



Our Science Golden Thread

Lindridge St Lawrence C of E Primary School
Happy Hearts, Open Minds, Bright Futures

Rooted in Our Core Values

Every scientific inquiry at Lindridge is guided by our Christian ethos:



Hesed (Steadfast Love):

Cultivating a deep care for God's creation, our environment, and each other through collaborative science.



Hamdah (Treasure & Delight):

Finding joy in discovery. Treating every scientific phenomenon as a treasure waiting to be uncovered.



Honesty (Truth):

Developing the integrity of a true scientist—recording fair tests, evaluating evidence, and seeking the truth.



Horizons (Looking Outward):

Expanding our minds to understand the wider world, preparing for a bright future of limitless possibilities.

Cultivating the Scientific Mind

Our Vision

Every child at Lindridge will know they are loved by God, have a happy heart, and be part of a flourishing school. When they leave us, they will be confident, equipped to meet challenges, and looking forward to their bright future with an open mind.

Our Science Aims

Inspire Curiosity: Spark a lifelong fascination with the world and its people.



Build Knowledge: Revisit fundamental concepts to embed learning through our Cycles.



Develop Enquiry: Ask questions, weigh evidence, and think critically.



Protect the Future: Understand human impact on the environment to create a strong moral compass for sustainability.



Experiencing Awe and Wonder

Spirituality is understanding that we are part of something bigger than ourselves.

In Science, we consistently look through the lens of awe and wonder.

1. **Connections:** We explore the intricate relationships we have with God, ourselves, and nature.
2. **Big Questions:** We provide the space to persistently ask 'How?' and 'Why?' about our place in God's world.
3. **Appreciation:** From the microscopic structure of a leaf to the vastness of the solar system, we marvel at the intricate design of the universe.





The Biological Thread: Living Things

This thread weaves through the natural world, teaching children how life adapts, grows, and thrives.

Key Concepts We Revisit:

Flora & Fauna

Identifying, naming, and classifying local and global plants and animals.

Habitats & Ecosystems

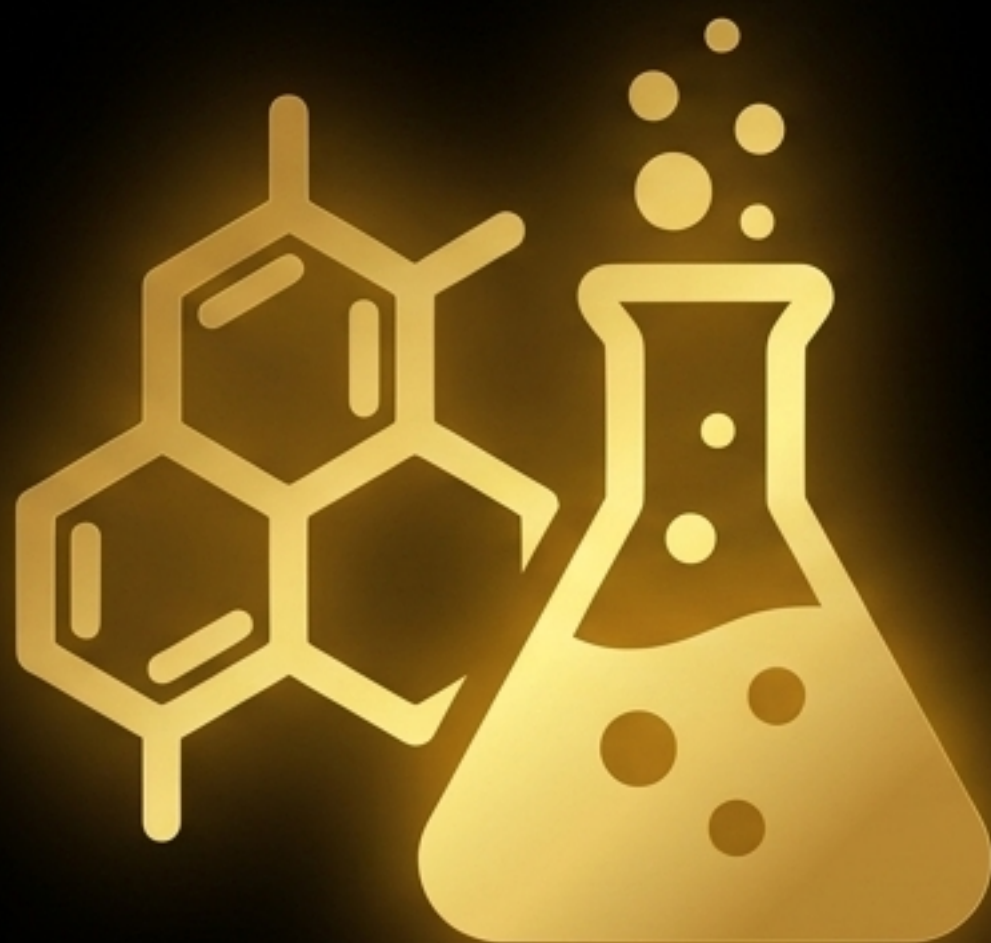
Understanding interdependence, micro-habitats, and the delicate balance of food chains.

