



Nursery:

Communication and Language

- Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"

Personal, Social and Emotional Development

- Make healthy choices about food, drink, activity and toothbrushing.

Understanding the World

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Talk about what they see, using a wide vocabulary.
- Begin to make sense of their own life-story and family's history.
- Explore how things work.
- Plant seeds and care for growing plants.
- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.
- Explore and talk about different forces they can feel.
- Talk about the differences between materials and changes they notice.

PLANTS

Reception	Year 1	Year 2
<p><u>Objectives:</u></p> <ul style="list-style-type: none"> - Talk about what I see. - Know how to plant seeds and care for growing plants. - Understand the key features of the lifecycle of a plant. - Explore the natural world around me, making observations and drawing plants. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - What do plants need to grow? - What are the parts of a flowering plant? - Growing seeds (cress, runner beans, sunflowers). - Caring for the plants and making observations. <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Growing seeds and flowers. - Taking home bean plants. - Growing and looking after plants in the outdoor classroom. <p><u>Vocabulary:</u></p> <p>Plants, grow, seeds, flower, dying, die, observe</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Know how to identify common garden plants including deciduous and evergreen trees. - To identify and describe the structure of some flowering plants and trees <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: Flower dissection and labelling. - What are the parts of a flowering plant? - Pattern seeking: Plant count and report writing. - Which plants grow in my local area? - Identifying and classifying: classification of trees based on properties of deciduous and evergreen trees. - What makes a tree a tree? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Pond visit - focus on spotting different types of plant. <p><u>Vocabulary:</u></p> <p>Leaves, petals, fruit, roots, bulb, trunk, branches, stem, deciduous, evergreen, bud, berry</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To identify and compare bulbs and seeds - To know and explore how seeds and bulbs grow - To understand what plants need to stay healthy. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Observation over time: Growing a daffodil bulb -plant in October, growth in Jan - Apr. - Comparative and fair test: What conditions do cress seeds need to grow? (dark/light, water/no water, soil/no soil) <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Pupil-led activity: Can you grow your own runner beans? <p><u>Vocabulary:</u></p> <p>Light, shade, sun, warm, cool, water, grow, healthy</p>

PLANTS

Year 3	Year 5	Year 6
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To describe the functions of different parts of flowering plants - To explain what plants need to survive and how these differ between plants - To understand what a plant needs to survive - To know the life cycle of flowering plants <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Fair and comparative test: What conditions do plants need to grow? (Chives and marigolds) - Observation over time: How do plants transport water and nutrients? Coloured water transfer in celery 	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To understand how plants reproduce <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: How do plants reproduce? - Advanced flower dissection looking at reproductive parts. <p><u>Vocabulary:</u></p> <p>Sepals, nectar, nectaries, carpel, stigma, style, ovary, stamen, anther, filament, receptacle, male, female, fertilisation, pollination</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To understand how to classify plants <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: Why do different leaves have different shapes? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Pond visit - focus on leaves of different plants, leaf shapes and structures. Reasons for different shaped leaves. - Pupil-led activity: Choose your own Carroll diagram to classify plants.

- Identifying and classifying: Why are there so many types of flower?
 - What does a flower do?
 - Pattern seeking: How are seeds designed to help them spread?
- Characteristics for seed dispersal.

Enrichment:

- Pond visit - focus on flowering plants.

Scientist Study: George Washington Carver

Vocabulary:

Photosynthesis, pollination, seeds, formation, dispersal

Vocabulary:

