Longhill Primary School
Science Non Negotiables

Science skills should be taught when linked to projects where possible to ensure real world application.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Identify and name common plants. Describe the basic structure of a plant.	Describe how seeds/bulbs grow. Describe how plants need water, light, and a suitable temperature to grow.	Identify/describe the functions of different parts of plants. Identify requirements of plants for life and growth and how they vary from plant to plant. Describe the way in which nutrients are water and oxygen are transported within plants.	N/A	N/A	N/A
Life Processes	Identify/name a variety of animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. Identify carnivores, herbivores & omnivores. Describe/compare the structures of common animals. Identify/name/draw basic parts of human body and relate to senses.	Explain the difference between things that are living a d things that have never been alive Explain animals have offspring and these grow into humans. Explain basic needs of animals/humans to survive. Describe importance of exercise/ eating right amounts/types of food.	Explain that animals/humans need the right types/amounts of nutrition. Describe the ways in which nutrients, water and oxygen are transported within animals/humans. Identify humans and some animals have skeletons and muscles for support and movement.	Classification Use classification keys to name a variety of living things. Give reasons for classifying plants/animals based on specific characteristics and how they're suited to their environment. Animals inc Humans Identify / name basic parts of the digestive system in humans.	Describe life cycles of animals, humans and plants. Describe the process of respiration. Identify/name basic parts and organs of the human circulatory and gaseous exchange systems and explain their function.	Living Things Explain classification including the term kingdom. Compare the life processes of reproduction amongst plants/animals. Describe the changes of human from birth to old age. Evolution and inheritance

				Identify different types of teeth and simple functions of teeth. Evolution and inheritance Describe how plants/animals (including Humans) resemble their parents in many features. Explain how human skeleton has changed over time including advantages/disadvantages of being on 2 feet not 4.		Give reasons why living things produce off spring but these are not identical. Explain evolution happens over time, linking to fossils and adaptation and how this leads to evolution.
Habitats	N/A	Identify living things live in habitats to which they are particularly suited and how these provide basic needs. Identify/name a variety of plants/animals in a variety of habitats * describe simple food chains	N/A	Identify/name a variety of living things that can be grouped as producers, consumers, predator, prey, herbivores, carnivores and omnivores. Explain using food chains/food webs, how feeding relationships occur in a variety of habitats.	N/A	N/A
Materials	N/A	Identify/ name a variety of everyday materials and describe their properties. Compare and group materials based on properties. Find out how the shapes of solid objects can be changed by squashing, bending, twisting and stretching. Identify and compare the uses of everyday	Explore differences between materials. Compare group together materials based on findings. ROCKS Compare/group rocks on their physical properties. Relate simple physical properties of some rocks to their formation (igneous/sedimentary)	Compare materials into solids, liquids and gases. Explain some materials change state when heated/cooled and measure temp in degrees Celsius. Compare/give reasons, based on measurements, for changes to the state of water using correct	Compare/group material based on comparative tests and fair tests (incl. hardness, solubility, conductivity and insulation, behavior with magnets). Explain dissolve, solution and how ton recover a substance from a solution. Use knowledge of solids/liquids/gases to	Explain that some changes result in the formation of new materials and that this change is difficult to reverse.

		materials.	Describe how fossils are formed.	scientific vocabulary. Identify evaporation and condensation in the water cycle.	decide how mixtures might be separated. Demonstrate reversible changes.	
Light and sound	Light Identify/name sources of light. Explain what darkness is. Compare the variety of sources of light. Describe the features of day and night. Describe the movement of the sun across the sky	N/A	Sound Identify/name a variety of sounds and how the sounds are made. Compare a variety of sources of sound. Explain that sound travels and it gets fainter the further away it goes. Develop understanding of patterns of pitch and volume and explore varying sound systematically. Explain how sounds are heard (vibrations travel through various materials solids, liquids, gases to the ear.	Light Explain how shadows are made when a light source is blocked by something that is not transparent. Investigate the size of shadows.	N/A	Light Explain how objects are seen, explain that light travels in straight lines or is reflected from a surface into the eye. Explain that light can be broken into colours and different colours can be combined to appear as a new colour. Explain how the ray model of light explains the size of shadows. Use simple optical instruments.
Space	N/A	N/A	N/A	Explain that the sun is the centre of our solar system. Explain the shape of the sun, earth and moon Discuss/explain the terms stars, galaxy, Milky way and universe. Explain the other planets and constellations.	N/A	N/A

				Explain the Earths movement around the sun and the moons movement around the earth. Identify the four seasons and link this to changes in sunlight and weather.		
Forces	N/A	Describe how things move at different speeds, speed up and slow down.	Explore push/pull is exerted by something and acts on something else. Explain how some forces are made by contact and others by distance. Explain the force of gravity.	N/A	Compare/give reasons for how forces affect movement (incl. gravity, friction, air and water resistance). Explain through observations that forces push/pull objects making them change shape. Explain the effect of drag forces. Measure the size of a force.	Explain the idea of speed. Determine the distance travelled based on the speed and time of travel.
Electricity and magnetism	N/A	N/A	Magnets Describe use of magnets in familiar objects. Investigate magnetic materials and that magnets can work through materials. Make a magnet.	Describe the use of electricity to power common appliances. Construct a simple electric circuit. Use comparative tests to explain conductors Explain closed/open circuits.	Explain magnets have two pole and these attract and repel). Describe the effects of static electricity.	Identify and name basic parts of a simple electric series circuit. Explain and sort circuits and fuses. Explain the effect of changing the voltage of a battery.

Working Scientifically *(to be delivered through teaching of subject content and not to be taught separately)*	Observe closely using simple equipment. Perform simple tests. Identify and classify. Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.	Observe closely using simple equipment. Perform simple tests. Identify and classify. Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.	Set up comparative and fair tests using a range of equipment including data loggers. Begin to make accurate measurements using standard units. Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. Report findings from investigations including written explanations of results and conclusions, displays or presentations. Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.	Set up comparative and fair tests using a range of equipment including data loggers. Begin to make accurate measurements using standard units Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. Report findings from investigations including written explanations of results and conclusions, displays or presentations. Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.	Plan investigations, recognising/controlling variables. Take precise/accurate measurements using a range of scientific equipment. Record data/results: scientific diagrams/labels, classification keys, tables, bars and line graphs and models. Report findings from investigations: written explanations, explanation involving causal relationships and conclusions. Continue to develop the ability to use test results to make predictions and set up further comparative/fair test.	Plan investigations, recognising/controlli ng variables. Take precise/accurate measurements using a range of scientific equipment. Record data/results: scientific diagrams/labels, classification keys, tables, bars and line graphs and models. Report findings from investigations: written explanations, explanation involving causal relationships and conclusions. Continue to develop the ability to use test results to make predictions and set up further comparative/fair test.

Key Skills

- ✓ Subject-specific vocabulary
- ✓ Knowledge and understanding
- ✓ Working scientifically