



## INTENT

A high-quality science education provides the foundations for understanding the world through the scientific disciplines of biology, chemistry and physics. Our science curriculum will give all children the opportunity to become successful learners, through exploring the breadth and depth of the national curriculum and to learn within a coherent, carefully sequenced and progressive framework. All children will be taught essential aspects of the knowledge, methods, processes and uses of science. They will build a rich and in-depth subject knowledge and conceptual understanding and will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. Children will learn through a variety of interesting contexts, which will enable them to see clear links between different aspects of their learning. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. Our children will develop and demonstrate their creativity and will experience the challenge and enjoyment of learning. They will be helped to understand the purpose and value of their learning to see its relevance to their past, present and future.

***“Science has changed our lives and is vital to the world’s future prosperity.”***

### Children will:

- Develop scientific knowledge and conceptual understanding through the scientific disciplines of biology, chemistry and physics;
- Develop an understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them;
- Be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future;
  - Explore different beliefs, experiences, faiths, feelings and values towards other areas of science;
  - Enjoy learning about the work of others around them and the surrounding world;
  - Use imagination and creativity when working and will be encouraged to reflect on their experiences;
  - Learn to appreciate cultural influences in science and use this learning to inform their thinking;
  - Understand, accept, respect and celebrate diversity in science.

### Our Science curriculum will:

- Give children the opportunity to use a range of social skills to make a positive contribution in the local community and beyond;
- Allow children to appreciate diverse viewpoints about science throughout the ages; participate, volunteer and cooperate when working collaboratively; and resolve conflict, when it arises;
- Show children how to respect and tolerate the opinions of others;
- Be part of a system where everyone will be free to express views and ideas.
- Will give children the opportunity to learn in a peaceful and supportive environment where they will get to work in a range of groups and settings, build respectful friendships and recognise that people are good at different areas in across the science spectrum. Children will learn how to respect themselves and others and to develop their self-esteem and confidence in their abilities. They will reflect and think mindfully about their learning and will be encouraged to follow their own interests and to be themselves;
- Give children the opportunity to express their opinions on a range of different scientific movements. They will take part in age-appropriate discussions and make choices about the work that they complete. Children will be asked to share what they like and dislike about their learning and will be invited to contribute to the planning of their learning journey. All children will be encouraged to make a positive contribution to the school and local community and explore ways of using outcomes to become a responsible global citizen;
- Be taught through a pedagogy that excites, promotes and sustains children’s interest, enabling and fostering their natural curiosity. They will be offered a memorable experience at the start of every topic and will learn how to problem-solve, how to be creative and how to communicate. Our science curriculum will enable the children to reflect on and evaluate their learning and will promote their innovation;
- We will enrich our science curriculum by using quality resources in and out of the classroom as well as offering opportunities for the children to learn outdoors. We will provide on and off-site subject or topic related activities and hold specialist Science days. It is important for us to welcome parents and carers to take part in children’s learning and experiences, and we will develop partnerships with external providers that extend children’s opportunities for learning.

# IMPLEMENTATION

An agreed whole school “blocked approach” to the Science curriculum has been arranged so that pupils can embed key transferable knowledge and vocabulary. Our Science curriculum is planned carefully to stimulate pupils’ curiosity in the world around them and promote a respect for all living things and the environment, whilst encouraging critical and creative thinking. Through a high-quality science education, pupils gain factual knowledge through the three key areas of biology, chemistry and physics.

