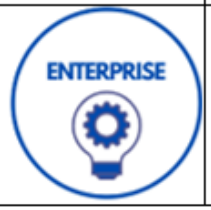
ANKERMOOR PRIMARY ACADEMY

Science Curriculum

Ankermoor Primary Academy Curriculum

Aim	**Learn together, achieve together** **At Ankermoor Primary Academy we intend that all pupils, regardless of background, develop the knowledge and character needed to flourish in life.** **We aim to 'inspire all to excellence'**							
Trust Vision	**Inspiring all to excellence**							
Trust Values	**We care** 		**We leave no-one behind** 		**We celebrate individuality** 		**We are brave** 	
Fundamental values	**High Expectations** 	**Perseverance** 	**Enjoyment** 	**Respect** 	**Trust** 		**Responsibility** 	
Big ideas	**A**	**N**	**K**	**E**	**R**	**M**	**O**	**O**	**R**
	Adventure	**Nature**	**Knowledge**	**Enterprise**	**Relationships**	**Movement**	**Observe Critically (evaluating)**	**Observe Thoughtfully (empathising)**	**Respect**
									

Curriculum Intent

Builds on our fundamental values of 'High Expectations, Perseverance, Enjoyment, Respect, Trust and Responsibility'.

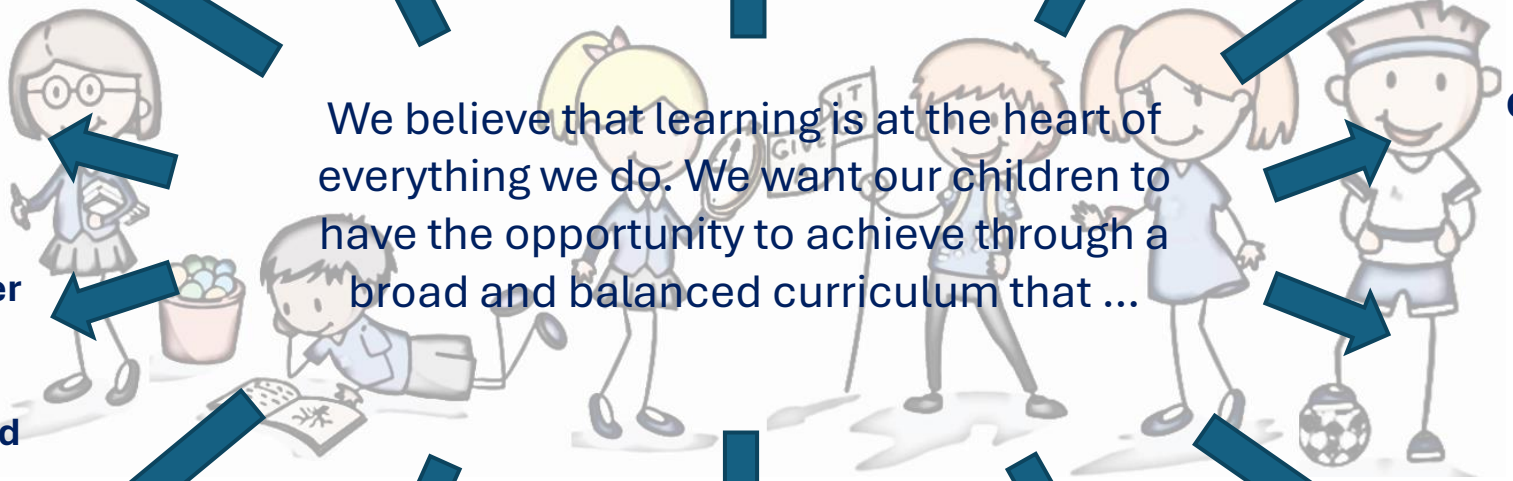
Promotes practical everyday life skills that prepares our children for the future.

Enables children to become active learners who are positively engaged in the acquisition of skills and knowledge.

Promotes creativity, curiosity, and confidence.

Allows children to be able to reflect on their learning and to improve their own work.

Promotes a life-long love of learning.



We believe that learning is at the heart of everything we do. We want our children to have the opportunity to achieve through a broad and balanced curriculum that ...

Secures knowledge and skills across all EYFS and National Curriculum subjects that build upon prior knowledge.

