



SCIENCE POLICY

Children are natural scientists, instinctively exploring the world around them from a very early age. The concepts that young children develop are based on first hand exploration, interacting with the physical environment. We involve children in a wide range of activities which are practical, relevant and satisfying, building on this natural curiosity. They are supported to consider ideas, observe their effects, develop new ideas and test them. As a core subject in the curriculum, science encompasses essential concepts, knowledge and skills that help other learning to take place effectively. It also encourages the sharing of ideas, information and responsibility within a group. High quality science teaching will be at the heart of developing these skills at Kingmoor Nursery and Infants School.

At Kingmoor, we are dedicated to raising both children's achievement and the whole school community's engagement in science and our aim is to inspire children to consider a future as a scientist, utilising STEM learning initiatives to do so. All children at Kingmoor will be prepared for life in a scientific world.

- ❖ Children will be given opportunities to develop their knowledge and understanding of specific ideas, processes and skills and make links to relate these to everyday experiences.
- ❖ Children will be encouraged to treat the living and non-living environment with respect and sensitivity. They will develop a concern for our environment and a sense of place, utilising our special context of being located next to Kingmoor Nature Reserve.
- ❖ Children will acquire a curious and questioning mind, with confident problem-solving thinking skills.
- ❖ Children will develop skills of observation and investigation through practical work.
- ❖ Children will develop core skills through their enjoyment of Science: they will collect, retrieve, present and communicate their findings to others in a variety of ways using scientific language.

INCLUSION

(Our approach to the curriculum and how we are complying with our duties in the Equality Act 2010 and the Special Educational Needs and Disability Regulations 2014 about making the curriculum accessible for those with disabilities or special educational needs.)

The following principles inform and guide our policy and practice:

Meeting the diverse and complex needs of each and every individual is embedded in everything that we do as a school

It is the responsibility of KNIS to enable all children to access and make progress via the curriculum

"Equal opportunities" is not the same as "Equal provision" and we adapt provision to ensure it meets the needs of our learners.

We aim to provide a happy and secure environment where all members of our school community respect and value each other and themselves. We promote equality and the creation of an environment which champions respect for all.

What is good provision for a child with SEND is good for all children, i.e. an abundance of activities that allow children to learn visually, through speaking and listening and kinaesthetically, using principles of Quality First Teaching and by embedding the school Learning Powers across the curriculum. We respond to children's diverse learning needs by being committed to removing barriers to learning and we do this by:

- Creating effective and interactive learning environments
- Using assistive technologies where appropriate
- Providing scaffolding to support children's learning.
- Modelling activities / tasks
- Paired and collaborative work that is rich in discussion and reflection
- Use of encouragement and praise to motivate and develop self-image and esteem.
- Using multi-sensory approaches
- Using visual cues to aid understanding
- Providing visual timetables to help with establishing routines
- Pre-teaching key vocabulary to provide a 'hook' into teaching

- Looking at alternative methods for recording work
- Using metacognitive approaches so that children learn how they learn best and develop a range of tools to support them in approaching their work independently and confidently
- Developing motivation and concentration through a stimulating curriculum
- Using appropriate assessments to enable children to demonstrate what they can do, have learned and secure next steps in learning
- Setting targets for learning
- Teaching more able children with their own class and extending their learning through differentiated group work, extra challenges and opportunities for independent learning.
- Working closely with parents/carers to gain a thorough understanding of every child's needs

TEACHING AND LEARNING

Science is covered throughout the year, with the content of this learning outlined in Long Term Plans for each year group. Teachers provide activities that are enjoyable, imaginative and purposeful; they make clear links between science and other subjects. Discussion is a key tool in learning and structured prompts for this are used in science. Teachers offer ample opportunity for first hand practical investigation inside and outside of the classroom: careful planning targets a progression in working scientifically skills from nursery to Year 2, and children carry out at least one investigation each half-term. Health and safety policies are followed as appropriate for each activity.