	R/Year 1	Year 1/2 Year A	Year 1/2 Year B	Year 3/4 Year A	Year 3/4 Year B	Year 4/5 Year A	Year 4/5 Year B	Year 5/6 Year A	Year 5/6 Year B
Throughout the year	<b>1.1 Our environment</b>	<b>2.1 Local Habitats</b>	<b>1.1 Our environment</b>	<b>3.1 Animals homes Living things &amp; habitats</b> ● Habitats and basic needs ● Who lives here? <b>Living things &amp; habitats life cycles</b>	<b>4.1 Respecting our environment</b>	<b>5.1 Decay and recycling</b>	<b>4.1 Respecting our environment</b>	<b>5.1 Decay and recycling Year project</b>	<b>6.1 Field Study (Year project or Summer term)</b> ● sampling techniques ● populations – annual change ● reasons for change
	<b>1.4 Plants</b> ● Naming common organisms ● Naming Parts of a plant ● Plant growth (P2)	<b>1.4 Plants</b> ● Naming common organisms ● Naming Parts of a plant ● Plant growth (P2)	<b>2.4 Plants</b> ● Growth ● Basic needs		<b>3.4 Plants</b> ● Function of organs ● Varying requirements ● Water transport ● Flowers and seed formation				
	<b>1.2 The Animal Kingdom Animals jgc humans</b> ● Identify and name common animals ● Carnivores, herbivores, omnivores ● Parts of animals ● Senses and body parts	<b>1.2 Animal Kingdom Animals jgc human</b> ● Identify and name common animals ● Carnivores, herbivores, omnivores ● Parts of animals ● Senses and body parts	<b>2.3 Animals and their needs</b> ● Growth ● Basic needs	<b>3.2 Animals and skeletons Animals jgc human</b> ● Nutrition ● Skeleton and muscles	<b>4.3 Digestion Animals jgc human</b> ● Digestive system ● Teeth ● Food chains	<b>5.5 Human development Animals jgc human</b> ● Birth to old age ● RSE unit	<b>4.3 Digestion Animals jgc human</b> ● Digestive system ● Teeth ● Food chains	<b>5.5 Human development Animals jgc human</b> ● Birth to old age ● RSE unit	<b>6.2 Heart and lungs Animals jgc human</b> ● Circulatory system ● Keeping healthy ● Transport of water and nutrients
		<b>2.2 Living Things Living things &amp; habitats</b> ● Differences in living things ● Habitats and basic needs ● Who lives here?	<b>2.6 Habitats Living things &amp; habitats</b> Simple food chains		<b>4.2 Classification Living things &amp; habitats</b> ● Classification ● Changing environments	<b>5.2 Life cycles Living things &amp; habitats</b> ● Life cycles ● Reproduction in plants and animals	<b>4.2 Classification Living things &amp; habitats</b> ● Classification ● Changing environments	<b>5.2 Life cycles Living things &amp; habitats</b> ● Life cycles ● Reproduction in plants and animals <b>6.6 Evolution Evolution</b> ● Change over time & fossils ● Variation & adaptation → evolution	<b>6.3 Classification Living things &amp; habitats</b> ● Classification <b>6.6 Evolution Evolution</b> ● Change over time & fossils ● Variation & adaptation → evolution
	<b>1.3 Every day Materials Everyday materials</b> ● Object v. material ● Naming materials ● Simple physical properties ● Grouping on physical properties	<b>2.5 Materials</b> ● Suitability for uses ● Shaping materials	<b>2.5 Materials</b> ● Suitability for uses ● Shaping materials	<b>4.6 States of matter</b> ● Grouping SLG ● Changes in state ● Water cycle		<b>4.6 States of matter</b> ● Grouping SLG ● Changes in state ● Water cycle	<b>5.4 Mixtures and reactions Properties &amp; changes of materials</b> ● Physical properties ● Solubility ● Separating mixtures ● Reversible & chemical change		
	<b>1.5 The Weather (throughout each term) Seasonal change</b> ● Observing seasonal change ● Changes in weather & day length			<b>3.6 Rocks</b> ● Types ● Fossil formation ● Soil	<b>3.6 Rocks</b> ● Fossil formation ● Soil	<b>3.3 Earth and space</b> ● Model solar system ● Movement in the solar system ● Day and night		<b>3.3 Earth and space</b> ● Model solar system ● Movement in the solar system ● Day and night	
				<b>3.5 Light</b> ● Seeing / dark ● Reflection ● Sun danger ● Shadows	<b>4.5 sound</b> ● Making sounds ● Transmission of sound ● Changing pitch & loudness ● Dissipation of sound	<b>3.5 or 6.5 Light (Mixture of year 3 and 6?)</b> ● Light travels in straight lines ● Light journeys ● Explaining shadows	<b>4.5 Sound</b> ● Making sounds ● Transmission of sound ● Changing pitch & loudness ● Dissipation of sound	<b>6.5 Light</b> ● Rectilinear propagation ● Light journeys ● Explaining shadows	
				<b>3.3 Forces and Magnets part 1?</b> ● Friction ● Contact & non-contact ● ‘Magnetic’ materials ● Magnetic attraction & repulsion + poles	<b>3.3 Forces and Magnets part 2?</b> ● Friction ● Contact & non-contact ● ‘Magnetic’ materials ● Magnetic attraction & repulsion + poles	<b>4.4 Electricity</b> ● Uses ● Simple circuits & switches ● Conductors and insulators	<b>5.6 Forces</b> ● Falling ● Drag & friction ● Simple machines – force changers	<b>6.4/4.4 Electricity (with elements of Year 4 if needed)</b> ● Effect of changing Voltage ● Symbols	<b>5.6 Forces</b> ● Falling ● Drag & friction ● Simple machines – force changers <b>6.4 Electricity</b> ● Effect of changing Voltage ● Symbols
Lessons									

