Year 2 – Living Things and Their Environments - Plants

National Curriculum Objectives	Core Knowledge	Vocabulary
• Explore and compare the differences between things that are living, dead, and things that have never been alive • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including micro-habitats • Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Habitats:** living things live in environments to which they are particularly suited. **Specific habitats and what live there**, for example: • Forest (for example: oak trees, squirrels, foxes, badgers, snails, mice) • Meadow and plains (for example: wildflowers, grasses, prairie dogs) • Underground (for example: fungi, moles, worms) • Desert (for example: cacti, lizards, scorpions) • Water (for example: fish, oysters, starfish) Environments are constantly changing, and this can sometimes pose dangers to specific habitats, for example: • Effects of population and development • Rainforest clearing, pollution, litter	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed; Names of local habitats e.g. pond, woodland etc; Names of micro-habitats e.g. under logs, in bushes etc. Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area; Names of garden and wild flowering plants in the local area, light, shade, sun, warm, cool, water, grow, healthy

Key Scientists	Linked Texts
Beth Collier -Nature Allied Psychotherapist (M.A., MBACP) and Ethnographer who teaches natural history and woodland living things.	*Jack and the beanstalk / Jim and the beanstalk* *The Big Book of Blooms (Yuval Zommer)*

Prior Learning	Key Questions	Future Learning
• Animals and their Needs - Living things, naming animals, grouping animals, describing animals, how plants and animals obtain food, offspring, caring for animal babies, caring for pets. (Y1) • Seasons and Weather - The four seasons, tools to record the weather, daily weather and weather forecasts, weather symbols, weather around the world, floods and hurricanes. (Y1) • Plants - What plants need to grow, the parts and functions of plants, food production, flowers and seeds, deciduous and evergreen, farming, crops, pesticides, harvest, from field to supermarket (Y1)	• Do all seeds and bulbs look the same? • When is the best time to plant seeds? • How do I look after plants as they grow? weeding, thinning, watering etc. • How quickly do plants grow? • Do all seeds grow at the same time? Make close observations and make comparisons between plants as they grow. • Can you find a range of items outside that are living, dead and never lived? • What lives in this habitat? • What are the features of the plant that the make them suitable to the habitat	• Cycles in Nature: Seasonal cycles and plants, animal migration. Life cycles of a plant and a frog. (Y3) • Classification of Plants and Animals: Cold-blooded or warm-blooded, vertebrates or invertebrates, characteristics of animal classes, classification of plants. (Y4) • Ecology: Habitats, interdependence of organisms and their environment, producers, consumers and decomposers, food webs, fossils, man-made threats to the environment (Y4)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
What conditions do plants need to grow successfully?	Find a range of things in our school grounds that are living and non-living. Sort seeds and bulbs. What trees do we have in our local area?	How quickly do plants grow? Do all seeds grow at the same rate? What can I grow that I can eat?	What lives in this habitat? Use a variety of habitats e.g. pond, woodland	What lives in a desert/underground habitat?	What lives in this habitat? How are they adapted for living in that location? e.g. trees need to be able to set down roots so we haven't got any in the middle of the playground, the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty

Year 2 – Human Body

National Curriculum Objectives	Core Knowledge	Vocabulary
• Know that animals, including humans, have offspring which grow into adults. • Know the basic stages in a life cycle for animals, including humans. • Find out and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Introduce the idea of body systems, and have children identify basic parts of the following body systems: • **Skeletal system**: skeleton, bones, skull • **Muscular system**: muscles • **Digestive system**: mouth, stomach • **Circulatory system**: heart and blood • **Nervous system**: brain and nerves **Germs, diseases, and preventing illness** • Taking care of your body: exercise, cleanliness, healthy foods, rest • Vaccinations	growth child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), reproduction offspring exercise heartbeat breathing bones muscles joints movement skeleton germs disease hygiene Food types (examples – meat, fish, vegetables, bread, rice, pasta) senses digestion stomach brain breathing heart blood vessels pump circulation

Key Scientists	Linked Texts
Steve Irwin (Crocodile Hunter) Robert Winston (Human Scientist) Joe Wicks (Personal Trainer)	*Once there were giants (Martin Waddell)* *Funnybones (Janet & Alan Ahlberg)* *Human Body Odyssey (Werner Holzwarth)* *Bones (Steve Jenkins)*

Prior Learning	Key Questions	Future Learning
• The Human Body - Naming parts of the body, the five senses and associated body parts, understanding sensory impairment. (Y1)	• How long should my pets live for? • Do all animals grow and live the same way? • Do bigger animals live longer? • Why are we all different heights? • How and why do we grow and change?	• The Human Body: cells, organ systems, the digestive system, teeth and senses, a healthy diet, vitamins and minerals (Y3) • The Human Body: The muscular system, the skeletal system, the nervous system. (Y4)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
Do bananas make us run faster?	How would you group things to show which are living, dead, or have never been alive?	How much food and drink do I have over a week?	Which age group of children wash their hands the most in a day?	What food do you need in a healthy diet and why?	Do living things change or stay the same?

