

Curriculum Statement for Science

Our principle aims, following the National Curriculum in England for Science are:

- To develop scientific knowledge and conceptual understanding through the disciplines of biology, chemistry, and physics.
- To develop an understanding of the nature, processes, and methods of science through different types of Science enquiries that help pupils to answer scientific questions about the world around them.
- For pupils to be equipped with the scientific knowledge required to understand the uses and implications of Science today and for the future.

The core of our Science curriculum is the National Curriculum for England, which is supplemented by using Engaging Science.

The curriculum has been specifically sequenced in a logical progression to ensure that new knowledge and skills build on what has been taught before: Early Years to Year 6. This enables our pupils to know more and remember more. End points are clearly identified for each year group; time allocation has been carefully considered to provide children with opportunities to master key concepts.



All children have access to a high-quality, ambitious science curriculum that is both challenging and enjoyable, which raises pupil's aspirations. We widen their horizons through a context rich curriculum, that gives purpose to their learning, through high expectations for every child to succeed.

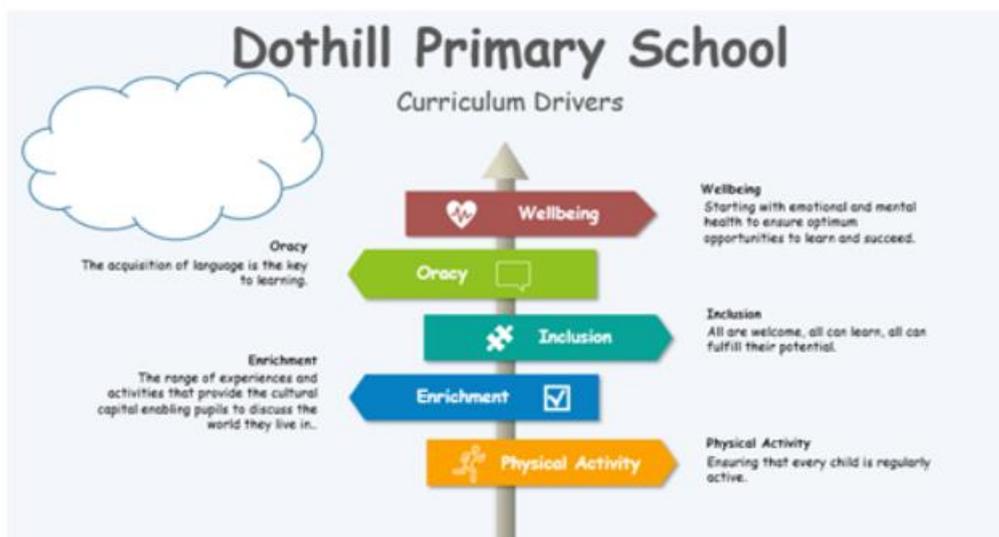
Building on the knowledge and skill development of earlier years, science units have been created based on the national curriculum. Pupils gain confidence in their developing capacity to draw conclusions supported by solid evidence as their knowledge and understanding grow. They also become more adept at choosing, utilising scientific equipment, compiling

data, and interpreting findings as their knowledge and comprehension increase.

Every year group has a yearly curriculum map that outlines the key areas of science which will be taught throughout the year. This ensures that an adequate amount of time and coverage is allocated to each key area.

Detailed medium-term planning supports teachers to plan a sequence of progressive weekly lessons and over time, giving the children time to master new concepts. Within this document, key objectives and vocabulary are outlined with the five scientific enquiry types, scientists linked to the units area of study, and key questions. Progression documents and Engaging Science are used to support the Medium-term plan, to ensure that staff are delivering a consistent and challenging curriculum.

At Dothill we have five curriculum drivers that are central to our school vision and ethos. They help to drive and shape the curriculum and are incorporated across all subjects and themes.



Enrichment - A range of visits or visitors into school are planned across the curriculum. These are organised by teachers, in order to offer a range of experiences that help to broaden the understanding of curriculum content, enrich the curriculum delivery with real-life experiences and most importantly help the children embed and retrieve their learning. In science, enrichment includes learning about a range of diverse and inclusive scientists from around the world as well as STEM based school visits that enhance learning and development.

Wellbeing - We place emphasis on a curriculum that develops the whole child. Through our core values - happiness, respect, responsibility, creativity, honesty, enthusiasm, confidence, kindness, cooperation and fairness - we ensure that the wellbeing of all members of the community is at the centre of our life in school and the key to raising academic success. Our children gain a sound knowledge of their own value and purpose, with the ability to make choices and decisions. In

science, this is shown through teamwork, encouraging children to attempt to make predictions, answer questions and challenge any misconceptions with a positive attitude.

