Intent, Implementation and Impact Document

Subject - Science

CURRICULUM INTENT

Overstone Combined School recognises and values the importance of science and scientific discovery. We aim to develop a fun, practical and engaging high-quality curriculum that inspires the next generation to succeed and excel in science. We do this through fully adhering to the aims of the EYFS framework and National Curriculum, and by fostering a healthy curiosity and interest of the sciences. At the heart of our progressive science curriculum is scientific investigation. Wherever possible, we intend to deliver lessons where children learn through varied, systematic investigations; leading them to being equipped for life by asking and answering scientific questions about the world around them.

EYFS

We follow the educational programme of the EYFS early learning goals linked to understanding the world. Understanding the World starts children on their journey of scientific discovery by enabling children to make sense of their physical world through opportunities to explore, observe and find out about the environment. Children will listen to a broad selection of stories, non-fiction, rhymes and poems in order to foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains, enriching and widening their vocabulary.

Outcomes

Children know about similarities and differences in relation to objects, materials and living things. Children talk about the features of their own immediate environment and how environments might vary from one another. Children to make observations of animals and plants and explain why some things occur, and talk about changes.

Personal Outcomes

To foster a healthy curiosity for science and the natural world.

Key Stage 1

We aim to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Outcomes

Pupils in KS1 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should have an appreciation that the world around them is ever changing and that science encompasses all areas including humans, animals, plants, material changes, seasons as well as living things and their habitats.

Personal Outcomes

Pupils should demonstrate a clear understanding of how science is all around them. They should be confident to ask scientific questions and have the courage to find the answers to those questions.

KEY STAGE 2

In Key Stage 2 we aim to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Outcomes

Pupils in Key Stage 2 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions, recognise when a simple fair test is necessary and when further exploration is needed. Pupils should learn how to use new equipment appropriately and safely. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.

Transition

We aim to ensure our children are 'secondary ready' by the end of KS2. We liaise with the Head of Science at Cottesloe school to prepare our children for KS3. Children at Overstone get the opportunity to experience science at KS3 through the workshops we attend at Cottesloe and our year 6 pupils are also traditionally invited to

Cottesloe's KS4 Science Fair where the GSCE pupils display their coursework for children to understand what is expected at a secondary school level.

CURRICULUM IMPLEMENTATION

EYFS

We encourage children to practically explore and make sense of their environment by providing them with the opportunity to:

- Use all their senses in hands-on exploration of natural materials
- Explore collections of materials with similar and/or different properties
- Talk about what they see, using a widening vocabulary
- Plant seeds and bulbs, and care for growing plants
- Understand the key features of the life cycle of a plant and an animal
- Begin to understand the need to respect and care for the natural environment and all living things
- Explore and talk about different forces they can feel
- Talk about the differences between materials and changes they notice
- Explore the natural world around them
- Describe what they see, hear and feel whilst 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

KEY STAGE 1

During years 1 and 2, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

KEY STAGE 2

During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

During Years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

CURRICULUM IMPACT

EYFS

Observations/ Drop in / Learning Walk:

Observations of pupils ongoing access to selecting and using resources and developing their science skills through exploration to be monitored termly. Alongside this, pupils to be given the opportunity to talk about their developing scientific skills and work they have produced. To reflect 'pupil voice' for this subject.
Collection of evidence of pupils learning and creative work to be part of this also.

Policy Review: Review to be conducted as and when required – ensuring links to EYFS Exceeding outcomes.
Staff / Pupil Voice: Pupil voice to be part of Observations/Drop in/Learning Walk and fed back to staff.
Assessment: Ongoing assessment using EYFS Assessment tool.

Key Stage 1 and Key Stage 2

Observations/ Drop in / Learning Walk: One of these to be carried out half termly. Alongside this, pupils to be given the opportunity to talk about their developing scientific skills and work they have produced. This will reflect 'pupil voice' for this subject and be used to move the subject forward with the pupil's ideas/ gaps in learning being incorporated. Pupil/Teacher discussion of books to be part of Observations/ Drop in / Learning Walks.

Policy Review: Review to be conducted as and when required.

Staff / Pupil Voice: Pupil voice to be part of Observations/Drop in/Learning Walk and fed back to staff.

Assessment: Assessment of science to be monitored throughout the year and provide information for pupil's transition into new year group/key stage – using target tracker. Progression of skills document to be used by teacher's for assessment of skill coverage within their year group/key stage.