EARLY YEARS

In Nursery and Reception, we explore science through the Early Learning Goal Understanding the World using Development Matters to support this curriculum. Science-based learning encompasses other areas of learning in the Early Years Foundation Stage (EYFS) e.g. 'Speaking', 'Understanding' or using tools in 'Moving and handling'. These are all key skills that help the children with Working Scientifically. Characteristics of effective learning are of central importance, as good scientists need to be confident to explore, think critically and be active learners etc. Science-based topics, UTW weekly sessions and enhanced indoor and outdoor provision are utilised to engage the children to talk about and explore the world around them: this focuses on places, objects, materials and living things (including growth and decay). Children foster an awareness of and concern for their immediate environment and have opportunities to experience habitats beyond the local area. Child-initiated exploration is supported and extended by adults and captured through observations for assessment. Science in EYFS is practical and children are guided to use key scientific language and develop their scientific oracy.

KEY STAGE 1

In KS1, we use the CUSP Curriculum as our overview and this has enabled planning in science with breadth and progress preparing the children for their science journey into Key Stage 2. Threshold concepts, such as 'Plants and animals, are repeated throughout KS1 to allow children to keep exploring and gradually increase their understanding of them so use of this curriculum enables coherent targeted progress in children's understanding without overlap or gaps. Concepts are explored in breadth for knowledge and transference and are outlined for each year group on a 'tree of learning' for EYFS, KS1 and KS2. The main focus of science teaching in KS1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They are encouraged to be curious and ask their own questions about what they notice and what they want to investigate. They are helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions; the types of enquiry used are mapped for KS1 to ensure a broad approach to scientific questions. Knowledge organisers for each topic support children's learning journeys throughout each topic. Knowledge notes are used in every science lesson to promote the use of key vocabulary and the recall of key learning. Teachers know it is important for pupils to read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at KS1 and the aforementioned knowledge organisers and knowledge notes support this.

In **Year 1** children study

- Seasonal changes/daily weather
- Plants including trees
- Animals including humans
- Materials

In **Year 2** children study

- Living things and habitats
- Animals including humans
- Everyday materials and their properties
- Plants

RESOURCES

There is a vast array of audited science resources stored in the main school building and gardening shed. Outside learning areas hold ample opportunity for outside scientific investigation (garden areas and planters, willow dome, bug hotels, bird feeders/nests, a variety of habitats). We also utilise our close proximity to Kingmoor Nature Reserve and Pond with regular visits. All staff have awareness of Forest School principles/activities through training and aim to provide hands-on learner-centred experiences in an outdoor natural space frequently throughout the year.

ASSESSMENT

In KS1, children are assessed on their ability to 'Work Scientifically' and on their knowledge of the particular learning indicator for the threshold concept. In Early Years, teachers use 'Development Matters' and the EYFS profile objectives for UTW. Children's knowledge is captured through their own writing, use of technology and/or observations/scribing by adults. Other forms of evidencing learning include cross-curricular tools such as dance, drama, model-making and other art forms etc. Children are encouraged to evaluate their own and their peers learning, explaining the processes they have used and why. This ongoing formative assessment is used with Tapestry as a key tool to monitor pupil progress and moderation takes place regularly within the school to align judgements. Teachers make use of the focused assessment database provided by the Primary Science Teaching Trust to capture learning at the end of each half-term. Teachers summarise what children can do and identify next steps for science in termly reports/parents' evenings. At the end of reception year, teachers assess children's UTW against the profile objective with emerging, expected and exceeding marks. At the end of Year 2, teachers judge children's attainment against the KS1 curriculum to see if they have met expected levels of learning.

STAFF WELL BEING

As an employer we are committed to caring for staff emotional well-being and mental health. When you're caring for the emotional wellbeing of others, it easy to forget your own. But to fully support the pupils in your care, we know we need to make sure our own staff are cared for too. The high demands on teachers have been shown to result in stress among teachers. Therefore, addressing the wellbeing of teachers is a vital step to addressing the wellbeing of pupils because engaged, cared for teachers are better able to care for pupils. This policy has been written using guidance from *Ways to reduce workload in your school(s) Tips and case studies from school leaders, teachers and sector experts July 2018, updated March 2019 DFE*