Deepdale Community Primary School
Policy for Science

Curriculum Intent

School Statement of Intent

At Deepdale Community Primary School, we see every child as a unique individual with the capacity to thrive and be successful. Our school motto of 'Harmony in Diversity' underpins a broad and balanced curriculum, which aims to ensure that children leave their primary education as confident, resilient learners with a thirst for knowledge. Our end goal is to teach our children to be mature, curious and eager within the community they are part of. *Anything is possible!* As a result of our ambitious and carefully planned curriculum that meets the needs of all of our pupils, children will continually develop as secure readers with an extensive vocabulary in order that they continue to understand the wider world that they are part of. We encourage problem solving, critical thinking and effective communication across every curriculum subject. By the time our pupils leave their primary phase of education, our valued curriculum will have ensured that they are eager to move on to the next stage of learning; they take pride in their work, can justify their opinions thoughtfully and manage their emotions carefully whilst always taking others in to consideration. At Deepdale Community Primary School, our shared vision is that every child is challenged from their individual starting point onwards. Every child is engaged in their learning and thrives in our continued care.

Statement of Intent for Science

"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." *National Curriculum 2014*

Science teaching at Deepdale Community Primary School aims to give all children a strong understanding of the world around them, evoking their natural curiosity about the phenomena they observe. Our children will acquire specific skills and knowledge to help them to think scientifically, to gain an understanding of the scientific processes and also an understanding of the uses and implications of Science today and for the future.

Curriculum Drivers

At Deepdale Community Primary School, we will all:

Celebrate our differences

By studying scientists and inventors from a culturally diverse range of backgrounds, both past and present, we will ensure that our children 'see themselves' reflected in the world of Science.

Have high aspirations

We will develop our children's awareness of the vast range of careers available within Science and STEM through light touch classroom discussion, opportunities to meet and talk to adults who have been driven by their passion for Science and through entering competitions.

Be passionate about the wider curriculum

Our Science curriculum will be 'hands-on' and inspiring with opportunities throughout school to experience awe and wonder. We aim to give our children as many first-hand and enriching experiences as possible to develop and extend their knowledge of the world around them.

Strive to be healthy

Through the discipline of Biology, our children will learn what is required to stay healthy. They will always be encouraged to make healthy choices based on diet, exercise and lifestyle.

Love language

Opportunities to talk, question and clarify their understanding will be central to our Science curriculum. Our children will become confident in using their newly acquired technical vocabulary and will develop their ability to 'speak like a scientist,' articulating scientific concepts clearly and precisely.

Aims for Science

In our science curriculum we aim to encourage children to develop their knowledge of the world around them. Through carefully selected content we will introduce them to key scientific concepts and begin developing their skills as independent scientists. We foster an enriching environment with first-hand experiences at the centre of the Science curriculum so that our children can experience and extend their knowledge of the world. Their lessons will involve the practical elements that establish wonderment alongside time to reflect and discuss: allowing them the opportunity to advance their articulation of scientific concepts. They will have opportunities to meet adults from their community who are passionate about Science in order to expand their aspirations. Through the curriculum we provide, we want our children to see themselves as the scientists of the future.

Curriculum Implementation

Principles of Teaching and Learning

At Deepdale Community Primary School our Science curriculum is delivered through a practice where children are able to experience, observe and test ideas about everyday phenomena. The children work collaboratively to enable them to develop critical thinking, creative thought and scientific language. They key learning for each year group can be found in the Whole School Science Curriculum document.

EYFS:

Foundation Stage learning is driven by the Early Years Foundation Stage (EYFS) Statutory Framework. Within the early learning goal for the natural world children will be guided to make sense of the physical world around them with a focus on personal experiences and an enriching environment to increase their knowledge and sense of the world around them.

Key Stage 1:

Science learning will be taught through first hand, practical experiences with some use of secondary sources. During first-hand experience, children will be taught to identify changes, notice patterns and group and classify objects. Through discussion, children will begin to develop a growing bank of scientific language and encouraged to use and apply this knowledge.

Key Stage 2:

Science learning will be taught through exploring, talking about, testing and developing ideas. Children will continue to build upon their skills in Key Stage 1 and in addition, will begin to notice patterns, group and classify, and carry out simple comparative and fair tests using secondary sources of information. They will draw simple conclusions and use some scientific language to record their findings.

