Landscove and Broadhempston C of E Primary School
Science Curriculum Plan Years EYFS-6

Intent

We believe that science permeates every aspect of our lives, from the technology we use on a daily basis to the natural world around us that sustains life on earth. Igniting children's curiosity and passion to question and deepen their knowledge and understanding is central to our role as science leaders. We believe that through science, we can support the development of problem solving, critical thinking, evaluating and communicating that can be applied to the everyday challenges they face. We believe that igniting a passion in science will give children the tools they need to discuss and debate global issues that will impact their lives and prepare them for a changing future. We believe that our lessons should be rooted in exploration and development of ideas from one lesson to the next, so they can build on their previous learning creating a solid foundation of knowledge. We believe practical experiences should be meaningful and rigorous and lead children to question what they have done and where they should go next. We believe that Science should be inclusive and create experiences where everyone can take part. We believe Primary Science should nurture children's natural curiosity, develop their understanding of the world and teach them essential enquiry skills.

Our science curriculum aims to encourage critical thinking and empower pupils to question the 'how's and 'why's of the world around them. We encourage:

- A strong focus on developing knowledge *alongside* scientific skills across biology, chemistry and physics
- Curiosity and excitement about familiar and unknown observations
- Continuous progression by building on practical and investigative skills
- Critical thinking with the ability to ask perceptive questions and explain and analyse evidence
- Develop scientific literacy using wide-ranging, specialist vocabulary

We are committed to ensuring all children are inspired to develop their Science Capital to become Scientists of the future as they build their understanding of the value and place science has in their lives. As one of the core subjects taught in Primary Schools, we give the teaching and learning of science the prominence it requires.

Implementation

Our science curriculum follows the Kapow Primary Science scheme, a spiral curriculum that revisits essential knowledge and skills with increasing complexity, allowing pupils the opportunity to revise and build upon their previous learning. Pupils will explore knowledge and conceptual understanding across the following key strands:

- Scientific knowledge and understanding of:
  - biology: living organisms and vital processes; chemistry: matter and its properties; physics: how the world we live in 'works'
- Working scientifically: processes and methods of science to answer questions about the world around us.
- Science in action: uses and implications of science in the past, present and for the future.

Our vision is to go beyond just delivering the National Curriculum Aims but to provide children with a *5 Star Science Curriculum. This involves raising their Science Capital, making them global citizens by showing them the importance of science in the wider world and developing their sense of self in the impacts their actions have on the planet.

As part of their primary education in Science, pupils will have the opportunity to experience:

- ★ Meeting a Scientist through the STEM Ambassador program or other means.
- ★ Taking part in a Science focused inspirational trip to develop their understanding of Science in the wider world.
- ★ Having the opportunity to explore and fully engage with nature through Science lessons, Forest School, Wild Woodland Learning or Outdoor Explorers
- ★ Taking part in a National Nature Survey to increase their understanding of biodiversity and the threats it faces.
- ★ Through use of the Practical Action resources, engage with the global sustainability goals of food, water, climate, recycling and energy to be able to understand their impact on the planet and the implications for future generations, enabling them to take action.

As Scientists, our children experience the 5 Star Science Curriculum as outlined above. Children have weekly lessons in Science throughout Key Stage 1 and 2 and this is planned following a 2-year rolling programme to ensure complete curriculum coverage. We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

In Early years, science is taught through opportunities to investigate the world around them in their learning through play and planned activities. They yse hands-on exploration and focused observations to spark curiosity and foster an early appreciation for the natural environment; building a solid foundation for more structure scientific learning in Key Stage 1.

A positive and encouraging classroom environment can be found across all Key Stages. Children's questions are always welcomed, and they are given the opportunity to explore new ideas as well as test them. They are provided with problem solving opportunities that allow children to find out for themselves by asking their own questions and given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Working Scientifically skills are embedded into lessons, taught alongside the knowledge objectives to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

In order to provide suitable learning opportunities for all children, teachers ensure that they use a variety of strategies to accommodate different learning styles. Links to other curriculum areas are made, for example the use of data tables and graphing scientific results for maths as well as using measuring equipment and reading scales. In their science writing, children are taught science vocabulary for each topic and are then expected to use it in their planning, recording and explaining.

