

Rationale for Science

Our Science curriculum enables children to learn the important knowledge and concepts to describe and question the materiality of the world. They will learn the important role that science plays in the sustainability of life on earth and have knowledge and skills to question, and investigate scientific theories. We aim that children following this curriculum will be equipped to go onto their secondary education with curiosity, passion and a desire for further discovery and study of the subject.

At Greengate Lane Academy, we follow the PKC Science curriculum which aims to equip children with the foundations for understanding the world through a scientific lens. Our pupils will be taught units of work that cover and go beyond the requirements of the National Curriculum in the specific disciplines of biology, chemistry and physics. Our children will encounter people who have made significant contributions to the field of science over time, understanding that science has been a quest for understanding for many years, and will continue to be so in the future. They will build a body of key foundational science knowledge as they work through the curriculum, asking questions and developing a sense of curiosity about the world around us. Following the PKC Science curriculum will give children an introduction to fascinating content such as the inner workings of the human body, animals and the environments they live in, plants and their features, forces in nature, what lies beyond the visible and what lies beyond the planet we live on. Over time their knowledge will deepen moving from recognising and naming parts of the human body to understanding how our muscles work, how our blood moves around our body and how our nervous system helps us to interact with the world. Pupils will be encouraged to use the knowledge they learn in Science and apply it to investigations that test a theory or set out to answer a question. Importantly, substantive scientific knowledge is taught first, before our pupils are asked to undertake enquiry. This helps them to fully understand the elements of the enquiry first, and to make informed observations about the processes they see.

Gathering information, recording data, graphing data and interpreting findings are all essential skills that pupils will apply to new contexts as they work through the curriculum. **We make explicit links with our mathematical skills and knowledge.**

Enquiries include observing over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and researching using secondary sources. Scientific enquiries provide children with a wealth of opportunities, but first and foremost they will help to deepen understanding of the nature, processes and methods of science as a discipline and how it differs from other subjects they are studying. Our pupils will gain an understanding of the purpose and uses of science both today and in the future. Throughout the science curriculum, they are taught that scientific discoveries have been made since time began around the world. The children learn about the work of scientists such as Lewis Howard Latimer, who invented the carbon filament that allowed Edison's lightbulb to light up the world. In Year 5 children learn about Jabir ibn Hayyan who is thought to have invented a crucial tool for the distillation process: the alembic. In Year 1 children learn about their senses and reflect upon the challenges faced by Helen Keller who achieved a university degree despite being blind and deaf from her early childhood. Importantly in Science, over time, children learn about scientists and their search for the truth. They learn that the people who have contributed to science, from Ancient Baghdad to Ancient Rome and beyond, are diverse and many voices make up the story of science.

Mastery and depth of learning is defined as:

- Mastery (end of milestone): pupils meeting or mastering the end of key stage expectations and progress over time.
- Depth (day to day/across a year): pupils understanding lesson content well enough and being able to use and/or apply knowledge/skills

Nothing is learned unless it rests in long-term memories

