



Neston Primary School

Science



Rationale

Science makes people reach selflessly for truth and objectivity; it teaches people to accept reality, with wonder and admiration. Lisa Meitner (physicist who contributed to the discoveries of the element protactinium and nuclear fission.)

At Neston we are all scientists! We want our children to love science. We want them to have no limits to what their ambitions are and grow up wanting to be astronauts, forensic scientists, engineers, pharmacologists or microbiologists. We want them to embody our Neston promise. We all believe that: "we explore, we discover. We reach for the stars and learn from our mistakes". The science curriculum has been carefully crafted so that our children develop their scientific curiosity and capital. We want our children to remember their science lessons in our school, to be motivated by these memories and embrace the scientific opportunities they are presented with!

We have partnered with other local primary and secondary schools to take part in the Enthuse Partnership which aims to promote and develop STEM activities in the Primary Curriculum. Most recently, a group of our year 5 students attended the local secondary school and participated in three sessions designed to bring STEM subjects to life and help develop excitement, awareness and understanding of STEM careers.

Intent

The science curriculum promotes curiosity and a love and thirst for learning. It is ambitious and empowers our children to become independent and resilient – like all curriculum areas.

We want to equip them with not only the minimum statutory requirements of the science National Curriculum but to prepare them for the opportunities, responsibilities and experiences of later life. Our curriculum is ambitious with an emphasis on increasing our science capital.

We want our children to understand and appreciate our rural local environment, as well as learning from other cultures, respecting diversity, co-operating with one another and appreciating what they have. We achieve this by providing a strong SMSC curriculum, with British Values and our core values placed at the heart of everything we do. This often feeds into the science curriculum. **At Neston, we celebrate science; we invite external visitors with a background in science to come into school to help us inspire our children with different science activities. This shows them that a career in science is an exciting, real and achievable possibility.**

We enrich their time in our school with memorable, unforgettable experiences and provide opportunities which are normally out of reach – this piques their interests and passions. **Year 6 were recently visited by a GP as part of their topic on Animals Including Humans. In class the children had been investigating the role of the different blood cells and what job our heart plays. Dr Davis brought different equipment with her so that the children could take their blood pressure, listen to their heart through a stethoscope and measure the saturation**

of oxygen in their blood. The children also had the opportunity to find out what Dr Davis' job consists of day to day.

Implementation

We have recently reviewed our curriculum provision to ensure that what we are providing is ambitious and cohesive and gives our children the knowledge to succeed in life. On the back of these findings, the science curriculum has been carefully built and the learning opportunities and assessment endpoints for each year group crafted to ensure progression and repetition in terms of embedding key learning, knowledge and skills. **For example, the way animals including humans is taught in our school has been adapted so that it is revisited in each phase. In KS1, the children use our local environment to explore and answer questions about animals and their habitats. They become familiar with the common names of some fish, amphibians, reptiles, birds and mammals. In lower KS2, the children move on to comparing and contrasting the diets of different animals and grouping them according to what they eat. In UKS2 the children have progressed to researching the gestation periods of other animals and comparing them with humans.**

Science subject specific characteristics, which we expect the children to demonstrate, have been developed and shared with all stakeholders. These characteristics underpin all work in science and form a focal point for display areas and provide a common subject specific vocabulary for staff and pupils. These characteristics are:

- **The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.**
- **Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.**
- **Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.**
- **High levels of originality, imagination or innovation in the application of skills.**
- **The ability to undertake practical work in a variety of contexts, including fieldwork.**
- **A passion for science and its application in past, present and future technologies.**

We empower our staff to organise their own year group curriculums under the guidance of our subject leaders. Teachers are best placed to make these judgements. Staff develop year group specific long-term curriculum maps which identify when the different subjects and topics will be taught across the academic year. The vast majority of subjects are taught discretely but staff make meaningful links across subjects. They link prior knowledge to new learning to deepen children's understanding. **For example, the children in Year 5 link their learning on 'The Properties of Changes' with their Anglo-Saxon Brooch art; identifying the chemical change that takes place when the clay brooches are kiln fired and understanding that these changes are irreversible.**

Impact

We use both formative, including the use of questioning and knowledge organisers, and summative assessment in our science lessons. Staff use this information to inform their short-term planning and short-term interventions. This helps us provide the best possible support

for all of our pupils, including providing greater challenge when necessary. The assessment endpoints for each phase have been carefully mapped out and further broken down for each year group. This means that skills in science are progressive and build year on year.

Our staff use formative assessment to systematically assess what the children know as the topic progresses and to inform their future planning. These formative assessments then inform summative assessment judgements for each topic.

Assessment data is input twice a year on tracking system and analysed as part of our monitoring cycle. This process helps to provide a comprehensive understanding of the quality of education in science. A comprehensive monitoring cycle is currently being developed. This will include: book scrutinies, lesson observations and/or learning walks, pupil/parent and/or staff voice.

All of this information is gathered and reviewed. It is used to inform further curriculum developments and provision is adapted accordingly.