Deciduous, evergreen, foliage, midvein, tendril

ANIMALS INCLUDING HUMANS

Reception	Year 1	Year 2
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Understand the key features of the life cycle of an animal. - Begin to understand the need to respect and care for the natural environment and all living things. - Explore the natural world around me making observations and drawing animals. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - How do different animals grow and change? Mammal, invertebrate, reptile, bird, fish. - How can we care for animals in the environment? - Make observations of animals in the local environment. - Are the tallest children always the oldest? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Visit from 'Wild Science' looking at a variety of invertebrates and reptiles. - Trip to Barleylands to observe and feed farm animals. <p><u>Vocabulary:</u></p> <p>General names of animals, humans, people, animals, changes.</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To name and identify common animals (6 main classes) - Describe physical differences in animals (6 main classes) - To know the main parts of the human body and link to the senses. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: How can we group animals? (6 main categories, carnivore, omnivore, herbivore, etc.) - Pattern seeking: Are children with bigger heads also taller? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Scientist Study: David Attenborough <p><u>Vocabulary:</u></p> <p>Carnivore, herbivore, omnivore Mammals, amphibians, reptiles, fish, birds, insects</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To understand that animals have offspring that become adults - To understand the basic needs of survival - To understand the importance of exercise, hygiene and healthy eating. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Pattern seeking: Are children with longer legs faster runners? - Observation over time: How do caterpillars turn into butterflies? Observe caterpillars - Observation over time: Why is it important to wash your hands? Mould growing experiment <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Class fish - how should we keep the fish alive? - How to catch a sneeze. - Link to PE: The importance of exercise for health. <p><u>Vocabulary:</u></p> <p>Offspring, reproduction, growth, child, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice)</p>

ANIMALS INCLUDING HUMANS

Year 3	Year 4	Year 5	Year 6
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To know how to identify the right types of nutrition for animals including humans and know that we can not make our own food (we get our nutrition from the food we eat) - To know how to identify that humans and other animals have skeletons for support, protection and movement. <p><u>Lines of enquiry:</u></p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To know how to describe some parts and functions of the digestive system - To identify types and functions of different teeth in humans - To construct and interpret a variety of food chains (producers, predators, prey) <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Observation over time: Why do I need to brush my teeth? 	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To describe the changes as humans develop into old age. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Pattern seeking: How do humans change with age? - Pupils to bring in pictures of a family member through the ages. <p><u>Enrichment:</u></p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To identify and name the main parts of the circulatory system, describing the function of the heart, blood and blood vessels. - To recognise the impact of diet, exercise, drugs and lifestyle on the way your body functions. - To describe the ways in which nutrients and water are transported within animals including humans. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Research using secondary sources: How much alcohol is in different alcoholic beverages?

- Pattern seeking: Do children with a longer arm span have the ability to jump further?

Enrichment:

- Pupil-led activity: design a skeleton out of pipe cleaners which moves and is supportive.

Vocabulary:

Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, joints

- Egg experiment
- Identifying and classifying: What do my teeth do?
- Create the different shaped teeth out of clay.

Enrichment:

- The journey of food through the digestive system

Vocabulary:

Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, intestine, nutrients, rectum, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, consumer, predator, prey, food chain

- Use an app to age themselves.

Vocabulary:

Puberty, gestation, growing.

- Analysing the alcohol content in different drinks using labels.
- Research using secondary sources: How can smoking impact your health?
- Pattern seeking: How does exercise affect my body?
- Identifying ways that our body reacts to help us with exercise.
Observation over time: How does my heart rate change?

Enrichment:

- Scientist Study: Marie M Daly

Vocabulary:

Heart, pulse rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.

LIVING THINGS AND THEIR HABITATS

Reception	Year 1	Year 2
<p><u>Lesson Objectives:</u></p> <ul style="list-style-type: none"> - Begin to understand the need to respect and care for the natural environment and all living things. - Describe what I see, hear and feel whilst outside. - Recognise some environments that are different to the one that I live in (using my experiences and what is read to me.) - Explore the natural world around me. - Understand some important changes in the natural world including seasons. - Understand how changing seasons affect the natural world around me. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - What season is it now? What is the weather like in each season? What happens to the trees and plants in each season? - Looking at different habitats around the world through stories and using small world figures. <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Season tree - make leaves for each season. <p><u>Vocabulary:</u></p> <p>Living things, natural, environment, care, respect, seasons</p>	<p><u>Learning Objectives:</u> (seasonal changes)</p> <ul style="list-style-type: none"> - To know how to observe changes across the four seasons - To observe and describe the weather across the four seasons - Know how to observe and describe how day length varies during each season <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Research using secondary sources: How long is it light for? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Four Seasons artwork <p><u>Vocabulary:</u></p> <p>Weather, sunny, rainy, windy, snowy, seasons, winter, summer, autumn, sun, sunrise, sunset, day, day length</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To compare things that are living and dead - Know how to identify that most living things live in habitats that they are suited to and describe how these habitats provide for the basic needs of animals and humans. - Know how to identify plants and animals in their habitats/ microhabitats. - Know how to use a simple food chain to identify and name different sources of food. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: How do I know if something is living, dead or has never been alive? - Research using secondary sources: How is the *animal* suited to its habitat? - Pupils to research different animals. - Research using secondary sources: What do animals eat? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Outdoor learning: Bug hunt/pond dipping animal survey. - Which animals exist in our ecosystem? - Scientist Study: Jane Goodall <p><u>Vocabulary:</u></p> <p>Living, dead, never been alive, suited, suitable, basic needs, food chain, shelter, move, feed, names of local habitats, pond , woodlands, under logs, in bushes etc</p>

