

Science: Substantive and Disciplinary Knowledge Progression

Based on the Kapow Primary Science Scheme

Acomb First School

Curriculum Intent

Through science, pupils develop a secure understanding of the world around them through the disciplines of biology, chemistry and physics. The curriculum develops curiosity, scientific knowledge and enquiry skills, enabling pupils to ask questions, investigate phenomena, analyse evidence and draw conclusions. Using the Kapow scheme, pupils build knowledge progressively while working scientifically to think and act like scientists.

Substantive and Disciplinary Knowledge

Substantive Knowledge: The scientific facts, concepts, vocabulary and theories that pupils learn about biology, chemistry, physics and Earth science.

Disciplinary Knowledge: The knowledge and skills pupils use when working scientifically, including questioning, observing, investigating, testing, recording, analysing and evaluating evidence.

Phase	Substantive Knowledge	Working Scientifically	Evidence & Evaluation
EYFS	Living things, materials, seasons and the natural world	Observe closely and ask questions	Talk about what they notice
KS1	Plants, animals, materials, weather and seasonal change	Observe, identify, compare and classify	Record findings and answer questions
LKS2	Forces, light, rocks, plants, animals and states of matter	Plan enquiries and conduct fair tests	Use results to explain ideas
UKS2	Evolution, inheritance, electricity, Earth and space, forces	Select enquiry types independently	Interpret data and evaluate evidence

Progression of Substantive Knowledge

EYFS

- Exploring the natural world
- Living things and their habitats
- Materials and their properties
- Weather and seasonal change

- Growth and change

KS1

- Plants and animals including humans
- Everyday materials
- Seasonal changes
- Habitats and food chains
- Basic scientific vocabulary

LKS2

- Rocks and soils
- Forces and magnets
- Light and shadows
- States of matter
- Living things and classification

UKS2

- Electricity
- Earth and space
- Evolution and inheritance
- Forces
- Properties and changes of materials

Progression of Disciplinary Knowledge

Stage	Question	Observe	Investigate	Record	Conclude
EYFS	Ask simple questions	Observe closely	Explore materials and living things	Talk and draw findings	Share observations
KS1	Ask testable questions	Make observations	Carry out simple tests	Use tables and pictures	Answer questions using evidence
LKS2	Develop scientific questions	Measure accurately	Plan fair tests	Use charts and tables	Identify patterns and relationships
UKS2	Generate lines of enquiry	Use precise observations and measurements	Select appropriate enquiry types	Present data systematically	Evaluate evidence and justify conclusions

Golden Threads

- Curiosity
- Observation
- Evidence

- Enquiry
- Classification
- Change
- Cause and Effect
- Pattern Seeking
- Scientific Vocabulary
- Working Scientifically

End of Phase Expectations

EYFS: Explore the natural world, observe changes and ask questions about what they notice.

KS1: Use observations and simple tests to identify, compare and classify scientific phenomena.

LKS2: Use scientific enquiry to investigate questions and explain findings using evidence.

UKS2: Apply scientific knowledge and enquiry skills to analyse evidence, draw conclusions and evaluate investigations.