessons for every child on Google Classroom via a link for developing experts each week - this enables parents to see exactly what lesson has been taught and when.

Assessment - Year 1 to 6

- Science is assessed through the marking of books along with the use of quizzes. Developing Experts ensures an assessment at the end of each session.
- Assessment of Science is recorded on Insight with a focus on scientific skills, knowledge and reporting.
- Work is marked according to the feedback policy - misconceptions addressed verbally to children to aid progress

Monitoring

- Lesson observations
- Pupil Voice
- Analysis of data on Insight and Developing Experts
- Book scrutiny

Examples of practice

- We have a school vegetable garden and conservation area where the children grow a range of crops as well as discover various types of wildlife in their natural habitat

- When Golden Eagles study states of matter “The Rhythm of Rain” by Grahame Baker-Smith is used as an inspiration for a guided reading session. “Moth” by Isabel Thomas is used in a similar manner in Ospreys.
- Guided reading is used as a pre-read exercise to give important background information to Science lessons for example Ospreys studied Micro-organisms and monotreme mammals this year in preparation for their block on Living things and their habitats
- We use STEM investigations as part of the curriculum and incorporate the K’nex challenge in Ospreys.
- The school has a forest school teacher which compliments the Science curriculum.

Curriculum Leadership

- The Science curriculum leader is James Pugh.
- There is a clear role in designing the curriculum, monitoring and improvement.
- There is an action plan in place.
- There is a plan for scrutiny of work and analysis of data from Insight and Developing Experts..
- There is provision to ensure the subject is suitably resourced.
- Staff training and CPD is available and encouraged.

The last Science review was February 2022 when a Science review was co-ordinated by GCC. The subject was part of the focus of the Ofsted inspection in November 2022. The review includes: data analysis, work scrutinies, lesson observations and/or learning walks, pupil/parent and/or staff voice. The review was moved forward to reflect changes to the implementation.

Impact: What will this look like? By the time children leave our school they will

We use a combination of end of session quizzes and assessments which inform summative assessment judgements for each topic and can inform short-term and long-term plans and interventions. This helps us provide the best possible support for all of our pupils, including the more able. The assessment milestones for each phase have been carefully mapped out and further broken down for each year group. This means that skills in science are progressive and build year on year.

Pupil voice and engagement drives changes and ensures that their voice and opinions ensures we have a relevant, exciting and meaningful science offer.

Assessment information is collected frequently and analysed as part of our monitoring cycle. This process provides an accurate and comprehensive understanding of the quality of education in science. A comprehensive monitoring cycle is developed at the beginning of each academic year. This identifies

when monitoring is undertaken. The last science monitoring took place in Autumn 2023. Monitoring includes: book scrutinies, lesson observations and/or learning walks, pupil/parent and/or staff voice.

By providing an exciting and engaging curriculum, we want our children to love science and be excited about the world around them and how it works. We hope the children are enthused and think in a scientific manner ensuring they are prepared for the next stage in their education; **thus preparing children for a bigger world.**