LIVING THINGS AND THEIR HABITATS

Year 4	Year 5	Year 6
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To recognise that living things can be grouped in a variety of ways. - Know how to use classification keys to identify living things. - Know how to recognise the impact of changing environments 	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Know how to describe the differences in life cycles (mammals, amphibians, insects, birds) - Know how to describe the process of reproduction in some plants and animals 	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Describe how living things are classified into broad groups (including microorganisms, plants and animals) - To give reasons for classifying plants and animals based on specific characteristics.

on living things.

Lines of enquiry:

- Pattern seeking: How can we group or classify animals?
- Secondary research: How is climate change impacting living things?
- What other changes are impacting animal habitats?

Vocabulary:

Classification, classify, keys, environments, habitat, human impact, positive, negative, migrate, hibernate

Lines of enquiry:

- Identifying and classifying: Advanced plant dissection (see plants above)
- Pattern seeking: How are life cycles similar and different? (Look at different mammals, compare mammals and reptiles, birds, insects, fish, amphibians)
- Identifying and classifying: How do animals reproduce? What is similar for all animals? What is different for different classes/animals?
- Identifying and classifying: What happens to my body during puberty? What will change and what will stay the same?

Enrichment:

Class caterpillars to observe lifecycle.

Vocabulary:

Life cycle, reproduce, sexual sperm, fertilises, egg, live young, metamorphosis, asexual plantlets, runners, bulbs, cuttings.

Lines of enquiry:

- Identifying and classifying: To group plants into their own categories based on observed characteristics.
- Secondary research: How have animals been classified?

Enrichment:

- Outdoor learning: classifying leaves in our local area.

Vocabulary:

Vertebrates, fish, amphibians, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non- flowering

MATERIALS

Reception	Year 1	Year 2
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Use all of my senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties. - Talk about what I see and the changes I notice in materials (using a wide range of vocabulary). - Understand some important changes in the natural world including changing states of matter. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: What is this made out of? Identify the materials that common classroom and household items are made from. (including wood, plastic, glass, metal, water, rock) - Identifying and classifying: What are the properties of these materials? (including wood, plastic, glass, metal, water, rock) - What materials float and which sink? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Scientist Study: Archimedes <p><u>Vocabulary:</u></p> <p>Hard, soft, spiky, squishy, object, material, protect, fabric, wool, foil, card</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Know how to identify objects and the materials they are made from. - Know how to identify and name a variety of everyday materials (including wood, plastic, glass, metal, water, rock). - Know how to compare and group some everyday materials based on their properties. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Identifying and classifying: What is this made out of? Identify the materials that common classroom and household items are made from. (including wood, plastic, glass, metal, water, rock) - Identifying and classifying: What are the properties of these materials? (including wood, plastic, glass, metal, water, rock) - Carousel of activities testing which materials are hard/soft, stretchy/stiff/bendy, waterproof/absorbent, rough/smooth, see through/not see through, breaks/tears. etc. - Comparative, fair testing: What is a good material to make an umbrella? <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Make bread rolls and look at the properties of the dough at different stages. <p><u>Vocabulary:</u></p> <p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, car/ cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Know how to identify and compare the suitability of a variety of everyday materials. - Know how to explore how the shape of solid objects can be changed by squashing, bending, twisting, stretching. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Comparative, fair test: Is a good material for making an umbrella also good for making a boat? - Identifying and classifying: How can I change the shape of different materials? (squashing, bending, twisting, stretching) - Identifying and classifying: What happens when I shine light at different materials? (opaque, translucent and transparent) - Pattern seeking: Are flexible materials also absorbent? - Pattern seeking: Child-led enquiry. Using properties they know as a question similar to above: Are _____ materials also _____? - Create an investigation as a class. <p><u>Vocabulary:</u></p> <p>Names of materials- increased range from year 1. Properties of materials- as for year 1 plus opaque, transparent, translucent, reflective, non- reflective, flexible, rigid, shape, push, pull, pushing, pulling, twist/ twisting, squash, squashing, bend, bending, stretch, stretching</p>