Our Science curriculum is taught in explicit units, in line with the National Curriculum and is based on the ‘Engaging Science’ scheme of work. Science lessons are planned to allow pupils to acquire scientific skills of enquiry, which include: identifying questions that can be addressed scientifically; Planning, organising and implementing experiments; Forming conclusions and evaluations based on data; and recognising the limitations of their own work and the work of others.

Key science knowledge, skills and vocabulary have been carefully mapped across all year groups to ensure progression between year groups. As a result, pupils learn about real life science-specific examples, as well as developing their skills throughout the programme of study.

Planning in science is coherent and in a logical order so that pupils can make links, transfer knowledge and content from previous learning to build on their understanding. Learning is planned in manageable, connected steps; lessons are coherently and deliberately constructed to include careful scaffolding to ensure that pupils develop secure knowledge and understanding of key concepts and strategies that are built upon in later learning. The momentum of science lessons sustains pupils’ interest, increases their productivity, learning and progress. Discretion is used by teachers about the effective use of differentiation.

Our science curriculum is based on teach, repeat, practice and review; there is a shorter whole class teaching approach linked to a well-structured and monitored independent learning for a sustained period. Pupils are given the opportunity to demonstrate their capacity to remember, practice and apply, and transfer their knowledge, understanding and vocabulary.

Science is also taught discretely throughout other aspects of the curriculum allowing pupils to access a broad curriculum, with examples of this including writing lessons within each science topic.

When conducting investigations, pupils are encouraged to think like scientists and make predictions using their previous knowledge and experiences to support their theories. Teachers model the use of vocabulary, various scientific equipment and the working scientifically skills needed in order to embed scientific understanding. To underpin this, scientific vocabulary is displayed in each class through 'Working Walls' and pupils are encouraged to use these words in their discussions and independent work.

Our Science curriculum is tailored and adapted to suit the individual needs of each year group. This allows us to ensure that all pupils are keeping up with the curriculum, therefore making good progress. Our skills progression enables us to ensure that pupils' scientific understanding is consistently being built upon, as it provides clear, differentiated structure. We monitor pupils' outcomes across each Science unit as they move throughout the school.



The Science Subject Leader is responsible for monitoring the curriculum, including the development of medium term and short term planning, as well as the standards within the Science books. As well as this, the Science Subject Leader evaluates the Quality of Education for each year group through lesson visits, scrutiny of pupils' work and pupil discussions; this provides key strengths and areas of development to further develop the Science curriculum. Within our professional development procedures, the Science Leader is given training and the opportunity to keep developing their own subject knowledge, skills and understanding; as a result, they can support curriculum development and their colleagues throughout the school. During the academic year, regular INSET training is provided in order to disseminate new information, ensuring all staff are updated with relevant changes within the Science curriculum; as a result, teachers will deliver the best Science curriculum and provision for all pupils in their care

## IMPACT

**The following outcomes are a result of our Science curriculum and wider provision:**

- a community of enthusiastic, inquisitive and independent scientists
- a broad range of skills linked to both scientific knowledge and understanding, as well as scientific enquiry and investigative skills
- a secure understanding of key scientific vocabulary that will enable all pupils to communicate their understanding of the concepts taught
- pupils who are able to use and apply a range of scientific knowledge, understanding and skills to new contexts and can take risks in their science
- an understanding of the importance of science for the next stage of pupils' education, the wider world beyond school and for future employment
- an understanding that science has changed our lives and that it is vital to innovation in the wider world
- awe and wonder around the amazing and fascinating world of science
- developing an enjoyment and pleasure in learning about science