Science – Aims and Objectives

Aims

Science at Lenham Primary School aims to enable children to explore the world around them through investigation and exploration, asking questions and working scientifically. We aim to encourage discussion around new concepts so that children can challenge their pre-existing ideas about the world and improve their skills of prediction and analysis.

Objectives

- To prepare children for life in an increasingly scientific and technological world.
- To develop a curiosity in Science and an appreciation for its contribution in everyday life.
- To encourage concern for the children's local and wider environments.
- To introduce the language and vocabulary of Science.
- To improve a child's skills of predicting.
- To improve a child's skill of asking relevant questions.
- To develop a child's skills of identifying and classifying.
- To develop a child's skills of gathering and analysing data.
- To promote an awareness of safety around scientific equipment.

Health and Safety

Staff must collect or return equipment from the science cupboard- children are not allowed.

Further safety information can be found at CLEAPSS- the username and password can be found through the subject co-ordinator. This includes:

- specific risk assessments for some chemicals and equipment
- safe conduct of experiments and demonstrations

Implementation

Science is taught in blocks at Lenham Primary School, planned by the class teacher and adapted using the Cornerstones Maestro tool. There is a clear progression of skills throughout the school and planning builds on prior learning.

Teachers plan lessons that embed 'working scientifically' into the objectives, to ensure that these key skills are being developed throughout the school. Teachers model how to record results and carry out experiments, although it is expected that upper KS2 students are more independent. As the children progress through the school and become more proficient, they will be able to predict in more detail using their prior knowledge.

Science week is planned every year by the Science co-ordinator, who ensures that the progression of skills is evident across the school. This week is an opportunity for the children to experience extra-curricular activities, receive visitors and take part in the annual Science fair with their own science projects.

Teachers can find resources in the science cupboard, and are responsible for letting the science co-ordinator know if any resources have run out or have expired. The link between the Lenham School and Lenham Primary School means that teachers can have access to equipment there for their lessons too.

Teachers encourage clear questioning and discussion in their lessons, using Concept cartoons to prompt curiosity and opinions. Science is assessed formatively using the cartoons, and at the end of each topic using Google Classroom assessments. This is currently under review by the Science co-ordinator.

Organisation

The following areas will be covered by each year group over the course of an academic year.

YEAR 1	Materials	Humans	Seasonal changes	Plants	Animals
YEAR 2	Humans	Materials	Animals	Habitats	Plants
YEAR 3	Animals including humans	Forces and magnets	Rocks	Plants	Light and shadow
YEAR 4	Animals including humans	Sound	States of matter	Living things and their habitats	Electricity
YEAR 5	Forces and mechanisms	Earth and space	Properties and changes of materials	Animals including humans	Living things and their habitats
YEAR 6	Animals including humans	Electricity	Living things and their habitats	Light	Evolution and inheritance

These are taught in blocks in Cornerstones topics, so that there is a cross-curricular element and a real-life context for the children.

EYFS

EYFS children at Lenham Primary School improve their scientific understanding through 'Communication and Language', 'Personal, Social and Emotional Development' and 'Understanding the World'. They work towards the following objectives, recording on Tapestry.

Communication and language	• Learn new vocabulary • Ask questions to find out more and to check what has been said to them • Articulate their ideas and thoughts in well-formed sentences • Describe events in some detail • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen • Use vocabulary in different contexts
Personal, Social and Emotional Development	• Know and talk about the different factors that support overall health and wellbeing: - Regular physical activity - Healthy eating - Toothbrushing - Sensible amounts of 'screen time' - Having a good sleep routine - Being a safe pedestrian

Understanding the World			• Explore the natural world around them • Describe what they see, hear and feel when they are outside • Recognise some environments that are different to the one in which they live • Understand he effect of changing seasons on the natural world around them
ELG	Communication and Language	Listening, Attention and Understanding	• Make comments about what they have heard and ask questions to clarify their understanding
	Personal, Social and Emotional	Managing Self	• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
	Understanding the World	The Natural World	• Explore the natural world around them, making observations and drawing picture of animals and plants • Know some similarities and difference between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Working Scientifically

YEAR 1 AND 2

- ask simple questions and recognise that they can be answered in different ways.
- observe closely, using simple equipment.
- perform simple tests.
- identify and classify.
- use observations and ideas to suggest answers to questions.
- gather and record data to help in answering questions.

YEAR 3 AND 4

- ask relevant questions and use different types of scientific enquiries to answer them.
- set up simple practical enquiries, comparative and fair tests.
- make systematic and careful observations and take accurate measurements, using a range of equipment, including thermometers and data loggers.
- gather, record, classify and present data in a variety of ways to help in answering questions.
- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- identify differences, similarities or changes related to simple scientific ideas and processes.

- use straightforward scientific evidence to answer questions or to support their findings.

YEAR 5 AND 6

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

SEND

SEND children are supported in Science in a range of ways at Lenham Primary School. This includes: cloze tasks, adult support, pre-teaching, word banks, use of technology, smaller groups and brain breaks.