MATERIALS

Year 3	Year 4	Year 5	Year 6
<p><u>Learning Objectives:</u></p> <p>(Rocks)</p> <ul style="list-style-type: none"> - Know how to compare and group different types of rocks (based on appearance and simple physical properties) 	<p><u>Learning Objectives:</u></p> <p>(states of matter)</p> <ul style="list-style-type: none"> - Compare and group solids, liquids or gases. - Observe that some materials change state when heated cooled (know how to measure temperature in degrees celsius) 	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Compare and group materials based on their properties (including harness, solubility, transparency, conductivity-electrical and thermal and response to magnets) - Use knowledge of of solids, liquids and gases to decide how to separate materials (including through filtering, sieving and evaporating) 	<p><u>Lines of enquiry:</u></p> <p>Comparative, fair test: What are good materials to help you survive at sea?</p>

- Describe how fossils are formed.
- To recognise that soils are made from rocks and organic matter.

Lines of enquiry:

- Comparative, fair test: What are good materials for making an umbrella which will also keep you safe at night? (link to light/reflectiveness)
- Identifying and classifying: What is this rock? Use rock samples. Pupils explore using a classification tree.
- Secondary research: Where do fossils come from? How are they made?

Enrichment:

- Outdoor learning: Soil sampling - take soil samples from around RPS and Spring Gardens. Separate them out and look at components.
- Can you identify what type(s) of soil we have?

Vocabulary:

Rock, stone, pebble, crystals, boulder, grain, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, peat, sandy/ chalky, clay soils.

- Know how to identify the roles of evaporation and condensation within the water cycle and link the rate of evaporation with temperature.

Lines of enquiry:

- Comparative, fair test: Are good materials for making an umbrella also good for making a coat?
- Observation over time: What happens to water at different temperatures?
- What happens to different foods at these temperatures? (observe chocolate, ice cream, butter, etc.)
- Research using secondary sources: How hot can it get?
- Use the internet to research the melting and boiling points of different materials (including iron, oxygen, gold, etc.)
- Can you see any patterns?

Enrichment:

- Outdoor learning: Where has all the water gone? Measure evaporation of puddles outside.
- How can I make my washing dry faster?

Vocabulary:

Solid, liquid, gas, state, Change, melting, freezing, melting point, evaporation, temperature, water cycle

- Give reasons for the uses of everyday materials supported with comparative and fair testing (including metals, wood, plastic)
- Demonstrate that dissolving, mixing and changes of state are sometimes reversible changes.
- Explain that some changes form new materials and that it is not always reversible (burning, acid on bicarbonate of soda)

Lines of enquiry:

- Comparative, fair test: Are good materials for making an umbrella also good for making a parachute?
- Observation over time: How does rust form?
- How can we make rust in our classroom? (Iron filings are good as they rust quickly).
- Comparative fair test: Which materials will be most effective for stopping ice cream from melting?
- Which materials will keep a warm drink warm longest?
- Research using secondary sources: How have inventions changed our lives?
- Case study on invention/inventor (e.g. Invention of Bakelite, Spencer Silver inventor or sticky note glue, Ruth Benerito inventor of wrinkle-free cotton)

Enrichment:

- Observe the changes that take place when you bake a cake. Discuss chemical changes, reversible and irreversible.

