# Science Rationale

Our science curriculum ensures children are taught a body of knowledge which attempts to explain the world around them. Alongside this knowledge, we also teach skills and processes by which this knowledge is achieved and applied. This allows children to develop a scientific way of thinking and develop scientific curiosity and interest.

We believe that every child should learn about science in a way that is engaging and relevant throughout school. By the time they leave our school children have acquired knowledge and investigative skills to underpin their secondary education. It is important that children develop their love for science by seeing the relevance of science in their own lives and can imagine future science related careers based upon it.

**Learning Opportunities**

We plan units of work that will build on prior learning in order to construct a deeper understanding of scientific knowledge. In addition to this, enquiry skills are developed through the understanding of scientific methods, degrees of certainty and conducting investigations. We allow for prior knowledge to be revisited before introducing new ideas, and misconceptions are actively diagnosed and discussed. Knowledge is constantly retrieved using low stakes quizzes and teacher questioning.

Teachers use, White Rose Science which focuses on the acquisition of knowledge, leading to proving or inquiring investigations. The scheme also provides CPD and additional guidance for teachers which help provide the necessary subject knowledge, common misconceptions and knowledge of what the children have learnt up to this point.

**Progression**

Understanding of key ideas in science is built on across the key stages and a progression of skills allows pupils to move from early observations and exploration, to considered questioning and drawing out of ideas. Our science scheme sequences the substantive and disciplinary knowledge needed and each unit provides the teacher with an overview outlining what relevant knowledge the children have learnt up until this point. Our progression document (available on our website) also help ensure strong progression through the subject.

Our teaching sequence in science to enable progression is:

1. Start with what the children know, understand, are able to do and able to say. Revisit previous learning using Flashback 4 slides
2. Provide new knowledge and scientific concepts initially via knowledge organisers for each unit.
3. Specify key vocabulary to be used and its meaning.
4. Provide opportunities for the children to investigate in a variety of contexts.
5. Obtain and present evidence through observations, comparisons and collected data.
6. Consider and evaluate evidence making connections with scientific knowledge and understanding.

**Assessment**

Assessment in science is ongoing, learning always starts with the children's prior knowledge and any misconceptions children have. This is undertaken in several ways; teachers decide upon the most appropriate, age related way of obtaining the children's prior knowledge, mainly via Flashback 4 slides at the start of each lesson but also through starter quizzes or careful questioning around previously taught linked units.

During the unit teachers use formative assessment and the information gained from this will be used to identify misconceptions, inform planning for future lessons and to develop an understanding of how a pupil is attaining. At the end of each unit of work there is an end of unit assessment which is completed by pupils.