



Nova Science Curriculum

Intent

At Nova Primary, we believe science learning should allow our pupils to ask and find the answers to key scientific questions whilst developing their scientific vocabulary, knowledge and skills. Pupils learn how to observe changes and make links to the world around them through knowledge centred learning and hands on investigations.

Learning is planned carefully to build and extend on knowledge from previous years, with topics often being revisited in Key Stage 1 and Key Stage 2. In the Early Years Foundation Stage science can be seen through the way pupils learn about the world around them. We strive to provide our pupils with an enriched science capital. We work closely with STEM to show our pupils the opportunities they may have for employment in the future. From this exposure to a range of scientific opportunities, our aim is for all pupils to feel that they are scientists and capable of achieving.

Our science curriculum ensures children master core content through the development of key concepts and timely revisiting of key knowledge. Our curriculum is sequenced with knowledge selected to allow for gradual development of vertical concepts and to provide firm foundations for KS3 and KS4. We encourage children to apply and make connections between the disciplines of science, the wider curriculum and the wider world.

We want the children at Nova to have curiosity and excitement about science whilst also seeing themselves reflected in the science curriculum through present-day role models and the contributions of a wide range of scientists. Our curriculum allows children to make deliberate and explicit links to other curriculum areas—particularly geography and mathematics whilst practising working scientifically skills.

Implementation Our science curriculum is planned using the national curriculum and supported with resources from the United Learning Curriculum.

As part of our planning and teaching, we ensure children have the opportunity to plan practical tasks that have a clear purpose: to demonstrate or prove substantive concepts, or to allow children to deliberately practice working scientifically skills in a relevant context

In Early Years, our pupils are first introduced to science in their 'Understanding the World' area of the curriculum. Pupils will begin to explore the environment around them and develop their understanding of the natural world. They will learn to make observations and sketch pictures of animals and plants. In EYFS, pupils will plant a seed and observe its growth as well as observing changes in the season. In the lead up to KS1, pupils will learn what science is through books and stories based on different areas of science. They will be given opportunity for build their curiosity through different hands on activities that allow them to explore materials, forces, the natural world and changes.

In Key Stage 1, pupils will learn knowledge and skills that will be revisited and built upon throughout KS2. They will learn to label and recognise plants as well as learning how plants grow. Pupils will be taught about animals and humans; they will begin to group animals, learn what animals need to survive, explore different habitats and learn about the five senses. Pupils will also learn what materials are and about physical properties of materials before being introduced to learning about solids, liquids and gases. Throughout their learning, children will be given the opportunity to plan, observe, investigate and record.

In Key Stage 2, pupils will learn about and investigate light, sound and electricity. Each of these will be introduced in lower KS2 and then revisited in upper KS2 where children will be given the opportunity to plan deeper investigations. Pupils will build on their knowledge of properties and grouping to learn about rocks, soil and fossils. Pupils will also extend their learning on animals by learning about classification, skeletons, life cycles and systems in the human body. Pupils will learn to investigate forces and be introduced to learning about space. They will also extend their learning on solids, liquids and gases from Year 2 to explore the particle model and learn about reversible and irreversible changes. Throughout their learning, children will be encouraged to plan and carry out their own investigations around a scientific inquiry. This will include analysing and recording their data and reporting on their findings.



Implementation

Our curriculum has been designed to be ambitious for our pupils. Our lessons are planned and taught so that previous knowledge is revised and built on. Scientific skills are taught progressively through our curriculum and children build on prior learning whilst also developing a better understanding of subject specific vocabulary. Subject Leaders create knowledge organisers which outline the key vocabulary and key substantive and disciplinary knowledge for that unit. In our science planning and teaching, we provide the following:

- Key skills at the beginning of every lesson that revisit and embed previous learning
- Opportunities and questioning used to revisit and consolidate prior learning.
- Educational visits, visiting experts and artefacts enhance the learning experience.
- Opportunities for all pupils to see themselves and their community reflected in the curriculum.
- Learning that is accessible for children of all abilities. Scaffolds or adult support are provided when needed.

Our science curriculum is taught in blocked approach across the school. Pupils are taught science in 3 hour blocked lessons every other week. In classrooms, teachers will display the subject specific vocabulary. Teachers will either choose to have a working wall that shows the learning journey of their unit or a display of the learning intentions.

Impact

Our science curriculum is sequenced and planned to demonstrate progression. Pupils will build their 'working scientifically' skills through frequent opportunities to reflect on their learning through planning and carrying out investigations. Pupils will develop their understanding of the following: plants; animals including humans; everyday materials; seasonal changes, living things and their habitats; rocks; light; electricity; sound; forces and magnets; states of matter; changes in materials; Earth and space; evolution and inheritance.

They will build in their own scientific thinking and form a better understanding of how scientists learn about the world. Our pupils will develop enthusiasm, wonder, curiosity and passion for science. Our curriculum is designed to be ambitious and challenging. We believe that if children are keeping up with the demands of each lesson, that they are making good or better progress.

We also measure the impact of our science curriculum in the following ways:

- Pre and post learning quizzes designed to address gaps at the beginning of the unit and reflect on learning at the end of the unit.
- Pupil's books and pupil discussions about their learning.
- Teachers discussing learning with pupils in the lesson and reflecting where additional support or challenge may be needed.

Our geography curriculum is also planned in a way which promotes the cultural capital of all our children. We enhance our curriculum especially for the most disadvantaged by organising guest speakers and visitors, organising science and STEM activities and days. We also provide additional opportunities such as school trips to enrich pupil's understanding and provide context through first-hand experiences.