Human Biology

Exploring our bodies, skeletons, muscles, and the vital importance of nutrition, hygiene, and exercise.

Evolution

Understanding adaptation, variation, inheritance, and how living things change over vast periods of time.



The Chemical Thread: Materials

This thread explores the substance of the universe, teaching children how matter behaves, changes, and reacts.

Key Concepts We Revisit:

Everyday Materials

Distinguishing between objects and the materials they are made from (wood, plastic, rock, metal).

Physical Properties

Investigating hardness, transparency, solubility, conductivity, and magnetism.

States of Matter

Grouping solids, liquids, and gases, and exploring the mechanics of the water cycle.

Changes

Testing what happens when materials are heated, cooled, mixed, or dissolved (categorising reversible and irreversible changes).



The Physical Thread: Physical Processes

This thread illuminates the invisible forces that govern our world and the universe beyond.

Key Concepts We Revisit:

Light & Sound

Understanding how light travels in straight lines, how shadows form, and how sound travels through physical vibrations.

Electricity

Building complete and complex series circuits, testing insulators/conductors, and understanding voltage.

Forces & Magnets

Investigating pushes, pulls, friction, gravity, water resistance, and magnetic poles.

Earth & Space

Exploring the spherical bodies of our solar system, orbits, and the Earth's rotation that creates day and night.

First Steps in Discovery: Hares Class (Reception)



Early Years Foundation Stage: Understanding the World

Unit: Similarities & Differences (Materials and Environment)

Substantive Knowledge:

1. We use all of our senses to explore natural materials and objects around us.
2. The natural world changes around us depending on the seasons (e.g., Autumn leaves, Winter ice).
3. Different animals and plants live in contrasting environments.
4. We must respect and care for all living things in our immediate environment.

Key Vocabulary:

Senses

Seasons

Environment

Material

Change

Weather

Living

Map



Building the Foundations: Hedgehogs Class (Y1/2)

Cycle A & B Overview

Unit: Properties of Materials

Knowledge: Objects are made of different materials; materials have physical properties (hard, soft, transparent); we can group them by properties; materials can change shape by bending or squashing.

Vocab: Wood, Plastic, Glass, Metal, Bend, Stretch.

Unit: Animals & Senses

Knowledge: Humans have five senses linked to body parts; animals can be carnivores, herbivores, or omnivores; humans need exercise and hygiene; some animals have exoskeletons/endoskeletons.

Vocab: Carnivore, Herbivore, Omnivore, Sight, Hearing.

Unit: Seasonal Changes

Knowledge: There are four distinct seasons; the weather changes with each season; day length varies across the year; seasons affect how plants and animals behave.

Vocab: Autumn, Winter, Spring, Summer, Weather, Day Length.

Unit: Plants & Habitats

Knowledge: Plants need water, light, and warmth to grow; there are deciduous and evergreen trees; a habitat provides food and shelter; food chains show how animals get energy.

Vocab: Deciduous, Evergreen, Habitat, Food Chain, Shelter.



Expanding Inquiries: Squirrels Class (Y3/4) – Cycle A

Unit: Rocks & Fossils

Knowledge: Rocks are naturally occurring or human-made; there are sedimentary, igneous, and metamorphic rocks; soils are made from rocks and organic matter; fossils form when living things are trapped in rock.

Vocab: Sedimentary, Igneous, Metamorphic, Fossil, Permeable.

Unit: Electricity

Knowledge: Appliances run on electricity; a complete circuit requires a battery, wires, and a component; switches open and close a circuit; metals are good conductors.

Vocab: Circuit, Component, Cell, Conductor, Insulator.

