



Science Curriculum Overview





Science at Bridge Junior School

Science helps children interpret, understand and value the world around them. Through memorable practical experiences, they build secure knowledge, ask thoughtful questions and learn to investigate ideas using careful observation and evidence.

Curious about the world

Children begin with their own experiences and questions. Teaching broadens horizons, develops inquisitive minds and helps pupils connect classroom learning with science in everyday life.

Secure scientific knowledge

Across biology, chemistry and physics, children revisit important ideas and acquire the vocabulary needed to explain living things, materials, forces, energy, Earth and space.

Work scientifically

Children ask relevant questions, choose enquiries, use equipment, plan fair tests, measure and observe, record data, identify patterns, draw conclusions and evaluate evidence.

Science gives children confidence to test ideas and explain what they find. By the end of Year 6, they are prepared for Key Stage 3 and can apply scientific thinking to the wider world.



What we want our children to know...

Big Ideas

Children meet important ideas again and again:

- living things and human health
- habitats, life cycles and inheritance
- materials, states and changes
- forces, light, sound and electricity
- Earth, Moon and the solar system
- patterns, relationships and cause
- evidence, explanation and reliability

Knowledge

Children develop a connected grounding in biology, chemistry and physics. Units build progressively from skeletons, rocks, plants and magnets to circulation, classification, evolution, electrical systems and independent investigation.

Skills

Children ask questions, recognise different enquiry types, plan comparative and fair tests, control variables, observe and measure accurately, present data, identify patterns, conclude, predict and evaluate.



How we teach Science at Bridge...

Science is taught in six flexible six-week blocks. Children revisit prior learning, investigate first-hand and make increasingly precise, independent decisions from evidence.

1

Remember

Children retrieve key ideas and technical vocabulary, then connect them with observations and experiences from earlier learning.

2

Ask a question

Children notice patterns or problems, ask relevant questions and decide which kind of scientific enquiry could answer them.

3

Plan an enquiry

Children choose equipment, identify what to change and keep the same, predict outcomes and plan how to gather useful evidence.

4

Measure

Children observe safely and take accurate measurements using standard units.

5

Explain and reflect

Children record and present data, identify patterns, draw conclusions, use evidence to explain ideas and suggest improvements or further questions.

Connected learning

Units are timed for effective seasonal study and link meaningfully with other subjects—for example, Year 3 Rocks and Soil complements Geography learning about rivers.

Practical experiences

Children learn through weekly practical lessons, fair and comparative tests, close observation, models, classification, data logging and investigations given the time they need.



How we know that our children are doing well...

They recall

Children remember connected knowledge from biology, chemistry and physics and use precise scientific vocabulary with growing confidence.

They investigate

Children ask questions, select suitable enquiries, plan fair tests, recognise variables and use equipment safely and increasingly independently.

They use evidence

Children observe carefully, measure accurately, repeat readings where appropriate and record complex results using well-chosen tables, diagrams and graphs.

They explain

Children identify patterns and relationships, draw conclusions, make predictions, explain causal links and evaluate the reliability of methods and results.

What teachers check

Teachers use retrieval, questioning, discussion, observation of practical work, scientific records, conclusions, pupil voice and subject-leader monitoring to see how knowledge and enquiry skills develop.

What success looks like

Children become curious, knowledgeable scientists. They make links, use vocabulary accurately, choose and carry out investigations, reason from evidence and leave ready for further science at Key Stage 3.



TERM PLAN

Science Units at Bridge...

Year Group	Units 1–2	Units 3–4	Units 5–6
Year 3	Skeletons Rocks and Soil	Units 3–6 Forces and Magnets · Teeth and Healthy Eating · Plants · Light	
Year 4	Habitats States of Matter	Sound Working Scientifically	Digestion Electricity
Year 5	Earth and Space Living Things and Their Habitats	Properties and Changes in Materials Forces	Life Cycle of Plants Properties and Changes in Materials
Year 6	Electricity Health and Circulatory Systems	Classification of Living Organisms Light	Evolution and Inheritance Embedding Investigation Skills

Why it is sequenced this way?

Six blocks each year build connected knowledge across biology, chemistry and physics. Topics such as Plants and Light are placed at effective times of year, while Working Scientifically is developed through every unit and culminates in independent investigation.



What children learn about in each year group...