Vocabulary:

Properties, hardness, solubility, transparency, electrical conductor, thermal conductor, response to magnets, dissolve, solution, separate, separating, solids, liquids, gases evaporating, reversible changes, dissolving, mixing, evaporation, filtering, sieving, melting irreversible, new material burning, rusting, magnetism, electricity quantitative, measurements, conductivity insulation chemical

FORCES AND MAGNETS		ELECTRICITY	
Year 3	Year 5	Year 4	Year 6
<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Compare how things move on different surfaces. - Notice that magnetic forces can act at a distance (whilst recognising that some forces need contact between two objects). - Observe how magnets attract or repel each other and attract some materials and not others. - Compare and group everyday materials based on magnetism and identify magnetic materials. - Describe magnets as having two poles. - Predict whether two magnets will attract and repel each other based on which poles are facing. <p><u>Lines of enquiry:</u></p> <p>Fair Test Comparison: How do different surfaces impact the movement of a car? (a toy car on a ramp covered in different materials)</p> <p>Identifying and Classifying: Which materials are magnetic? Do magnets always attract?</p> <p>Pattern Seeking: How do magnets work through different materials? (Place different thickness materials between 2 magnets and a magnet and an object).</p> <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - Link to DT: Make magnetic maze board games. <p><u>Vocabulary:</u></p> <p>Force, push, pull, contact, non- contact, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole.</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces - Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Pattern Seeking: What affects the size of an impact crater? (experiment with height and diameter of the object) - Fair Test Comparison: What makes a good parachute? (air resistance experiment) - Pattern Seeking: How do we slow down an object that is sinking? (water resistance experiment) <p><u>Vocabulary:</u></p> <p>Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears.</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - To identify some electrical appliances - Know how to construct a simple electrical circuit and name its basic parts. - Know how to identify whether or not a lamp will light - Recognise some common conductors and insulators (associate metals with being good conductors) <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Begin with introduction of general safety with electricity and safety when working with electrical items. - Identifying and classifying: Where does the power come from? Using a range of classification methods (venn, carroll, classification tree), group together electrical items based on different similarities/differences, including how they are powered (mains/battery/both/no power required) - Pattern seeking: How can I make this bulb brighter? How can I make the buzzer louder? - Identifying and classifying: Will this circuit work? Pupils to look at a range of circuits and identify whether they will work. Problem solve how to make them work. - Pattern seeking: Which materials can be used to close gaps in circuits? <p><u>Vocabulary:</u></p> <p>Electricity, electrical, appliance, device, mains, plug, electrical circuit, complete circuit, cell, battery, positive, negative, connect, connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non metal, symbol</p>	<p><u>Learning Objectives:</u></p> <ul style="list-style-type: none"> - Associate the brightness of a lamp or the volume of a buzzer with the number of cells/voltage used. - Compare and explain variations in how parts of a circuit function (including the brightness of bulbs, loudness of buzzers and the position of on/ off switches) - Know how to use circuit symbols accurately. <p><u>Lines of enquiry:</u></p> <ul style="list-style-type: none"> - Recap of general safety with electricity and safety when working with electrical items. - Introduce standard symbols for electrical components and how to draw circuit diagrams. - Fair test Comparison: How do components behave differently in different types of circuit? (number of bulbs/batteries in series and parallel circuits) <p><u>Enrichment:</u></p> <ul style="list-style-type: none"> - DT/Science linked project: Make a motorised vehicle. <p><u>Vocabulary:</u></p> <p>Circuit, complete circuit, diagram, model, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage.</p>