Enables children to offer opinions and reason articulately, whilst also being able to debate and disagree respectfully.

Builds character, resilience, self-motivation, and a will to succeed.

Raises aspirations and open's their eyes to a world beyond their immediate surroundings.

Develops a hunger for knowledge and to have the resilience necessary to tackle challenges and problems.

Prepares children to take risks and learn from their mistakes.

To enable children to develop as independent learners as well as being able to work collaboratively.

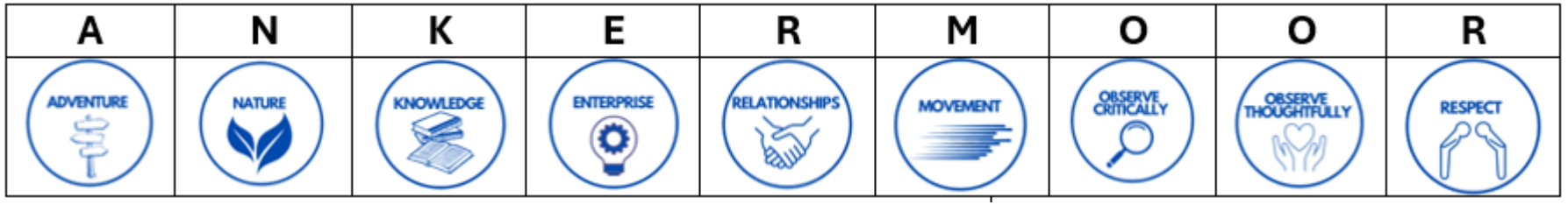
To provide opportunities for our children to learn in different ways and to have a wide variety of learning experiences.

Subject Specific Sequencing and Key Concepts:

Each subject has been planned to ensure that knowledge and skills are sequenced from Early Years to Year 6. Key Concepts are the subject specific '*Golden Threads*' that children will learn about, return to and revisit as they progress through our school. Our pupils will have opportunities to link new learning to prior knowledge thus building a rich and deep knowledge of these '*Golden Threads*' with each encounter. (*See Science long term plan with key concepts)*

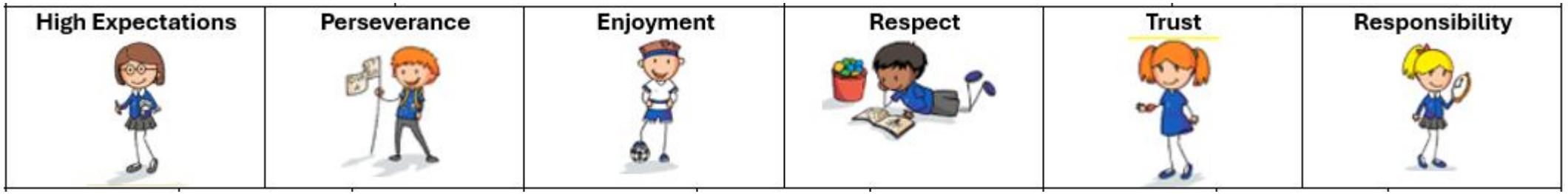
Big Ideas:

These are the overarching *'Ankermoor'* concepts that pupils can use and apply across different curriculum subjects. For example, in all areas of the curriculum, children will build an understanding of 'Observing Critically'; making observation in Science, identifying main ideas within a text in English, observing and critiquing artwork, analysing data sets in maths, evaluating historical sources, observing local ecosystems within Geography, self reflection and critical thinking in PSHE.

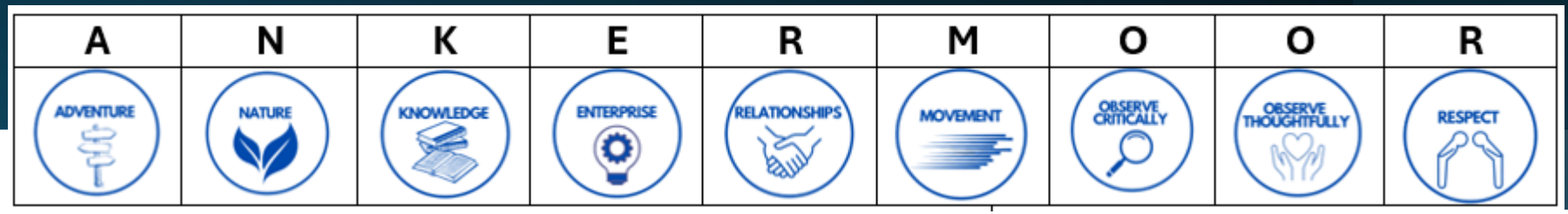


Character Virtues:

These are the underpinning qualities and character traits that we desire all of our children, and staff, to demonstrate.