By the end of Key Stage 2, they will have encountered abstract ideas and use these to understand and predict phenomena but will acknowledge that these ideas will change and develop over time. They will select the most appropriate ways to answer scientific questions and notice patterns, group and classify, and carry out comparative and fair tests. Children will draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

Progression of Learning

We follow the programmes of study set out year by year in the National Curriculum. This provides us with a firm sequence of knowledge and concepts that are developed each year. In addition, we have a clear map of working scientifically skills set out for each year group. These can be found in our separate curriculum documents. Our curriculum consists of forming areas of focus to ensure the full coverage of the key concepts of scientific understanding;

1. Biology
2. Chemistry
3. Physics
4. Working Scientifically

The curriculum is designed to develop the children's understanding of the world with progressively complex areas of study. Within KS1, we introduce children to key scientific concepts that can been seen or experienced in the world around them. As they move through school to KS2, we begin to introduce more abstract concepts such as forces, electricity, space and evolution. Units are taught systematically to help develop natural links to other curriculum areas and with reference to events in the wider world.

Within science we plan a programme of interleaving with units sequenced in line with wider learning and events to support an understanding of impact and to ensure knowledge and concepts are not taught in isolation. More complex research and source analysis are sequenced later in the year to run in line with their developing skills in other curriculum areas.

The progression of Scientific Working Skills follows this, with children building on previously explored skills as the progress through school. In KS1 they are introduced to basic testing, evaluating, recording and evaluating. In KS2 they refine these skills in order to tests their own hypotheses and present their findings using precise scientific language.

Sequencing in Science

Within each unit of work, the teaching sequence is designed to implement spacing and interleaving to build on prior learning and experiences. Across the Key Stages children will reflect on previous learning to consolidate before building on this and exploring new concepts. Lessons are planned to address common misconceptions early on and draw out other misconceptions the children may hold. Experiences are spaced throughout the unit to support their developing understanding and frequent 'sticky knowledge' recaps are included to revisit prior learning.

Reading across Science

Children at Deepdale are given the opportunity to foster their love of reading and continually develop their reading skills. Each unit has carefully selected texts that link to their learning, including both fiction and non-fiction. Children will be encouraged to research a variety of written material and have access to a range of engaging, challenging texts. When carrying out investigations and applying their knowledge, children will be expected to read experimental design in practical investigations as well as reading around the knowledge content of the unit. This is expected to extend to their home learning tasks set.

Learning Environment

In each classroom, science learning is prominent and regularly updated to support the children's learning. At Deepdale Community Primary School we aim to develop a love of language in all children. As such, key vocabulary for each unit is displayed in the classroom to encourage use by all children. Key scientific working is discussed and displayed throughout the year to ignite children's passion for science

Relationship to other subjects

Science teaching is essential in the development of STEM subjects throughout the school. Through Science, children can develop and apply their skills taught in other curriculum areas. Where there are natural links, science is taught with wider events and learning in mind.

Inclusion and Equality

At Deepdale Community Primary School, we teach Science to all children whatever their ability and individual need. Science forms part of the school curriculum policy to provide a broad and balanced curriculum. Through our Science teaching, we provide learning opportunities that enable all children to make good progress. The nature of Science enables every child to achieve success through effective differentiated planning and setting a pace appropriate to each

child's ability. Learning is open-ended or appropriate differentiation is provided to ensure all children can achieve their full potential.

We enable all children to have access to the full range of activities involved in learning science. Where the children are to participate in activities outside the classroom we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils. There will be diverse and relatable examples of careers, visitors, local experiences and the scientists and inventors we study. We aim to provide suitable learning opportunities irrespective of race, gender, disability, faith, religion or socio-economic background.

Curriculum Impact

Assessment

Assessment is on-going and is a vital tool to aid future planning. Children are assessed in their oral responses as well as their written work and each child's progress will be noted. In KS1 and KS2 teachers will assess the children using the end of key stage expectations and in the Foundation Stage children will be assessed using the relevant Early Learning Goals.

Reporting

Children's progress and attainment will be reported to parents in their annual report. The subject leaders will retain examples and evidence of work to demonstrate what the expected level of achievement would look like across the different strands of the Science curriculum. Any work that is assessed will be in line with the school's assessment policy and end of key stage judgements are reported to the governing body.

Recording

In KS1 and KS2 the children have a Science book which is used to record their learning. All work is marked in accordance with the 'Feedback, Review and Improve' policy (please see separate policy for further guidance). In the Foundation Stage, classes have floor books which are used to record discussions throughout the year.

Monitoring and Evaluation

All teachers are responsible for monitoring standards and the subject leader takes the lead in this. Monitoring is planned across the year and includes checking coverage in termly planning and children's learning through book scrutiny and pupil interviews. End of key stage reported data will be scrutinised to inform the action plan. The name governors will be kept up to date with planning and development of science.

Safety

It is the responsibility of teachers to ensure the health and safety of themselves and their pupils, both in the classroom environment and when on trips off school premises. They will assess the risks within Science activities both inside and outside school and ensure that preventative strategies are put into place to minimise any potential hazards. Children must be made aware of potential risks and preventative strategies.

Risk assessments have been written by the subject leader for Science and are available on the staff share for all members of staff to read. Children will be reminded at every opportunity of their safety when working online.

Review:

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