LIGHT

Reception	Year 3	Year 6
<p><u>Learning Objectives:</u> (Light and Dark) - Recognise differences in day and night.</p> <p><u>Lines of enquiry:</u> - Identify the differences between day and night. - Which animals come out in the day and the night?</p> <p><u>Vocabulary:</u> Daytime, nighttime, light, dark, sun, earth, spin</p>	<p><u>Learning Objectives:</u> - Recognise that light is needed to see things (dark is the absence of light). - Know how to observe light reflection on surfaces. - Recognise the dangers of light from the sun and know how to protect myself. - To recognise how shadows are formed. - Know how to find patterns in the changes of shadow size.</p> <p><u>Lines of enquiry:</u> - Pattern seeking: Do bigger objects always make bigger shadows? - Identifying and classifying: Which materials are reflective? - Which objects are made from these materials? - Are they made from these materials because the material is reflective?</p> <p><u>Enrichment:</u> - Outdoor learning: How does a shadow change? Pupils to use chalks to draw round their partner's shadow at different times of the day. - Observe the changes, measure the length of the shadows.</p> <p><u>Vocabulary:</u> Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.</p>	<p><u>Learning Objectives:</u> - Recognise that light travels in straight lines. - Explain that objects are seen because they give out or reflect light into the eye. - Explain that we see things because light travels from light sources to objects then to our eyes. - Explain why shadows have the same shape as the objects that cast them.</p> <p><u>Lines of enquiry:</u> - Pattern seeking: How does the shape of an object affect the shape of the shadow produced? - Identifying and Classifying: How does light travel? (Use screens with holes in to prove that light travels in a straight line) - Pattern Seeking: How does the colour of light affect the colour of the object that we see?</p> <p><u>Enrichment:</u> - Make pinhole cameras and periscopes.</p> <p><u>Vocabulary:</u> - As for year 3 - include straight lines, light rays.</p>

EARTH AND SPACE		SOUND	EVOLUTION AND INHERITANCE
Reception	Year 5	Year 4	Year 6
<p><u>Learning Objectives:</u> Recall some basic facts about the sun and earth.</p> <p><u>Lines of enquiry:</u> - What is the name of our planet? - Identify the sun and the moon. - Talk about the planets of the solar system. - Talk about gravity and how it affects us. - What is it like to go to space?</p> <p><u>Enrichment:</u> - Find out about what it is like to live at the International Space Station. Watch videos on the internet.</p> <p><u>Vocabulary:</u> Planet, star, Earth, Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Meteor</p>	<p><u>Learning Objectives:</u> - Describe the movement of the Earth and other planets in relation to the sun (in the solar system). - Describe the movement of the Moon relative to the earth. - Describe the Sun, Moon and earth as approximately spherical bodies. - Use the idea of earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</p> <p><u>Lines of enquiry:</u> - Pattern Seeking: Is there a relationship between the length of a planet's year and the length of a day on that planet? (scatter graph) - Secondary Research: Evolution of our understanding of the universe (Earth centred versus Sun centred (heliocentrism))</p> <p><u>Enrichment:</u> - Create a playground solar system using different sized fruit. Measure the distance accurately. - Dance/Drama to act out the movement of the Earth around the sun and the moon around the Earth. - Scientist Study: Stephen Hawking - Space Scientist visit</p> <p><u>Vocabulary:</u> Earth, Sun, Moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, spherical solar system, rotates, star, orbit, planets</p>	<p><u>Learning Objectives:</u> - Identify how sounds are made. (vibrations) - Recognise that vibrations travel through a medium to the ear. - Find patterns between the pitch of a sound and the object producing it. - Find patterns between the volume of a sound and the strength of the vibrations producing it. - Recognise that sounds get fainter as the distance from the sound source increases.</p> <p><u>Lines of enquiry:</u> - Identifying and Classifying: How do different instruments produce sound? How can we change the sound an instrument makes? (volume and pitch). - Identifying and classifying: How does sound travel through different mediums? (tuning forks in water and ear gongs) - Fair Test Comparison: Where is the loudest/quietest place in the school? (decibel readings around different locations in the school). - Pattern Seeking: How much does the distance from a sound affect the volume?</p> <p><u>Enrichment:</u> - Scientist Study: Alexander Graham Bell - Children to make string telephones.</p> <p><u>Vocabulary:</u> Sound, source, vibrate, vibration, travel, pitch, (high, low) volume, faint, loud, insulation.</p>	<p><u>Learning Objectives:</u> - Recognise that living things have changed over time and fossils provide information about this. - Recognise that living things produce offspring of the same kind, but with variations. - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p><u>Lines of enquiry:</u> - Pattern Seeking: Do we have the same eye colour as our parents? - Pattern Seeking/Classification: How have birds' beaks adapted to enable them to eat particular foods? - Classification: Compare and contrast how a polar bear, brown bear and arctic fox have adapted to their environment.</p> <p><u>Vocabulary:</u> Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>