Year 3

Skeletons

Children identify bones, joints and muscles and explain how skeletons support, protect and enable movement.

Rocks and Soil

Children compare rocks by appearance and properties, explain fossil formation and describe soil as rock particles mixed with organic matter.

Forces and Magnets

Children compare movement on surfaces, explore contact and magnetic forces, classify magnetic materials and predict attraction or repulsion.

Teeth and Healthy Eating

Children identify types and functions of teeth, relate animal teeth to diet and explain how food choices affect dental health.

Plants

Children learn the functions of plant parts, investigate growth requirements and water transport, and explain pollination, seed formation and dispersal.

Light

Children explain light and darkness, reflection and eye safety, investigate shadows and identify patterns in how shadow size changes.

Year 4

Habitats

Children group living things, use classification keys, compare vertebrates and recognise how environmental change can endanger life.

States of Matter

Children group solids, liquids and gases and investigate how heating and cooling cause changes of state.

Sound

Children connect sound with vibration, explain how vibrations travel and investigate patterns in pitch, volume and distance.

Working Scientifically

Children plan a question-led enquiry, select tools, measure carefully, present evidence, conclude and suggest improvements.

Digestion

Children sequence and model the digestive system and explain the roles of the mouth, oesophagus, stomach, liver and intestines.

Electricity

Children build simple series circuits, identify components, test complete loops and switches, and recognise conductors and insulators.



What children learn about in each year group...

Year 5

Earth and Space

Children describe the Sun, Earth and Moon as spherical bodies, model their relative movement and use Earth's rotation to explain day, night and time zones.

Living Things and Their Habitats

Children compare life cycles of mammals, amphibians, insects and birds and explain sexual and asexual reproduction in plants.

Properties and Changes in Materials

Children compare properties, explain suitable uses, investigate dissolving and separation, and distinguish reversible from irreversible changes.

Forces

Children explain gravity and investigate air resistance, water resistance and friction, then explore how levers, pulleys and gears multiply effects.

Life Cycle of Plants

Children revisit plant reproduction and life cycles, using observation and evidence to deepen and connect biological understanding.

Materials Revisited

A second materials block consolidates testing, evidence, separation and change so pupils can apply the ideas with greater independence.

Year 6

Electricity

Children use recognised circuit symbols and explain how cell number and voltage affect brightness, loudness and switch behaviour.

Health and Circulatory Systems

Children identify the circulatory system, explain the functions of heart, blood and vessels and examine how lifestyle affects the body.

Classification of Living Organisms

Children classify plants, vertebrates, invertebrates and micro-organisms using observable characteristics, similarities and differences.

Light

Children explain that light travels in straight lines, describe how objects are seen and use the model to explain shadow shape.

Evolution and Inheritance

Children use fossils as evidence of change, explain variation and inheritance, and describe how adaptation can lead to evolution.

Embedding Investigation Skills

Children choose an enquiry question, control variables, select precise equipment, present data, identify relationships and evaluate reliability.



Connections across our Science curriculum...

Science connects classroom knowledge with children's lives, other subjects and carefully chosen experiences so that ideas are meaningful and memorable.

1

Everyday life

Children use science to understand their bodies, food, materials, electricity, light, sound and the natural and human-made world around them.

2

Rivers and rocks

Year 3 studies Rocks and Soil alongside Geography learning about Rivers, giving physical geography a secure scientific foundation.

3

Seasonal study

The sequence places topics such as Plants and Light at effective times of year so observation and practical work are authentic.

4

Equipment and data

Thermometers, data loggers and other scientific equipment help pupils measure accurately, record information and notice patterns.

5

Across subjects

Teachers create meaningful curriculum links so children can apply scientific vocabulary, evidence and explanation in different contexts.

6

Preparing for KS3

Progressive knowledge and Working Scientifically give children a strong foundation for secondary science and informed everyday decisions.



Vocabulary for new to English learners...

These high-utility words help pupils take part in Science lessons. They support questioning, practical investigation, evidence and explanation across every unit.

QUESTION WORDS

what	question
why	find out
how	explain
which	reason
when	idea

ACTION WORDS

measure
test
compare
record
present
identify
find
repeat

EVIDENCE WORDS

result
data
pattern
change
same
different
cause

EQUIPMENT

ruler
timer
scale
container
wire
bulb
lens
magnet
chart

SCIENCE WORDS

living
material
force
energy
light
sound
electricity
Earth
change

SPEAKING STEMS

I predict...
I observed...
The data shows...
This happened because...
My evidence is...



Vocabulary across the school...

Stage	Year and topic	Scientific vocabulary	Working scientifically
Year 3	Bodies, health and plants	skeleton, joint, muscle, nutrition, tooth, roots, stem, pollination	question, observe, compare, classify, measure
	Rocks, forces and light	rock, soil, fossil, force, friction, magnet, reflect, opaque, shadow	equipment, standard unit, record, table, result
Year 4	Living things and digestion	habitat, environment, vertebrate, classification key, digestive system	systematic, careful, evidence, explain
	States of matter	solid, liquid, gas, heating, cooling, temperature, change of state	fair test, variable, thermometer, data logger
	Sound and electricity	vibration, medium, pitch, volume, circuit, cell, conductor, insulator	pattern, conclusion, predict, improve
Year 5	Earth and living things	orbit, rotation, solar system, life cycle, reproduction, sexual, asexual	plan, control, repeat reading, precision
	Materials and change	property, hardness, soluble, solution, filter, evaporate, reversible, irreversible	comparative test, evidence, justify, reliability
	Forces	gravity, air resistance, water resistance, friction, lever, pulley, gear	relationship, prediction, accuracy, evaluate
Year 6	Living things and evolution	organism, micro-organism, classification, offspring, variation, adaptation, evolution	enquiry question, method, variable, justify
	Circulation, electricity and light	heart, blood vessel, circulation, voltage, circuit symbol, reflection, light ray	causal relationship, precise, repeat, trust
	Independent investigation	hypothesis, evidence, reliability, accuracy, conclusion, scientific understanding	select, control, record, analyse, evaluate



How scientific enquiry builds over time...

Year Group	Strand	Building understanding	Building independence
Year 3	Questions and tests	Relevant questions can be answered through different enquiries	Begin to ask questions and set up comparative or fair tests with support
	Observe and record	Systematic observation and standard units produce useful evidence	Use a limited range of equipment; classify and record in diagrams, keys, charts and tables
Year 4	Plan and measure	A fair enquiry controls what changes and uses accurate measurement	Choose an enquiry; plan fair or comparative tests; select suitable equipment
	Present and conclude	Different displays reveal patterns and support conclusions	Choose ways to present data; explain results; predict new values
	Review	Evidence can support findings and methods can be improved	Explain improvements, raise further questions and compare changes or similarities
Year 5	Variables and precision	Controlled variables and repeated readings increase confidence	Plan enquiry types; recognise variables; measure with increasing accuracy and precision
	Complex evidence	Scientific diagrams, keys and graphs communicate more complex data	Select tables, scatter graphs, bar or line graphs and present conclusions clearly
	Predict and evaluate	Test results support further predictions and arguments	Use results to set up further tests and identify evidence that supports or refutes ideas
Year 6	Independent planning	Reliable enquiries control variables and match equipment to the question	Justify a question, control variables and select precise equipment and repeat readings
	Analyse and explain	Patterns and relationships support causal scientific explanations	Choose and justify recording methods; explain conclusions and degree of trust
	Evaluate and extend	Methods, data and changing ideas can all be critically reviewed	Evaluate reliability, explain decisions and use evidence to propose further enquiry



HOME LINKS

Science at home...

Notice science

Notice light and shadows, plants, weather, cooking, movement, sound, materials and electrical devices. Encourage children to describe what changes and what stays the same.

Ask and predict

Turn everyday observations into questions: What might happen? Why? Which factor could we change? Ask children to predict and explain their reasoning before checking.

Measure and record

Use safe household tools such as a ruler, timer or kitchen scale. Record results in a simple table, repeat a measurement and look for patterns together.

Explore safely

Try small, supervised investigations with ice, water, magnets, torches, plants or dissolving. Adults should supervise heat, electricity, sharp tools and unknown substances.

Support curiosity

Value a thoughtful question as much as a correct answer. Let children explain ideas in their first language, change their mind when evidence changes and learn from results they did not expect.

Useful questions

What do you notice? What do you predict? What will you change or keep the same? How could you measure it? What does your evidence show? How reliable is it?