Science at Holdbrook

Intent

A high-quality science education at Holdbrook should inspire in pupils a curiosity and fascination about the world and its people that will remain with them for the rest of their lives. Our Science curriculum aims to develop a sense of excitement and curiosity about natural phenomena and an understanding of how the scientific community contributes to our past, present and future. We want pupils to develop a complex knowledge of Biology, Chemistry and Physics, but also adopt a broad range of skills in working scientifically and beyond. The scheme of work is inclusive and meaningful, so all pupils may experience the joy of science and make associations between their science learning and their lives outside the classroom. Studying science allows children to appreciate how new knowledge and skills can be fundamental to solving arising global challenges. Our curriculum aims to encourage critical thinking and empower pupils to question the how's and why's of the world around them.

Further learning in Science needs to support the vision statement, 'Dare to Dream, Aim to Achieve' by giving children an understanding of the impact that they can have on the world around them.

Our curriculum encourages:

- A strong focus on developing knowledge *alongside* scientific skills across Biology, Chemistry and Physics.
- Curiosity and excitement about familiar and unknown observations.
- Challenging misconceptions and demystifying truths.
- Continuous progression by building on practical and investigative skills across all units.
- Critical thinking, with the ability to ask perceptive questions, explain and analyse evidence.
- Development of scientific literacy using wide-ranging, specialist vocabulary.

Our Science curriculum enables pupils to meet the end of key stage attainment targets in the National curriculum and the aims align with those set out in the National curriculum.

Implementation	***Impact***
In order to meet the aims of the National curriculum for Science and in response to the Ofsted Research review into Science, we have identified the following key strands: ● **Scientific knowledge and understanding** of: ○ Biology - living organisms and vital processes. ○ Chemistry - matter and its properties. ○ Physics - how the world we live in 'works'. ● **Working scientifically** - processes and methods of science to answer questions about the world around us. ● **Science in action** - uses and implications of science in the past, present and for the future. We have a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promote frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The **Science in action** strand is interwoven throughout the curriculum to make the concepts and skills relevant to pupils and	The impact of our Science curriculum constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives and any relevant scientific enquiry skills. Furthermore, each unit has a unit quiz and a knowledge and skills catcher, which can be used at the beginning and/or end of the unit to provide a summative assessment. Opportunities for children to communicate using scientific vocabulary will also form part of the assessment process in each unit. After implementing our science curriculum, pupils should leave school equipped with the requisite skills and knowledge to succeed in key stage 3 Science. They will have the necessary tools to confidently and meaningfully question and explore the world around them as well as critically and analytically experiencing and observing phenomena. Pupils will understand the significance and impact of Science on society. ● Develop a body of foundational knowledge for

inspiring for future application. Cross-curricular links are included throughout each unit, allowing children to make connections and apply their Science skills to other areas of learning. Each unit is based upon one of the key science disciplines; Biology, Chemistry and Physics and to show progression throughout the school we have grouped the National curriculum content into six key areas of science: **Plants** **Animals, including humans** **Living things and habitats** **Materials** **Energy** **Forces, Earth and space.** Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant specialist vocabulary. As suggested in Ofsted's Science research review (April 2021), the '**working scientifically**' skills are integrated with conceptual understanding rather than taught discretely. This provides frequent, but relevant, opportunities for developing scientific enquiry skills. The curriculum utilises practical activities that aid in the progression of individual skills and provides opportunities for full investigations.	the Biology topics in the National curriculum: Plants; Animals, Including Humans; Living Things and Their Habitats; Evolution and Inheritance. • Develop a body of foundational knowledge for the Chemistry topics in the National curriculum: Everyday Materials; Uses of Everyday Materials; Properties and Changes of Materials; States of Matter; Rocks. • Develop a body of foundational knowledge for the Physics topics in the National curriculum: Seasonal Changes; Forces and Magnets; Sound; Light; Electricity; Earth and Space. • Be able to evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions. • Identify and use equipment effectively to accurately gather, measure and record data. • Be able to display and convey data in a variety of ways, including graphs. • Analyse data in order to identify, classify, group, and find patterns. • Use evidence to formulate explanations and conclusions. • Demonstrate scientific literacy through presenting concepts

	and communicating ideas using scientific vocabulary. • Understand the importance of resilience and a growth mind-set, particularly in reference to scientific enquiry. • Meet the end of key stage expectations outlined in the National curriculum for Science.

Assessment Formative and summative assessments demonstrate how well the progression of skills and knowledge have met outcomes. These are completed termly, by teachers, to assess pupils against the learning objectives and any relevant scientific enquiry skills.	
Monitoring • To oversee, with support from the leadership team, the curriculum content and progression within Science. • To support colleagues with the planning, implementation and assessment of Science. • To take responsibility for the purchase and deployment of central resources. • To monitor and evaluate the progress in Science and take action to drive improvement in Science. • To ensure a range of enrichment opportunities are provided to inspire children's learning. E.g. Trips,	Marking & Feedback At Holdbrook Primary School we believe that marking should provide constructive feedback to every child. Marking and feedback should focus on successes and targets for improvement linked to the learning objectives or success criteria. This should enable children to become reflective learners and help them close the gap between their current and desired performance. • Correct work is marked in pink and staff provide next steps in green pen. • Key vocabulary should be highlighted and spelling errors should be identified.PW • All self-assessment should be completed weekly and written

workshops, after school clubs, themed weeks, special projects etc. • To liaise with appropriate bodies such as: local schools, governors, the local authority with matters to do with Science.	neatly underneath the work using a purple pen. • Work will show whether the work has been completed in pairs (PW), independent (I) and classwork (CW).

EYFS

Science in the Early Years Foundation Stage is covered in the **'Understanding the World'** area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

During their first years at Holdbrook school, our children will explore creatures, people, plants and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses, feeling dough or listening to sounds in the environment, such as sirens or farm animals. They will make observations of animals and plants and explain why some things occur and talk about changes. Children will be encouraged to ask questions about why things happen and how things work. They might do activities such as increasing the incline of a slope to observe how fast a vehicle travels, or opening a mechanical toy to see how it works. Children will also be asked questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings.