



Brookside Primary School
Learn Together - Achieve Together

Teaching of Science at Brookside Primary School



**The intent, implementation and impact for the
learning of Science at Brookside Primary School**

Why is Science important at Brookside Primary School?

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.

Through our working scientifically curriculum, children glean skills to enable them to become life-long learners.

What are the key knowledge concepts in Science at Brookside Primary School?

Working scientifically	Plants	Animals and including Humans
Understanding Questioning and researching Observing over time Comparative fair testing Pattern seeking Classifying and grouping	Plants around us Plants that benefit us Life cycles Reproduction Environmental change	Senses Healthy eating and exercise Skeletons, muscles and circulation Teeth and digestion Human development
Everyday Materials	Living Things	Physical World
Labelling Properties and uses Changing shape States of matter	Classifying and sorting Food chains Environmental factors Habitat	Rocks and Soils Light Forces Electricity

What are the key Science subject skills?

- Being curious and ask questions about what they notice.
- Developing their understanding of scientific ideas.
- Using different types of scientific enquiry to answer their own questions.
- 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.
- Using simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.
- Using scientific equipment and resources in a safe and knowledgeable way.
- Understanding resilience in Science.

How does Brookside Primary School ensure progression in our key knowledge and concepts in Science?

- Knowledge taught becomes more in depth.
- Increasing complexity of language and precision expected.
- Pupils demonstrate their knowledge and understanding as a scientist through investigations.
- Assessments are made at the end of each unit of work
- Whole school progression document for working scientifically and subject fluency to ensure knowledge and skills are built on.

How do we know our children have made progress?

End points FS

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Unit Overview	AUTUMN		SPRING		SUMMER	
	Year A	Year B	Year A	Year B	Year A	Year B
Snowy Year 1/2	Who am I?	Healthy me	Polar places	Squash, bend, twist and stretch	On safari	Young Gardeners
	Celebrations	Materials monster	Plants and animals	Our local environment	Holiday	Little Masterchefs
Tawny Year 2/3	Rocks, soils and fossils	Healthy me	Light and shadows	Squash, bend, twist and stretch	Forces and magnets	Young Gardeners
	Food and our bodies	Materials monster	How does your garden grow?	Our local environment	The nappy challenge	Little Masterchefs
Barn Year 3/4	Rocks, soils and fossils	What's that sound?	Light and shadows	Looking at states	Forces and magnets	Power it up
	Food and our bodies	Living things	How does your garden grow?	Teeth and eating	The nappy challenge	The big build
Eagle Year 4/5	Out of this world	What's that sound?	Circle of life	Looking at states	Growing up and growing old	Power it up
	Materials world	Living things	Let's get moving	Teeth and eating	Amazing changes	The big build
Bay Year 5/6	Out of this world	Classifying living things	Circle of life	Evolution and inheritance	Growing up and growing old	Electricity
	Material world	Healthy bodies	Let's get moving	Light	Amazing changes	The Titanic

EACH YEAR WE WILL CONSIDER THE COHORTS AND MAY ALTER IF TEACHING A OR B AS NECESSARY TO ENSURE THE BEST OUTCOMES FOR ALL OUR PUPILS

Vocabulary lists for each Rising Stars unit taught:

Year group	AUTUMN		SPRING		SUMMER	
Year 1	Who am I? <ul style="list-style-type: none"> • Ankle • Backbone • Cheek • Earlobe • Elbow • Eye socket • Feet • Hips • Joints • Nails • Neck • Ribs • Thigh • Tongue • Vertebrae • Wrist • Senses • Touch • Taste • Hear • Feel • Smell 	Celebrations <ul style="list-style-type: none"> • Candle • Flame • Heat • Dark • Eat • Food • Light • Light source • Loud • Music • Opaque • Plant • Quiet • Shadow • Sound • Transparent • Translucent • Vibrate 	Polar places <ul style="list-style-type: none"> • Habitat • Polar • Arctic • Antarctic • Freeze • Frozen • Carnivore • Omnivore • Herbivore • Animals • Birds • Reptiles • Mammals • Amphibians • Waterproof • Flexible <p>SEASONAL CHANGES ACTIVITIES</p>	Plants and animals <ul style="list-style-type: none"> • Amphibians • Animal • Birds • Deciduous • Evergreen • Coniferous • Fish • Flowers • Identify • Mammal • Plant • Reptile • Stem • Common • Trunk • Blossom • Fruit • Roots • Branch • Stem • Bulb • Petal 	On safari <ul style="list-style-type: none"> • Abdomen • Animal • Antennae • Body • Exoskeleton • Food chain • Habitat • Head • Insect • Invertebrate • Legs • Move • Observe • Thorax • Vertebrate 	Holiday <ul style="list-style-type: none"> • Animal • Beach • Crab • Fish • Habitat • Litter • Pollution • Rock pool • Rubbish • Sand • Sea • Seashore • Shell • Sunglasses • Sun screen • Sun burn • Marine biologist

Year 2	Healthy me Air Disease Exercise Food Germs Healthy Hygiene Hygienic Fitness	Materials monster <ul style="list-style-type: none"> • Bendy • Fabric • Flexible • Material • Metal • Opaque • Plastic • Properties • Rock • Shiny • Dull • Squash • Stretch • Translucent • Transparent • Twist • Wood • Glass • Hard • Soft • Waterproof • Rough • Smooth • Absorbent 	Squash, bend, twist and stretch <ul style="list-style-type: none"> • Bend • Direction • Force • Move • Pull • Push • Squash • Squeeze • Stretch • Twist • Change 	Our local environment <ul style="list-style-type: none"> • Alive • Animals • Carnivore • Dead • Difference • Food chain • Habitat • Herbivore • Living • Micro-habitat • Omnivore • Plants • Predator • Prey • Seasons • Changes • Day length • Conditions • Weather 	Young Gardeners <ul style="list-style-type: none"> • Bulbs • Germinate • Germination • Grow • Light • Plat • Seeds • Temperature • Water • Shelter • Reproduction 	Little Masterchefs <ul style="list-style-type: none"> • Air • Balanced diet • Bread • Diet • Food • Fruit • Healthy • Hygiene • Ingredients • Vegetables • Water
	Rocks, soils and fossils	Food and our bodies	Light and shadows	How does your garden grow?	Forces and magnets	The nappy challenge

Year 3	<ul style="list-style-type: none"> • Crystals • Extinct • Fossils • Humus • Igneous • Impermeable • Magma • Metamorphic • Mineral • Palaeontologist • Palaeontology • Permeable • Rock • Sediment • Sedimentary • Soil • Similarities • Differences 	<ul style="list-style-type: none"> • Balanced • Carbohydrates • Biceps • Contract • Diet • Exoskeleton • Femur • Humerus • Joint • Muscle • Nutrients • Protein • Relax • Skeleton • Triceps • Vertebrate • Nutrition 	<ul style="list-style-type: none"> • Description • Dull • Explanation • Light source • Mirror • Observation • Opaque • Reflect • Shadow • Shiny • Translucent • Transparent • Dark 	<ul style="list-style-type: none"> • Carpel • Flower • Germinate • Leaves • Life cycle • Nutrient • Ovary • Ovule • Root • Stem • Leaf • Root • Flower • Pollination • Seed • Dispersal 	<ul style="list-style-type: none"> • Attract • Compass • Contact • Iron • Magnet • Magnetic • Magnetic north • Non-contact • Non-magnetic • Pole • Prediction • Repel • South 	<ul style="list-style-type: none"> • Absorb • Absorbent • Disposable • Elastic • Faeces • Liquid • Material • Cloth • Cotton • Nappy • Plastic • Properties • Urine • Velcro • Waterproof • Wood pulp
Year 4	What's that sound? <ul style="list-style-type: none"> • Decibels 	Living things <ul style="list-style-type: none"> • Centipede 	Looking at states <ul style="list-style-type: none"> • Boiling 	Teeth and eating <ul style="list-style-type: none"> • Canine 	Power it up <ul style="list-style-type: none"> • Appliances 	The big build <ul style="list-style-type: none"> • Build

	<ul style="list-style-type: none"> • Pitch • Sound • Sound source • Vibrate • Vibration • Vibrating • Volume • Ear • Hearing • Muffle • Instrument • 	<ul style="list-style-type: none"> • Classify • Classification • Bird • Fish • Flowering • Habitat • Insect • Invertebrate • Keys • Mammal • Organism • Reptile • Vertebrate • Amphibian • Environment • Food chain • Producer • Predator • Prey 	<ul style="list-style-type: none"> • Boiling point • Condense • Condensation • Condensing • Evaporate • Evaporation • Freeze • Freezing point • Gas • Liquid • Solid • Matter • Material • Melting • Melting point • Temperature • Thermometer • The water cycle • Precipitation 	<ul style="list-style-type: none"> • Carnivores • Anus • Decay • Digestion • Enamel • Energy • Herbivore • Incisor • Intestine-large and small • Molar • Pre molar • Mouth • Nutrients • System • Oesophagus • Omnivore • Stomach • Rectum • Plaque • Cavities 	<ul style="list-style-type: none"> • Battery • Bulb • Buzzer • Cell • Circuit • Components • Electricity • Conductor • Insulator • Mains • Metal • Rechargeable • Series circuit • Switch • Terminal • Wire • Terminals 	<ul style="list-style-type: none"> • Bridge • Construction • Construct • Structure • Tower • Strength • Stability • Engineer • Materials
Year 5	Out of this world <ul style="list-style-type: none"> • Daytime • Geocentric • Heliocentric 	Material world <ul style="list-style-type: none"> • Dissolve • Elastic 	Circle of life <ul style="list-style-type: none"> • Asexual reproduction • Bulb 	Let's get moving <ul style="list-style-type: none"> • Air resistance 	Growing up and growing old <ul style="list-style-type: none"> • Adolescence • Adolescent 	Amazing changes <ul style="list-style-type: none"> • Acid • Burning • Irreversible

	<ul style="list-style-type: none"> • Night-time • Orbit • Plant • Solar system • Star • Sun • Time zone • Seasons • Rotate • Axis • Spherical • Solar 	<ul style="list-style-type: none"> • Electrical/thermal conductor • Evaporate • Filter • Flexible • Hard • Insoluble • Mixture • Plastic • Resistant • Rigid • Soluble • Solution • Solvent • Thermal/electrical insulator • Reversible • Irreversible • Burning 	<ul style="list-style-type: none"> • Female • Fertilisation • Gestation • Larva • Male • Metamorphosis • Ovary • Pistel • Pollen • Pollinate • Pollination • Sperm • Insect • Bird • Amphibian • Mammal • Egg • Embryo 	<ul style="list-style-type: none"> • Water resistance • Force meter • Friction • Gravity • Newton • Magnetism • Reliable • Resistance • Weight • Force • Levers • Pulleys 	<ul style="list-style-type: none"> • Arthritis • Gestation period • Life expectancy • Puberty • Teenager • Changes • Life cycle • Baby • Toddler • Child • Pregnant • Menstruation 	<ul style="list-style-type: none"> • Material • Reaction • Reversible • Soluble • Insoluble • Dissolve • Rust • Melt
Year 6	Classifying living things <ul style="list-style-type: none"> • Amphibian • Bacteria • Classification • Fungi 	Healthy bodies <ul style="list-style-type: none"> • Addiction • Artery • Aorta • Atrium • Blood 	Evolution and inheritance <ul style="list-style-type: none"> • Adaptation • Dinosaur • Evolution • Fossil 	Light <ul style="list-style-type: none"> • Eye • Image • Light • Mirror • Rays 	Electricity <ul style="list-style-type: none"> • Battery • Cell • Circuit • Complete • Current 	The Titanic <ul style="list-style-type: none"> • Buoyancy • Density • Dense • Float • Hypothermia

<ul style="list-style-type: none"> • Invertebrate • Kingdoms • Mammal • Microbe • Mould • Photosynthesis • Species • Vertebrate • Microorganism 	<ul style="list-style-type: none"> • Capillaries • Carbon dioxide • Deoxygenated • Exercise • Heart • Lungs • Oxygen • Pulse • Respiration • Vein • Ventricles • Circulation • System • Transport 	<ul style="list-style-type: none"> • Inherited • Inheritance • Natural selection • Prehistoric • Trait • Variety • Similarity • Difference 	<ul style="list-style-type: none"> • Reflect • Reflection • Shadow • Straight • Sun • Travel • Light source • Periscope • Rainbow • Pupil • Iris • Cornea 	<ul style="list-style-type: none"> • Electrons • Filament • Fuse • Resistor • Variable • Symbol • Brightness • Loudness 	<ul style="list-style-type: none"> • Iceberg • Sink • Thermal insulation • Upthrust
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Year group	Working scientifically vocabulary		Working scientifically vocabulary
Year 1	<ul style="list-style-type: none"> • Question • Observe • Record • Identify • Group • Sort • Chart 	Year 4	All previous years plus: <ul style="list-style-type: none"> • Relevant Questions • Research • Enquiry • Comparative • Data Logger • Classify • Conclusion • Explanation

			<ul style="list-style-type: none"> • Thermometer
Year 2	All previous years plus: <ul style="list-style-type: none"> • Data • Classify • Questioning • Predict • Diagram • Bar chart • Table 	Year 5	All previous years plus: <ul style="list-style-type: none"> • Predication • Plan • Variables • Observations • Record • Identify • Fair • Accurate • Scientific Diagrams • Classification keys • Present • Graphs (scatter, line, bar) • Conclusion
Year 3	All previous years plus: <ul style="list-style-type: none"> • Predication • Plan • Observations • Record • Fair • Accurate • Measurements • Keys • Diagrams • Graphs • Charts • Tables 	Year 6	All previous years plus: <ul style="list-style-type: none"> • Quantitative Measurements • Comparative • Systematic • Evidence • Refute • Degree of trust in results • Patterns • Interpret • Repeat • Precise • Explanation • Relationships

Science Plan

Curriculum: Rising stars switched-on-science

Please see the year group outline to teach as per year A and B.

Owl Class	Science Plan	
	Year A	Year B
EYFS	EYFS	EYFS
Snowy	Year 1	Year 2
Tawny	Year 3	Year 2
Barn	Year 3	Year 4
Eagle	Year 5	Year 4
Bay	Year 5	Year 6

How well do children learn Science at Brookside Primary School?

End of Year Assessments 2020/21

ALL pupils

Year	Emerging		Expected		Exceeding	
	Number	%	Number	%	Number	%
4						
5						
6						
All pupils						

Boys

Year	Emerging		Expected		Exceeding	
	Number	%	Number	%	Number	%
4						
5						
6						
All pupils						

Girls

Year	Emerging		Expected		Exceeding	
	Number	%	Number	%	Number	%
4						
5						
6						
All pupils						

Pupil Premium

Year	Emerging		Expected		Exceeding	
	Number	%	Number	%	Number	%
4						
5						
6						
All Pupils						



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Pupil Voice in Science

What have you learnt about in science so far this year?

Do you like learning about science?

How can we make science better at our school?

Do you think science is important?

Do you think science is important for your future?

How well do they learn	Date/s	Evidence
Pupil Voice		
Lesson Observations		
Children's Work		
End of Year Assessments		