Science

Intent

At Chew Stoke Church School the teaching and learning of science enables all pupils to develop a sense of curiosity about the natural world. All pupils develop the skills of scientific enquiry, questioning and investigating in a variety of contexts. This helps them to build a good understanding of the world around them. They learn to appreciate the work of famous scientists, and to question and often lead the line of scientific enquiry. Learning is an active process facilitated by teachers and enabling all pupils to deepen their scientific understanding

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following;

Early Years Foundation Stage

In the Foundation Stage, children are taught Science through the key areas of learning set out within the EYFS Statutory Framework. Through a broad range of teacher-led, child-initiated and continuous learning opportunities, children will be taught to:

- Use their senses to investigate a range of objects and materials
- Find out about, identify and observe the different features of living things, objects and worldly events
- Look closely at similarities, differences, patterns and change
- Ask questions about why things happen and why things work
- Develop their communication and co-operation skills
- Talk about their findings, sometimes recording them
- Identify and find out about features of the place they live and in the natural world around them

Key Stage 1 and 2

In Key Stage 1 and 2, Science will be taught in planned and arranged blocks by the class teacher, these are, where appropriate linked to the overall Topic theme of the class. This ensures that all topics are covered and enables progression through the year groups. Children have weekly Science lessons, with teachers following the scheme of work, but adapting lessons where necessary to suit the needs of their class.

Impact

Most children will achieve age related expectations in Science at the end of their cohort year.

Children will retain knowledge that is pertinent to Science with a real life context.

Children will be able to question ideas and reflect on knowledge.

Children will work collaboratively and practically to investigate and experiment.

Children will be able to explain the process they have taken and be able to reason scientifically.

Progression of skills within Science

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Skills	Planning a scientific investigation	With support, identify whole-class questions thatcan be tested. Perform simple tests. Observe changes over time.	Identify questions that can be tested. Identify that questions can be answered in a variety of ways. Perform simple tests. Observe changes over time, noticing the patterns and relationships.	Identify variables: independent, dependent and controlled. Choose a question to answer in a scientific enquiry based on the above. Conduct a range of scientific enquiries with scaffolded support/investigation frames. Make predictions.	Identify and suggest variables:independent, dependent and controlled. Suggest a question to answer in a scientific enquiry based on theabove. Conduct a range of scientific enquiries with some support by listing a teacher-led method and equipment. Make predictions and give a reason.	Identify and list multiple variables: independent, dependent and controlled. Suggest and refine a question toanswer in a scientific enquiry based on the above. Conduct a range of scientific enquiries by suggesting a method and equipment. Make and fully justify Predictions.	Identify and decide variables: independent, dependent and controlled. Choose the most appropriate type ofscientific enquiry based on these. Design a range of scientific enquiries:fair tests, pattern seeking, observations over time, identifying and classifying and research. Make and fully justify predictions. Suggest risks and safety advice.
	Working with data (create, collect, analyse)	Discuss method and findings. Use senses and simple equipment to gather data. Present data in templates Provided.	Identify relevant things to measureto answer the question. Use appropriate non-standard measurements (i.e. cubes) and a greater range of equipment to gather data. Record simple data in a variety of ways: drawings, photographs, labelled diagrams, orally or in simple prepared tables or charts. Suggest answers to scientific questions.	Take measurements using a range of scientific equipment. Collect and present scientific data with diagrams and labels,tables and bar charts. Use this to answer scientificenquiry questions. Make a simple conclusion aboutwhat the test shows.	Take measurements using a range of scientific equipmentusing increasing accuracy. Identify patterns. Collect and accurately/ neatly present scientific data with diagrams and labels, tables andbar charts. Compare conclusion toprediction. Identify anomalies.	Take accurate and more complexmeasurements using a range of scientific equipment. Identify patterns and suggest a reason why it may have occurred. Collect and accurately/neatly present scientific data in a range of ways: scientific diagrams and labels, tables, bar charts and line graphs. Draw conclusions to prove ideas.	Choose the most appropriate format to accurately collect and present data, with increasing complexity: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Identify and fully explain patterns. Draw conclusions to: refute or prove ideas. Identify and explain anomalies.

						Identify and explain anomalies.	
	Evaluation of a scientific investigation	Give ideas about whether or not the scientific question has been answered.	State one good thing about an investigation and one bad thing about the investigation.	Identify things that help to make scientific data valid.	Explain what helps to make scientific data valid Understand how/why accuracy is important in collecting data (i.e. reduction in the chance of an anomaly).	Evaluate why or why not a test has been fair, accurate or reliable by discussing what could be done differently/better.	Increase validity of results and prevent anomalies through: • Justifying the choice of the equipment to support datacollection • Repeating observations Suggesting alternative investigations to yield similar results.

Science - Class Knowledge Map

The majority of classes at Chew Stoke Church School are mixed age (will have a mix of 2 Year groups), as a result, the curriculum that has been developed runs over a two year cycle. This ensures that learning is never repeated and that knowledge builds on previous knowledge.

	Cycle	Autumn	Spring	Summer
Hedgehog Class		Ourselves Light	Materials Plants	Mini Beasts Chosen/significant People
Owl Class	A	Animals including humans	Materials	Light and sound
	B	Plants & growing	Seasonal changes	Materials matter
Kingfisher Class	A	Rocks	Animals including humans	Plants – structure & classification
	B	Forces	Living things and their habitats	Plants – function and survival
Woodpecker Class	A	Sound	Materials	Electricity
	B	Light	Forces	Green plants – photosynthesis
Fox Class	A	Properties and changes of materials	Living things and their habitats	Scientists and Inventors
	B	Earth and Space	Forces	Animals including humans
Badger Class	A	Electricity Evolution and Inheritance	Living things and their habitats	Scientists and Inventors
	B	Light	Evolution and Inheritance	Animals including humans