



Science

Intent, implementation and impact statement

This document outlines the intent and rationale behind the Science curriculum, how to deliver it and how to measure pupil progress. Use this information to help create the school's bespoke intent, implementation and impact statement.



The school's curriculum intent should take into consideration:

- The ethos, vision, and values of the school.
- The specific areas of development for the school.
- Relevant national strategies.
- Desired learning outcomes for the children.

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 Primary's Science scheme of work supports pupils in meeting the **Early Learning Goals** for Understanding the world (The Natural world) and the end of key stage attainment targets set out in the **National curriculum**.

Implementation

The implementation of the curriculum relates to how the learning is going to be delivered across the school, taking the intent of the learning and translating it into a progressive and effective curriculum.

When using a scheme, such as Kapow Primary, the majority of this aspect is taken care of.

To meet the aims of the **National curriculum** for science and in response to the **Ofsted research review: science**, Kapow has identified the following key 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.

Kapow Primary's Science scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promotes frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The **Science in action** strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing pupils to make connections and apply their science skills to other areas of learning.

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. As suggested in **Ofsted research review: science** (April 2021), 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.

Implementation

In EYFS (Reception), pupils build a solid foundation for science before transitioning to Key stage 1. Through hands-on exploration and focused observations, lessons spark curiosity and foster an early appreciation for the natural environment, paving the way for more structured scientific learning in Key stage 1.

Each year group has an optional exploratory unit called 'making connections' that delves beyond the statutory curriculum. This unit assimilates prior knowledge and skills to evoke excitement and provide an additional method of assessing scientific attainment.

Lessons incorporate various teaching strategies, from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles. In Year 1, the transition into the Key stage is eased by providing a selection of activities: some adult-led, some independent tasks and some that can be used during continuous provision to suit your set-up.

Guidance for adapting the learning is available for every lesson to ensure that all pupils can access it and opportunities to stretch their learning are available when required. Knowledge organisers for each unit help to identify key learning and vocabulary and can be useful as an adaptive teaching tool or to revise learning from the unit.

Strong subject knowledge is vital for staff to deliver a highly effective and robust science curriculum. Each unit of lessons includes teacher videos and resources to develop subject knowledge, target fundamental misconceptions effectively and support ongoing CPD. Kapow has been created to build confidence amongst non-specialist primary teachers who are required to deliver and assess the full science curriculum and maximise pupil progression. Videos created by subject specialists feature troubleshooting advice for practical work that does not go to plan, suggested questioning and support for tackling misconceptions and recordings of practical tasks that can be utilised as demonstrations in the classroom or to support pupil reflection on their own observations.

Useful documentation to support implementation:

Kapow's [National curriculum coverage document](#) shows which of the units cover each of the **National curriculum** attainment targets and the strands within them.

Kapow's [Progression of skills and knowledge](#) shows the skills and key knowledge taught within each year group and how these skills develop year on year to ensure attainment targets are securely met by the end of the key stage.

The impact relates to how staff identify that the curriculum is positively impacting pupils' learning, how to identify gaps in the learning and how to fill these.

The impact of Kapow Primary's Science scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives and any relevant scientific enquiry skills. Furthermore, each unit has a unit quiz and a knowledge and skills catcher, which can be used at the beginning or end of the unit to provide a summative assessment. Opportunities for pupils to communicate using scientific vocabulary will also form part of the assessment process in each unit.

After implementing Kapow Primary Science, pupils should leave school equipped with the requisite skills and knowledge to succeed in science at Key stage 3. They will have the necessary tools to confidently and meaningfully question and explore the world around them and critically and analytically experience and observe phenomena. Pupils will understand the significance and impact of science on society.

The expected impact of following the Kapow Primary Science scheme of work is that pupils will:

- Develop early scientific thinking skills through hands-on exploration and sensory experiences in EYFS (Reception).
- Develop a body of foundational knowledge for the biology topics in the **National curriculum**: Plants; Animals, including humans; Living things and their habitats; and Evolution and inheritance.
- Develop a body of foundational knowledge for the chemistry topics in the **National curriculum**: Everyday materials; Uses of everyday materials; Properties and changes of materials; States of matter; and Rocks.
- Develop a body of foundational knowledge for the physics topics in the **National curriculum**: Seasonal changes; Forces and magnets; Sound; Light; Electricity; and Earth and space.
- Evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions.
- Identify and use equipment effectively to accurately gather, measure and record data.
- Be able to display and convey data in a variety of ways, including graphs.
- Analyse data to identify, classify, group and find patterns.
- Use evidence to formulate explanations and conclusions.
- Demonstrate scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.
- Understand the importance of resilience and a growth mindset, particularly in reference to scientific enquiry.
- Meet the end of key stage expectations outlined in the **National curriculum** for science.

Include a paragraph that explains your assessment models (AfL), tracking and evidencing progress processes in Science.