Rolling Programme

	Autumn		Spring (SCIENCE WEEK)		Summer	
Class 1 EYFS	**Throughout the year: Seasonal Changes** **Outdoor Explorers will be done weekly; giving children opportunities to explore the local area and observe how the natural world transforms each year. Children in Class 1 will observe how these changes affect plants, animals and daily life; they will create weather charts, explore life cycles and collect treasures from each season.**					
	Animal Adventures Through outdoor activities, songs and creative tasks, children develop a deeper connection to the natural world by exploring habitats; sorting animals based on similarities and differences; observing and comparing homes and behaviours of animals; and understanding how different environments meet their needs.		**I Am a Scientist** Children in Class 1 will start building important foundations for working scientifically as they are introduced to the first step of a scientific enquiry – asking questions. Through hands on activities children discover that objects move when pushed or pulled, and some float while others sink. They guess what might happen to ice in different conditions and investigate ways to melt chocolate.		**Our Beautiful Planet** Exploring the outdoor environment, pupils use their senses to identify and describe natural objects, including flowering plants. Through role-play, they learn about plant parts. By planting seeds, pupils discover that water and sunlight are essential for growth. They also learn about the importance of caring for the planet, considering practical actions that they can take to protect it.	
	Autumn		**Spring (SCIENCE WEEK)**		**Summer**	
Class 2 Year A	Animals inc. humans: Sensitive bodies	Materials: Everyday materials	Animals inc. humans: Comparing animals	Materials: Uses of everyday materials	Living things and their habitats: Microhabitats	Making connections; Fairytale science
Class 2 Year B	Plants: Introduction to plants	Forces, Earth and Space: Seasonal changes	Living things and their habitats: Habitats	Animals inc. humans: Life cycles and health	Plants: Plant growth	Making connections; Ocean protectors
Class 3 Year A	Energy: Light and shadows	Animals inc. humans Movement and nutrition	Materials: Rocks and soil	Animals inc. humans: Digestion and food	Energy: Electricity and circuits	Making connections; How does food affect muscle fatigue?
Class 3 Year B	Forces, Earth and Space: Forces and magnets	Materials: States of matter	Energy: Sound and vibrations	Living things and their habitats: Classification and changing habitats	Plants: Plant reproduction	Making connections; How does wind force affect seed dispersal?

Class 4 Year A	Materials: Mixtures and separation	Materials: Properties and changes	Forces, Earth and Space: Earth and space	Animals inc. humans: Circulation and health	Energy: Light and reflection	Making connections; How reflective are space blankets?
Class 4 Year B	Living things and their habitats: Life cycles and reproduction	Forces, Earth and Space: Unbalanced forces	Living things and their habitats: Classifying big and small	Energy: Circuits, batteries and switches	Living things and their habitats: Evolution and inheritance	Animals inc. humans: Human timeline Making connections; How does light affect the direction of plant growth?

Impact

The successful approach to Science at Landscove results in a fun, engaging, high-quality Science education that provides children with the skills and foundations for understanding the world. Our engagement with the local environment through Forest School and National Surveys ensures that children learn through varied and first-hand experiences of the world around them. Using the Practical Action resources, children are able to link the Science directly to global issues and develop a deeper understanding of how Science is vital in developing solutions to problems that affect people's everyday lives. Through engagement with Stem Ambassadors, children are increasing their Science Capital and seeing possibilities for careers in Science. Workshops, trips and the interactions with experts they provide children help children to see the bigger picture and how Science has a role to play in our everyday lives. Pupil voice is used to further develop the Science curriculum, through questioning of pupils' views and attitudes to Science to support the children's enjoyment and ownership of Science and to motivate their learning.

Assessment

At the beginning of each unit an assessment of prior knowledge is carried out via an elicitation task. This may take the form of an assessment proforma, a discovery activity, a knowledge download page or a video of children talking about what they already know. In many cases, a combination of these methods is used. At the end of each unit of work, assessments are also recorded on the Science Lead's assessment document to enable monitoring of progress against the objectives.

Each year group has an optional exploratory unit called 'making connections' that delves beyond the statutory curriculum. This unit assimilates prior knowledge and skills to evoke excitement and provide an additional method of assessing scientific attainment.
During each teaching unit, teachers use AFL to pick up on misconceptions that occur during the lesson. These are often addressed on the spot and explored through oracy or if marking is after the fact, a silent starter might be used at the start of the next lesson. Teachers also assess children's working Scientifically skills during the lesson and look for areas that require further development. A final judgement for working scientifically is only made at the end of the year when children have had the opportunity to explore all aspects of the investigation cycle and had the opportunity to make these skills more substantive.

The progress of children with SEND who find writing and communication a barrier to completing a written assessment are assessed using a prior knowledge video and end of unit video recording where they have an opportunity to express and explain their knowledge and understanding. From this, the teacher is able to make a judgement of progress achieved from the beginning to the end of the unit.

There is an expectation that work in Science books will be the same quality as that in English books with regard to presentation. Marking of the Science books is at the same standard as marking of other writing across the curriculum. The focus for spelling corrections is on Science vocabulary words and the expectation is that children who are ARE will spell these correctly throughout their Science writing.

Key Documents

National Curriculum: Science programmes of study: key stages 1 and 2

Progression of Skills: Progressions of Skills & Knowledge by Unit

Scientific Vocabulary Progression: Science Vocabulary Progression