

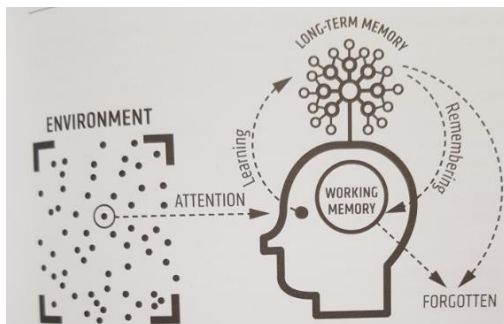
Science Curriculum Delivery Document

Intent	We take the National curriculum statements and provide an enhanced version of this which excites and encourages curiosity and inventiveness. Science is vital to our world's future prosperity and therefore children are the key to developing our future. We plan opportunities for children to ask and answer questions to develop scientific knowledge and to understand the nature, processes and methods of science. We map these into a coherent and sequential progression model that outlines the knowledge, skills and vocabulary needed at each stage that will build to clearly defined end points. Teachers take the progression grid and map this into a long term plan for their year group. Teachers then plan at a more detailed level the sequencing of content to be taught across each unit. Throughout these lessons, we plan to equip children with the scientific knowledge required to understand the uses and implications of science, today and for the future.
Implementation	We ensure that teachers of the subject have excellent subject knowledge, and leadership supports that acquisition of this for NQT and non-specialist teachers. We use resources such as Snap Science (KS1) and Reach Curriculum (KS2) to support the teaching of science. Subject matter is presented clearly, teachers carefully check learning and identify misconceptions, providing direct feedback. Teaching is designed to ensure children know more and remember more. Science is carefully resourced to ensure we have all the specialism and resources required to provide children with hands-on practical experiences. Children can make observations and test theories to find answers to their questions about the world around them. Children are given the opportunity to investigate in a team or independently to explain their ideas, predict what may happen and analyse the results. They work scientifically and use appropriate scientific vocabulary when talking about their ideas and findings. They present their findings through graphs, tables and conclusions.
Impact	Learners develop detailed scientific knowledge, skills and vocabulary. We check this through regular pupil voice and collecting evidence of outcomes which we measure against our age based progression grids. Pupils are well prepared at each stage to be ready for the next stage of learning. Children show a love of science and eagerness to find out more.

For detailed breakdown of this, please refer to the Intent, implementation and impact document.

How do we ensure that knowledge gained is transferred from working memory into long term memory?

Staff in school have based their strategies on Rosenshine's principles in action (bridging research and classroom practice):



What do our lessons look like			
Introduction	Teaching input	Pupil activity	Ongoing assessment
Daily review	Present new materials using small steps	Guide student practice	Ask questions
	Provide models	Obtain a high success rate	Check for student understanding
	Provide scaffolds for difficult tasks	Provide scaffolds for difficult tasks Independent practice	Weekly and Monthly Review

Strategies identified	What do we expect to see in our Science lessons?
Daily review	Academic or subject vocabulary that has been taught will be modelled throughout daily teaching and contact time, in both Science and wider curriculum lessons. Vocabulary flashcards, matching definitions, labelling diagrams and weekly/termly quizzes.
Present new materials using small steps	Short term planning activities break all material down into achievable, repeatable steps to build children's confidence, competence and retention.
Ask questions	Questions help students practice new information and connect new material to their prior learning. The teacher would question children around the specific knowledge and vocabulary they have been using in this and other modules.
Provide models	Expert teachers / peer models identified in the learning would exemplify the specific skills / knowledge required for the task. Where teachers are not confident to provide expert models, this is looked at in the regular Science subject skills audit organised by the Science leader. Videos and pictures from Snap Science/ Reach Curriculum can be used to model concepts and provide further information to analyse. Resources and equipment can be used to demonstrate and help support children's understanding.
Guide student practice	Successful teachers spend more time guiding students' practice of new material. It will be forgotten unless time is given for rehearsal. We revisit scientific knowledge in the knowledge progression over and over again, allowing children lots of chance to practice. This is always guided and supported by expert teaching. Misconceptions are addressed and re-taught where necessary.

Check for student understanding	Checking understanding at each point can help students learn the material with few errors. We would expect to see tasks / skills broken down into very small chunks, with regular assessment checking from teachers throughout.
Obtain a high success rate	In Science, we would expect to see that a skill is successfully taught before moving on. We take our time to achieve consistent success. For example, we would revisit any areas of difficulty and provide different teaching approaches and supportive material to help the child understand the concept in different situations.
Provide scaffolds for difficult tasks	The teacher provides students with temporary supports and scaffolds to assist them when they learn difficult tasks. So, for example, children may progress from high levels of adult support and resourcing to them becoming more proficient to independently undertake tasks within scientific themes. Initially, children may be given questions to find out and be supported in creating a fair test to answer this and then children will be able to use a fair test independently to answer their own questions and analyse the results.
Independent practice	Students should have the opportunity to practice regularly and independently to transfer the knowledge into their long-term memory. For example, children will practise and use scientific vocabulary and working scientific vocabulary throughout their science lessons including the daily review and any misconceptions will be addressed as necessary.
Weekly and Monthly Review	Students need to be involved in extensive practice in order to develop well connected and automatic knowledge. Weekly reviews can take place in Science lessons, where teachers return to knowledge learned in a previous unit, and following a period of forgetfulness the children use that knowledge again. Monthly reviews are planned in by the class teacher, where children undertake a task using knowledge from a previous unit after a month.

How we organise our learning journeys through the school

We then organise our units so that there is logical ordering, to ensure themes are developed over time. We cover the following domains, which are carefully organised so that children build up knowledge and skills needed over time, preparing them for the next stage of learning:		
Biology: Animals including humans Biology: Living things and their habitats Biology: Plants Biology: Evolution and inheritance	Chemistry: Materials (describing & using) Chemistry: Materials (changing) Chemistry: Materials (mixing, separating)	Physics: Forces Physics: Light Physics: Electricity Physics: Sound Physics: Earth and space