Reach for the Stars

Science Intent:

At Oakridge we nurture the natural curiosity of our children by delivering an engaging, stimulating and investigative science curriculum. We provide them with an excellent foundation of knowledge and skills necessary for life in a world where people who would not typically be described as scientists will work in professions that require scientific and technological skills. Our children are taught to think like scientists: questioning, planning, recording and analysing. They are given the opportunity to apply these valuable transferable learning behaviours in other areas of the curriculum.

Science Curriculum Drivers:

Key Driver	Promoting	Rationale and Evidence
Developing lifelong learners	**Metacognition through the canopy of The Oakridge Way**	• **Resilient**: Children know and experience unexpected results in investigations but understand that, what may seem like a failure can be seen as a learning tool Through learning about scientific figures, children understand that resilience is vital when working as a scientist and that having a conviction in your own theories is essential e.g. Year 6: Charles Darwin when he was ridiculed for his theories on evolution • **Reflective**: By making predictions in science children reflect upon prior knowledge and make links to scientific theories or common understanding. By reflecting on results of investigations or research, they can compare and contrast findings, look for patterns and spot where there may be anomalies. Mistakes are seen as ways to reflect and improve. At the end of science units, children reflect on their work before completing assessments that enable the teacher to confidently assess their understanding Using the cover sheets, children reflect and self-assess on their progress throughout the units of learning • **Resourceful**: Children always have access to science literature in the school which they are able to read at any time of the year. The cover sheets for each unit have key vocabulary and previous knowledge which can be used by the children to help in their current learning. • **Reciprocal**: When working in small groups or pairs, children share theories, learning resources, equipment, ideas for improvements to investigations in order to meet success criteria.

	Unique discipline in each subject	• Scientists are curious so we encourage the natural curiosity of our children by delivering an engaging, stimulating and investigative science curriculum. • We provide a solid foundation in knowledge of scientific fact and understanding of scientific skills. These are necessary for life in a world where people who would not typically be described as scientists will work in professions that require scientific and technological skills. • Our children are taught to think like scientists: questioning, planning, recording and analysing. They are given the opportunity to apply these valuable transferable learning behaviours in other areas of the curriculum. • Our children are given a breadth in the curriculum to ensure they have strengths in all 3 core disciplines: biology, physics and chemistry
	Secure fundamental basic skills in Reading Writing and Maths	• In reception, children develop the core basics of letter and number formation linked to the science activities and learning accessible to them through the Statutory Early Learning Goals – Understanding the World: The Natural World • All year groups record and analyse mathematical data (at appropriate levels) in terms of results of investigations including measuring, presenting mathematical data in charts/graphs • The school library and classrooms have a wide range of topical science books that are age appropriate and link to the leaning in the curriculum. • Children can access non-fiction books concerning science and those in KS2 are encouraged to use the accelerated reader scheme to take independent comprehension quizzes to show their understanding of the science text. • Whole class comprehensions tasks are used, when appropriate, where children develop their understanding through reading the prepared text. • Cross curricular writing in science is planned in all year groups.
Key Driver	Promoting	Rationale and Evidence
Enrichment	**Education visits, visitors, theme days, after school clubs, paired year group work**	**Enrichment:** • **Reception -** Space Centre Leicester, The Owl man, hatching chicks • **Y1-** Habitats Wolseley Bridges • **Y2 –** Animal expert visitor • **Y3 /Y4 –** Cardingmill Valley Water Cycle • **Y3** – Dudley Canals Rocks and soils, Light and Dark night • **Y4** –Habitats at Wolseley Bridges • **Y5 –** Space **–** Planetarium / Jodrell Bank • **Y5 / 6 –** Climate change and biomes visit to Botanical Gardens **Cross curricular examples:**

		• **Y1 – Art – S**easonal changes throughout the year • **Y1 – D and T** yoghurts • **Y2 – D and T H**ealthy eating and a balanced diet • **Y3 – D and T** Sandwiches and balanced diet • **Y1 and Y2 – Geography** 'Where does our food come from' with a focus on how crops grow in different climates • **Y3 and Y4 – Geography** -'Can the earth shake rattle and roll?' • **Y5 and Y6 –Geography** ' What is life like in Brazil?' 'Where does our electricity come from?' and What is climate change?' with a focus on deforestation, non-renewable and renewable energy sources, carbon footprints and climate change • **Y5 and Y6 - PSHE/RSE** Nurse visit to discuss changes to the body caused by puberty and how babies are made • **Y6 - D and T** Circuits and motorised vehicles • **All Year groups – PSHE** Making healthy lifestyle choices • **All Year groups –** PE and the importance of exercise and the effect on health.
Key Driver	Promoting	Rationale and Evidence
Making a positive contribution	**The roots of 'The Oakridge Way'** 	• **Kindness**: Respecting and valuing other children's opinions when working together in science. Sharing resources with others and supporting learning partners when required. • **Trustworthy**: Using technology sensibly when completing research. Using the resources supplied to them safely and responsibly. Following clear instructions by the teacher to complete tasks safely and successfully. • **Good manners**: being courteous and polite to learning partners, members of working groups and teachers and teaching assistants during science learning. • **Respectful**: Showing peers in science that they value their ideas and opinions.
	British Values	• **Democracy**: In Science we learn through our lessons to take into consideration the views and opinions of others. We take turns and instructions from others. • **Rule of Law**: In our Science lessons we learn and understand the importance of following safety rules when working scientifically. • **Individual Liberty**: In Science we learn to confidently share our own opinions and ideas and respect the opinions of others. When applicable, pupils are encouraged to make their own choices in planning an investigation and recognise that others may have different points of view. • **Tolerance and Mutual Respect**: When learning and investigating during science lessons we work as a team, supporting each other and sharing ideas and opinions. We discuss our findings and respect each other's work;

		through this we offer support and advice to others. We learn that scientific discoveries which have come from other cultures and how religious beliefs may compete with scientific understanding. We learn to be respectful of these beliefs and to appreciate and understand them.
	Healthy Relationships	• In year 6 children learn how to have healthy relationships with diet, exercise, drugs and lifestyle. • Linked to RSE upper KS2 children are prepared for the changes that adolescence brings and – drawing on knowledge of the human life cycle set out in the national curriculum for science - how a baby is conceived and born.
Key Driver	Promoting	Rationale and Evidence
Developing character	**Resilience**	• Children know and experience unexpected results in investigations but understand that what may seem like a failure can be seen as a learning tool • Through learning about scientific figures children understand that resilience is vital when working as a scientist and that having a conviction in your own theories is essential e.g. Year 6: Charles Darwin when he was ridiculed for his theories on evolution
	Independence	• Throughout each unit of learning, children are required to be independent when using a solo taxonomy grid to recognise their current understanding and chart their progress, understanding that their thinking may be different to their peers. • When working in groups on investigations, children are encouraged to make individual predictions that may differ from others in their group and explain their reasoning • During retrieval practice, children are required to independently reflect on what knowledge they have in order to respond.
	A celebration of effort and hard work	• We celebrate science with an annual golden book for science assembly • Marking in books reflects not only the outcomes but also the effort put into achieving the results