

SCIENCE CURRICULUM

INTENT

Our science curriculum is designed to nurture the next generation of independent, scientific thinkers with a boundless passion for exploring and understanding the world around them. We aim to inspire our children with hands-on, practical experiences that spark curiosity and ignite a lifelong flame of learning. We introduce key scientific vocabulary and the fundamental elements of scientific inquiry, including pattern-seeking, observations over time, research, identification and classification and fair testing. Our vision is to equip children with the critical thinking skills, creativity and scientific literacy necessary to navigate their lives, making informed decisions about health, the environment and future technological advancements. We aspire for our students to develop a deep conceptual understanding of biology, chemistry and physics and to understand the nature, processes and methods of science through various types of scientific enquiries.

IMPLEMENTATION

Our science curriculum which we developed is built upon the National Curriculum, ensuring comprehensive coverage of all topics with ample time for in-depth exploration and connection to other learning areas and class texts. From EYFS through UKS2, children acquire and develop key knowledge and the application of scientific skills. This progression is meticulously planned to enhance their ability to conduct experiments, build arguments and explain concepts confidently. Our teaching approach follows a structured six-part lesson plan that encompasses recapping prior learning, new learning, talk tasks, developing learning, independent tasks and a plenary to consolidate understanding. Key vocabulary is introduced at the beginning of each topic and reinforced throughout, with scientific work recorded in various age-appropriate ways. Extra-curricular activities, visits and events like Science Week complement classroom learning, providing broader scientific contexts and experiences. While we have designed and written our own curriculum, we also benefit from the support and subject knowledge of the PZAZ scheme.

IMPACT

Children at Sinai are confident, curious and knowledgeable young scientists. Our students emerge with a strong foundation in scientific knowledge and conceptual understanding across biology, chemistry and physics. They possess the skills to conduct various types of scientific enquiries, answering questions about the world with evidence-based conclusions. Through continuous assessment and reflection, we see our children developing the ability to think independently, reason scientifically and apply their learning in real-world contexts. They are prepared not only for future academic pursuits in science but also for responsible citizenship, equipped to address contemporary challenges like climate change. Our curriculum ensures that all students, regardless of their future career paths, gain the scientific literacy to engage with the world as informed, thoughtful individuals capable of bringing about positive change.

BIG OPPORTUNITIES

At Sinai, we offer an array of exciting and educational opportunities that bring the wonder of science to life for our children. From hands-on experiences like heart dissection, observing the process of chicks hatching from eggs, to engaging in planting activities with flowers and vegetables, our curriculum is designed to ignite a passion for learning. These practical experiences are complemented by visits to the Science Museum and an annual Science Week, further enriching our students' understanding and curiosity. We emphasize the importance of Science capital by integrating trips, guided walks in our local environment, and leveraging media resources with current news articles to connect classroom learning to the real world. Our curriculum bridges science with subjects like PSHE/RSE, focusing on topics such as puberty and growing up, and geography, where we explore climate change and sustainability. We strive to present diverse voices in our curriculum, including those of scientists and inventors from various cultures and societies; this approach not only broadens our students' perspectives but also helps them relate more personally to the material. We also highlight potential science-related careers, aiming to build our students' confidence and aspirations.

KEY CONCEPTS, KNOWLEDGE & SKILLS

Key concepts: Scientific Enquiry, Sustainability, Materials, Earth and Space, Living Organisms

Through Scientific Enquiry, students develop observational, data collection and critical thinking skills, essential for real-world problem solving. The sustainability component teaches the importance of resource conservation and the ecological impact of human activities, encouraging eco-friendly practices. In studying materials, children explore substance properties and changes, grounding their understanding in everyday contexts. The Earth and Space segment broadens their perspective on the universe, fostering awe and curiosity about our planet's place in the universe. The Living Organisms concept introduces them to biodiversity and life processes, highlighting the interconnectedness of species. This integrated approach ensures our students are well equipped to explore, understand and innovate within the scientific domain, fostering a deep appreciation for the natural world.

ASSESSMENT

At Sinai, assessment is carried out using both informal methods, including participation in investigations, and formal termly assessments using the PZAZ system, with results recorded in Arbor. Teachers mark National Curriculum objectives for knowledge and enquiry in each lesson for ongoing assessment and moderation. Planned assessments in our Unit Plans include activities like drawing diagrams, quizzes and practical tasks. A key focus is on scientific enquiry in every unit, where we observe students conducting and writing up investigations to gauge their understanding and skills.