



Science Curriculum Intent Statement



At Westacre Middle School, we aim to foster a life-long love of learning, through adopting a practical and cross-curricular approach. Our Creative Curriculum aims to deliver a world class education that will equip our children with the skills required to be independent and responsible citizens. The curriculum matches our whole school vision, which fosters an atmosphere of inspiration, challenge and achievement. “Inspire. Challenge. Achieve”

Why do we teach Science?

Science is an important component in our vision to prepare every child for their future. Our curriculum has been designed to ensure every learner is challenged, and inspired, through the acquisition of subject knowledge and practical investigations.

In KS2, children apply and develop a broad range of scientific skills, learning how to use them in different ways and to link them to the world in which we live in. Children communicate and collaborate with each other whilst developing an understanding of our world and how their bodies work. Children also learn how to evaluate and recognise their own success.

In KS3, children learn to become competent, confident and more independent scientists, revisiting previous learnt skills and applying them across a balanced Biology, Chemistry and Physics curriculum. They understand what makes a successful scientist and how to apply these principles to their own and others' work. There are opportunities to become part of our Science Club giving children an opportunity to challenge themselves further, whilst maintaining a high level of safety throughout every practical investigation they carry out. In addition, Science club provides strong cross curricular links to reading through the use of annually updated scientific texts provided by the Royal Chemistry Society. Children are encouraged to read and review these texts, sharing their views with the others.

Our Science lessons provide opportunities for children to engage with exciting materials and experiences that motivate them to develop their enquiry and problem solving skills, whilst ultimately establishing a love for the subject. Our aim is to nurture children's curiosity and allow them to ask questions and develop the skills they need to answer those questions.

Key Concepts in Science

Key concepts tie together the subject topics into meaningful schema within our skills progression maps. The same concepts are explored in a wide breadth of topics across all year groups. Through this 'forwards-and-backwards engineering' of the curriculum, students return to the same concepts over and over and gradually build understanding of them. In Science, the key concepts are Skill Working Scientifically, Knowledge and Understanding and Diversity in Science.

Knowledge Categories in Science

Knowledge categories in each subject gives students a way of expressing their understanding of the key concepts and linking their learning across the year groups. In Science, the knowledge categories are enquire, conduct, report, conclude, health and safety, properties, materials, forces, processes, scientific vocabulary, changes, mathematical links, inspirational people and challenge theories.

SMSC Links

Science provides a platform for children to develop their enquiry skills, using evidence to make sense of the world. It allows children to put themselves into an environment in which their scientific problem solving skills can be practically utilised and be extended into the wider community. Inspirational Scientists and events can inspire children to be successful regardless of their culture and background and, by understanding others different to themselves, social barriers can be broken down and diversity can be celebrated together.

Spiritual: Science helps children to understand our relationship with the world around us (how the physical world behaves, the interdependence of all living things.) Making new discoveries through both theory and practical investigations will increase children's awe and wonder at the complexities and elegance of the natural world. Developing as scientists can be classed as a spiritual experience that we support, driving the children onwards in their continual search for understanding.

Moral: Moral decisions are an important aspect of Science. This helps children to understand ethics behind certain medical treatments, recognising right from wrong or understanding the consequences of their actions. Through the use of inventor of the half term, children will gain knowledge of scientific discoveries and inventions and how decisions must be based on evidence (not prejudice.) Teachers encourage children to be both open minded (generating a hypothesis) and critical (demanding evidence) and to use their understanding of the world around them in a positive manner.

Cultural: In Science lessons, we explore and celebrate research and inventions that take place in different cultures, both past and present through the research of creative curricular inspirational people every half term. Children will explore how scientific discoveries have shaped our world, beliefs and politics.

Social: Scientists are collaborators. We encourage children to take an active part in lessons sharing ideas, data and results (for further testing or development by others). We encourage children to work together and communicate effectively during scientific investigations and to share results to identify trends or patterns and to improve reliability. Children consider the safety of others during practical work and the important role each person plays to maintain a safe working environment.

How we promote Aspirations in Science

We encourage pupils to consider how they can use Science within the area of work they are thinking of working in and where pupils do not know what they would like to do in the future we help them identify areas Science will support a wide range of careers. We speak to our pupils about how they have the opportunity to use both their scientific knowledge and understanding and working scientifically skills to their advantage whereby there is a shortage in people in industry with these skills. We move pupils from having little or no idea or in where they can use these skills in the future to being excited at the fact of working with animals, humans or in a laboratory could be a possible career path for them- all linking to their scientific skills. By studying a variety of inventors (one per half term) throughout the year, pupils are able to see how Science can be used in all walks of life and how anyone could be the next 'Albert Einstein' regardless of their cultural background. Pupils are inspired by these inventors and how their drive and determination to succeed has led to new and exciting opportunities.

How we promote Communication in Science

Our pupils are taught to work scientifically throughout their time at Westacre. They study the types of enquiry within KS2 and are encouraged during weekly lessons to 'think and talk like a scientist'. These practical lessons enable our pupils to explore and work collaboratively with others, considering how variables may affect the reliability of their results, and to evaluate how their actions could be adjusted to ensure a fair test is carried out every time. Each lesson promotes a range of scientific dialogue relating to the scientific world; this may be in the form of group discussions, class discussions, question and answer or presentation. Key scientific vocabulary is displayed in the science lab to promote verbal dialogue during every lesson; targeted questioning to challenge every pupil ensuring inclusion for all.

How we promote Diversity in Science

It is vital that our pupils understand that Science is a widely diverse subject. At Westacre we recognise that there is a gender gap in pupils studying Science later in life and also in the workforce, in the favour of males. We encourage all pupils to engage with our inventor of the half term lessons and encourage them to research these inspirational people of both genders. We find pupils of both genders engage very well, thus reducing stereotypes of what a scientist/inventor should be. In addition to this, our lessons explore careers with carefully selected videos that include people from different cultures, genders, ages, sexual orientation, race/ethnicity and economic backgrounds.