Unit: Teeth & Digestion

Knowledge: Humans have incisors, canines, and molars; different teeth cut, tear, or grind food; digestion begins in the mouth with saliva; nutrients are absorbed in the intestines.

Vocab: Incisor, Canine, Molar, Saliva, Intestine.

Unit: States of Matter

Knowledge: Materials are solids, liquids, or gases; materials change state when heated or cooled; evaporation turns liquid to gas; condensation turns gas to liquid.

Vocab: Solid, Liquid, Gas, Evaporation, Condensation.



Expanding Inquiries: Squirrels Class (Y3/4) – Cycle B

Unit: Light & Shadows

Knowledge: We need light to see; dark is the absence of light; light is reflected from surfaces; shadows form when opaque objects block light.

Vocab: Light Source, Opaque, Translucent, Transparent, Reflection.

Unit: Sound

Knowledge: Sounds are made by vibrations; vibrations travel through a medium to the ear; pitch is how high or low a sound is; sounds get fainter as distance increases.

Vocab: Vibration, Pitch, Volume, Medium, Faint.

Unit: Skeletons & Muscles

Knowledge: Humans and some animals have skeletons for support and protection; muscles contract and relax to create movement; animals need the right amount of nutrition; vertebrates have backbones.

Vocab: Skeleton, Muscle, Vertebrate, Invertebrate, Nutrition.

Unit: Forces & Magnets

Knowledge: Forces are pushes and pulls; friction affects how things move on surfaces; magnets attract magnetic materials; magnets have two poles that attract or repel.

Vocab: Force, Friction, Attract, Repel, Magnetic Pole.

Mastering the Concepts: Foxes Class (Y5/6) – Cycle A



Unit: Materials (Changes)

Knowledge: Materials can be grouped by hardness, solubility, and conductivity; dissolving and mixing are reversible changes; filtering and sieving separate mixtures; burning and acid reactions are irreversible new formations.

Vocab: Solubility, Conductivity, Reversible, Irreversible, Solution.

Unit: Circulatory System

Knowledge: The heart, blood vessels, and blood make up the circulatory system; the heart pumps oxygenated blood around the body; lungs are vital for respiration; diet and exercise impact heart function.

Vocab: Circulatory, Oxygenated, Respiration, Pulse, Nutrients.

Unit: Earth & Space

Knowledge: The Sun, Earth, and Moon are roughly spherical bodies; the Earth completes one orbit of the Sun per year; the Moon orbits the Earth; the Earth's rotation causes day and night.

Vocab: Spherical, Orbit, Rotation, Solar System, Axis.



Mastering the Concepts: Foxes Class (Y5/6) – Cycle B

Unit: Evolution & Inheritance

Fossils provide evidence of life millions of years ago; living things produce offspring that vary from their parents; animals and plants adapt to their environments; advantageous adaptations can lead to evolution over time.

Vocab: Evolution, Inheritance, Adaptation, Variation, Offspring, Fossilisation.

Unit: Complex Electricity

The brightness of a lamp relates to the number and voltage of cells in a circuit; components function differently based on circuit variables; scientists use recognised symbols to draw accurate circuit diagrams; systematic testing identifies circuit faults.

Vocab: Voltage, Symbol, Component, Diagram, System, Series Circuit.

Adaptive Teaching: Supporting Every Scientist

At Lindridge, we ensure all children access the same rigorous scientific objectives through robust adaptive teaching.

Scaffolding:
Breaking down complex scientific concepts into manageable, logical chunks.

Visual Resources:
Utilising word banks, diagrams, flashcards, and software (like Clickr and Widgit) to support vocabulary and concept retention.

Concrete Resources:
Providing hands-on practical equipment to offer alternate ways of investigating and finding solutions.

Modelling:
Teachers actively demonstrate scientific thought processes, showing exactly how a scientist approaches an experiment.

Assessment & Impact: Measuring Success

Retrieval Practice:

'Remember It' sections and low-stakes retrieval quizzes are built into lessons to ensure key substantive knowledge sticks.

Formative Assessment:

Continuous questioning during practical experiments allows teachers to check disciplinary knowledge in real-time.

Summative Outcomes:

End-of-unit tasks (e.g., writing a diary of a raindrop, creating fact files) demonstrate children's mastery of the topic.

The Ultimate Impact:

Children leave Lindridge able to speak confidently about science, armed with the wisdom to think critically, and possessing a lifelong commitment to the future of our planet.

The Golden Thread