IMPLEMENTATION – Our approach



Science at Anker Primary Academy, is taught by following the scheme of work from Kapow. We chose Kapow for our pupils as we believe that it supports our aim to build citizens of the world, our intrinsic values, virtues and 'Big Ideas'.

'Kapow Primary's Science curriculum aims to develop a sense of excitement and curiosity about natural phenomena and an understanding of how the scientific community contributes to the past, present and future.
The curriculum aims for pupils to develop a complex knowledge of biology, chemistry and physics but also adopt a broad range of skills in working scientifically and beyond. The scheme of work is inclusive and meaningful so all pupils may experience the joy of science and make associations between their science learning and their lives outside the classroom. Studying science allows pupils to appreciate how new knowledge and skills can be fundamental to solving arising global challenges. The curriculum aims to encourage critical thinking and empower pupils to question the hows and whys of the world around them.
The scheme encourages:

- *A strong focus on developing knowledge alongside scientific skills across biology, chemistry and physics.*
- *Curiosity and excitement about familiar and unknown observations.*
- *Challenging misconceptions and demystifying truths.*
- *Continuous progression by building on practical and investigative skills across all units.*
- *Critical thinking, with the ability to ask perceptive questions and explain and analyse evidence.*
- *Development of scientific literacy using wide-ranging, specialist vocabulary.' (Kapow)*

IMPLEMENTATION – Our approach

Science is split into the following strands:

- Scientific knowledge and understanding of:
  - biology: living organisms and vital processes;
  - chemistry: matter and its properties;
  - physics: how the world we live in 'works'.
- Working scientifically: processes and methods of science to answer questions about the world around us.
- Science in action: uses and implications of science in the past, present and for the future.

Each unit is based on one of the key science disciplines: biology, chemistry and physics. The National curriculum content has been grouped into six key areas of science to show progression throughout the school: Plants, Animals (including humans), Living things and habitats, Materials, Energy, Forces, Earth and space.

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant, specialist vocabulary, the Working scientifically skills are integrated with conceptual understanding rather than taught discretely to provide frequent but relevant opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and provide opportunities for full investigations.

Staff at Ankermoor Primary Academy create a positive attitude towards scientific learning both inside and outside the classrooms and promote the expectation that all children can achieve highly through adaptive teaching. Recall, repetition, modelling and practice are key facilitators used to support all children in their learning. Key vocabulary is an integral part of each unit of work, enabling children to have a greater understanding of important key concepts, '*Golden Threads*', thus enabling them to communicate scientific information.

EYFS Development Matters 2020: Understanding of the World

Understanding of the world involves guiding children to make sense of the physical world and their community. The frequency and range of children`s personal experiences increase their knowledge and sense of the world around them.- from visiting parks, libraries and museums to meeting important members of society. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support, understanding across domains. Enriching and widening children`s vocabulary will support later reading comprehension.

Key Stage National Curriculum Expectations: Science

Key stage 1:

Pupils should experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language and communicate their ideas to a range of audiences. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' must always be taught through and clearly related to the teaching of substantive science content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

Lower Key stage 2:

Pupils should broaden their scientific view of the world around them, through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language.

'Working scientifically' must always be taught through and clearly related to substantive science content. Scientific methods and skills can be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

Upper Key stage 2:

Pupils should develop a deeper understanding of a wide range of scientific ideas, through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. Pupils should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' must always be taught through and clearly related to substantive science content . Scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.

IMPACT– Our approach

At Ankermoor Primary Academy, we are determined that teaching and learning in all subjects is driven by our curriculum intent. Therefore, we monitor the impact of learning in each lesson through teacher observations, discussions, low-stake quizzes and work produced which is evidenced in children's books, displays.

Impact is also measured at the end of a unit of work through:

- the use of subject specific Assessment One Notes
- Internal and external picture building