Year 2 – Electricity

National Curriculum Objectives	Core Knowledge	Vocabulary
• Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Recognise that a switch opens and closes the circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. • Know the difference between a conductor and an insulator; giving examples of each. • Safety when using electricity.	• Static electricity • Basic parts of simple electric circuits (for example, batteries, wire, bulb or buzzer, switch) • Conductive and nonconductive materials • Safety rules for electricity (for example, never put your finger or anything metallic in an electrical outlet, never touch a switch or electrical appliance when your hands are wet or when you're in the bathtub, never put your finger in a lamp socket, etc.)	Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, component.

Key Scientists	Linked Texts
Thomas Edison (First Working Lightbulb) Joseph Swan (Incandescent Light Bulb) Nikola Tesla (Electrical Engineer)	*Until I Met Dudley (Roger McGough)* *Oscar and the Bird: A Book about Electricity (Geoff Waring)* *Electrical Wizard: How Nikola Tesla Lit Up the World (Elizabeth Rusch)*

Prior Learning	Key Questions	Future Learning
• May have some understanding that objects need electricity to work. (Y1) • May understand that a switch will turn something on or off.(Y1)	• In which ways can we 'get' electricity? (mains/plugs/batteries/wireless) • How do we make electricity? • How do batteries work? • How quickly can batteries run out? Does this make a difference depending on number of components? • How does the number of batteries added to the circuit affect a device? • What materials can carry electricity? (conductors/insulators)	• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (Y5) • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (Y5) • Use recognised symbols when representing a simple circuit in a diagram. (Y5)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
Which material is the best conductor of electricity?	What materials can electricity travel through? How would you group electrical devices based on where the electricity comes from?	What happens to a bulb when we leave it for long time?	Which room has the most electrical sockets in a house?	How has electricity changed the way we live? How does a light bulb work?	What can we do with electricity?

Year 2 – Uses of everyday materials

National Curriculum Objectives	Core Knowledge	Vocabulary
• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Not Core Knowledge linked.	**Names of materials –** wood, metal, plastic, glass, brick, rock, paper, cardboard, rubber **Properties of materials –** hard, soft, stretchy, stiff, bendy, floppy, waterproof, rough, smooth, absorbent, breaks/tears, shiny, dull, see-through, not see-through, opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching translucent, reflective, purpose, suitability, flexibility, durability, hybrid

Key Scientists	Linked Texts
	'The True Story of the Three Little Pigs' Jon Scieszka *'The Three Little Pigs and the Big Bad Wolf'* Eugene Trivizas

Prior Learning	Key Questions	Future Learning
• Distinguish between an object and the material from which it is made. (Y1) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1) • Describe the simple physical properties of a variety of everyday materials. (Y1) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1)	• What is the object? • What is the material? • What are the properties of this material? • What would you use this material for? • Can a solid object change and, if so, how? • Can you describe how an object is changing using our science vocabulary? • Is the material suitable for the object's purpose?	• Forces and Magnets: Forces, friction, magnets, magnetic poles, magnetic fields, law of magnetic attraction, compasses. (Y3) • States of Matter- Solid, Liquid and Gas. (Y3) • Simple Machines: examine how simple machines help make work easier, and how they are applied and combined in familiar tools and machines. (Y3) • Rocks: Sorting rocks, how rocks are formed, hardness and permeability, fossils, soil. (Y3) • Forces: Gravity, friction, air resistance, water resistance, pulleys, gears and levers. (Y5)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
Can all objects change shape and if so, how?	Why are some materials more suitable than others?		Can you sort the materials according to their properties?	What are the properties of certain materials?	What materials are most suitable to make Mr T Wolf's cup of sugar?