Oracy - Our curriculum aims to develop learners who can think critically, reason together and have the vocabulary to express their knowledge and understanding. In science, oracy is developed through discussions based on scientific concepts, the application of scientific language in predictions and theories, and encouraging pupils to apply what they have learned in their conclusions.

Physical activity - Sport England Survey shows that active children are happier, more resilient, and more trusting of others and it's also shown a positive association between being active and higher levels of mental wellbeing, individual development and community development. At Dohill we build physical activity into science through active learning. Examples of this can be



seen in our engagement with the local environment, which ensures that children have varied and first-hand experiences of animal habitats and plant development.

Inclusion - All pupils participate in science. Each learner is an individual and we use a child centred approach to adapting our teaching to meet their need.

We make the following adaptations to the curriculum to ensure all pupils needs are met:

- Differentiating our curriculum to ensure all pupils are able to access it, for example, by grouping, 1:1 work, teaching style, content of the lesson etc.
- Adapting our resources and staffing.
- Using recommended aids, such as laptops, coloured overlays, visual timetables, larger font etc
- Differentiating our teaching, for example, giving longer processing times, pre-teaching of key vocabulary, reading instructions aloud, visual cues to accompany verbal instructions.

We use the NASEN 'Teacher Handbook: SEND' (2021) to further inform our inclusive practice by considering specific adaptations for each curriculum area. Lessons are developed to engage and intrigue students around scientific theories and concepts. The application of practical Science offers opportunities for children to apply their knowledge to solve problems and come to their own conclusions. In addition to being given the chance to utilise their scientific knowledge, pupils are encouraged to ask their own questions, as lessons encourage students to be curious. To improve conceptual understanding, resources are modified to blend substantive and disciplinary knowledge. This helps students comprehend unfamiliar terms and challenging ideas.

Within the lesson, teachers check pupils understanding effectively and address any misconceptions swiftly. The curriculum is designed and delivered in a way that allows pupils to know more and remember more. Key concepts are embedded in their long-term memory so they can apply them fluently.

The EYFS curriculum includes rich opportunities for children to be curious about the world around them, while encouraging language and emotional development. Throughout the whole of the Foundation Stage, the pupils will have opportunities to build and apply their science understanding both inside and outside.

In Key Stage 1 and 2 a rolling schedule guarantees that any students in mixed year groups are taught all the national curriculum Science topics throughout their time at Dothill. The pupils' knowledge is developed through the use of media, practical resources and opportunities to apply scientific concepts based on the world around them.

Assessment is woven throughout the curriculum and is used by staff to check pupil's understanding of key concepts. At the beginning of each lesson the class teacher will share a learning objective and success criteria with the children. This informs them what they are learning and the steps they need to take to be successful. The teacher will assess the pupils against the success criteria. The assessment will be based on the pupil's application of taught knowledge through



class discussion, answering questions, practical activities and if appropriate written work.



This supports in identifying gaps in knowledge and understanding enabling teachers to respond appropriately. We also recognise the value of assessment as an important learning tool which provides opportunities for pupils to strengthen their memories through concerted effort.

The Science curriculum is intertwined with opportunities for assessment, this allows staff to ensure pupils

comprehend important ideas by responding in a way that is suitable.

Due to the practical nature of Science, experiments and discussions allow staff to use formative assessment, to identify and correct misconceptions as they arise. Pupils are encouraged to question and assess experiment results, however when misconceptions do happen, it is addressed through teacher interaction as well as independent and whole class discussions.

At the beginning of each unit of work the pupils will independently take a quick quiz, that will assess to see what they already know. The quick quiz will assess pupils' knowledge of technical vocabulary and key knowledge. This quiz quick will then be taken at the end of the unit of work to show progress.

The impact of our science curriculum is that:

- Our pupils access a science education that is enjoyable, interesting, and of the highest quality, giving children the knowledge they need to understand the world.
- Our pupils get to engage with the local environment where children learn through varied and first-hand experiences of the world around them.
- Children understand that scientists come from various backgrounds, allowing them to feel they too can become scientists and capable of achieving.
- Our teachers have high expectations for every pupil which is evident throughout the high standards of work which pupils clearly take pride with.
- Our teachers have good subject knowledge and are aware of the resources available to help them plan well-structured lessons.

- Our subject leaders have a clear understanding of the schools' strengths and areas for improvement. There is a constant drive to ensure that we can be the best we can be.