Year 2 – Earth & Space

National Curriculum Objectives	Core Knowledge	Vocabulary
• Not NC linked	**Geographical features of the earth's surface** • The shape of the Earth, the horizon • Oceans and continents • North Pole and South Pole, Equator **What's inside the earth** • Layers: crust, mantle, core • High temperatures • Volcanoes and geysers **Introduction to Astronomy:** • Sun: source of energy, light, heat; the Sun is a star • Moon: phases of the moon (full, half, crescent, new) • The eight planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune) • Earth and its place in the solar system - The Earth moves around the Sun; the sun does not move. The Earth revolves (spins); one revolution takes one day (24 hours). When it is day where you are, it is night for people on the opposite side of the Earth • Stars and constellations (the Plough)	Sphere, spherical, continents, oceans, north, south pose, equator Crust, mantle, core, temperature, volcano, geyser, lava, magma Rocks, sedimentary, metamorphic, igneous, minerals Sun, star, light, source, heat, moon, phases, crescent, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, constellation, sunrise, sunset **Key Scientists**: Brian Cox (Astronomer); Maggie Aderin-Pocock MBE (Space scientist) **Linked Texts**: *The Skies Above Our Eyes (Yuval Zommer)*; *The Street Beneath Our Feet (Yuval Zommer)*; *Man on The Moon (Simon Bartram)*; *Field Trip to the Moon (Jeanne Willis)*; *The Darkest Dark (Chris Hadfield & the Fan Brothers)*

Prior Learning	Key Questions	Future Learning
• Identify the importance of conservation of our planet. (Y1)	• How can you organise all the objects in the solar system into groups? • What makes the sun different from other stars? • What other planets orbit the sun? • Are all planets like earth? • What is the moon? • Why does the moon change shape? • What constellations can we see at night? • Why doesn't the earth seem round to us? • What makes day and night? • What are the poles/equator?	• Rocks: Sorting rocks, how rocks are formed, hardness and permeability, fossils, soil. (Y3) • Astronomy: The Big Bang theory, gravity, the Universe, our Solar System, the moon and our galactic neighbourhood. (Y4) • Geology: The Earth's layers, earthquakes, volcanoes, formation of mountains, formation of rocks (Y5)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
	How many planets are there in our solar system?	Does the moon change shape?	Do all planets take the same amount of time to travel around the sun?	What would it be like if we dug to the centre of the planet?	Why does the sun seem to move in the sky?

Year 2 – Living Things and Their Environments - Animals

National Curriculum Objectives

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including micro-habitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Core Knowledge

The food chain: a way of picturing the relationships between living things: big animals can be eaten by little ones, big animals die and are eaten by little ones. Food chains start with a plant

Oceans and Undersea Life

- Oceans are salt water (unlike fresh water rivers and lakes)
- Landscape of the ocean floor: mountain peaks and deep valleys (trenches)
- Diversity of ocean life: from organisms too small for the eye to see (plankton), to giant whales
- Dangers to ocean life (for example, overfishing, pollution, oil spills)

Classification of animals

- Herbivores: plant-eaters (for example, elephants, cows, deer)
- Carnivores: flesh-eaters (for example, lions, tigers)
- Omnivores: plant and animal eaters (for example, bears)
- Extinct animals (for example: dinosaurs)

Vocabulary

Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed
Names of habitats e.g. oceans, Pacific, Atlantic, Indian, Arctic, salt water, fresh water, coast, shore, tides, currents, peaks, trenches.
Range of animal types that live in the ocean
Fishing, pollution, litter
Herbivores, Carnivores, Omnivores, extinct.

Key Scientists	Linked Texts
Dr Eugenie Clark (Ocean scientist) Gillian Burke (Marine biologist on Springwatch)	*Shark Lady (Jess Keating)* *The Big Book of the Blue (Yuval Zommer)*

Prior Learning

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1)
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1)
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1)
- Observe changes across the four seasons. (Y1)

Key Questions

- Can you classify objects found in the local environment?
- What animals live in our local habitats?
- What animals live in other habitats (e.g. rainforest, oceans)?
- What do you notice about these plants and animals?
- What do these animals eat? (food chains)
- What eats this animal? (food chains)

Future Learning

- Cycles in Nature: Seasonal cycles and plants, animal migration. Life cycles of a plant and a frog. (Y3)
- Insects: Characteristics of insects, habitats, classifying insects, helpful and harmful insects, life cycles, social insects. (Y3)
- Classification of Plants and Animals: Cold-blooded or warm-blooded, vertebrates or invertebrates, characteristics of animal classes, classification of plants. (Y4)

Comparative & Fair tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question: Assessment Opportunity
	1) How do we know if something is dead, alive or never been alive? 2) What lives in our school pond? 3) What's the same and what's different about the pond and the ocean? (Venn diagram) 4) What lives under the sea? (collage)		5) Are all sharks carnivores?	5) How have animals adapted to live in their part of the sea?	6) What effect are people having on the sea?