

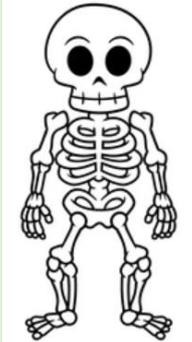
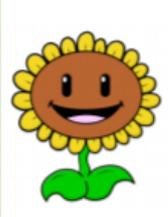
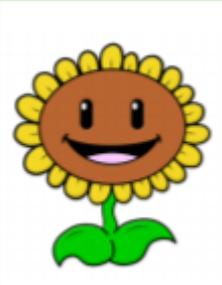


# Wellington Primary



Science Curriculum

# Science Overview

Year group	TOPICS		
	Autumn	Spring	Summer
<b>Key stage 1</b>			
1	<p>Healthy eating</p>  <p>Ourselves The human body</p> 	<p>Plants</p>  <p>Everyday materials</p> 	<p>Animals including humans ( summer 1 and 2)</p>  <p>Seasons (throughout the year consolidate in summer 1 and 2)</p> <p><b>Seasons*</b></p> 
2	<p>living things and their habitats</p>  <p>Materials</p> 	<p>Plants</p>  <p>Animals including humans</p> 	<p>Animals including humans</p>  <p>Electricity</p> 

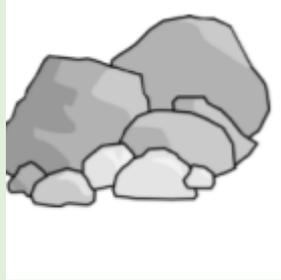
Lower key Stage 2

3

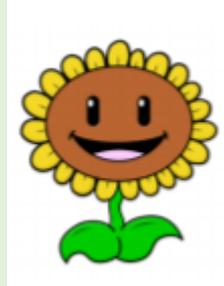
Animals including humans



Rocks



Plants



Light



Forces and magnets



4

All living things



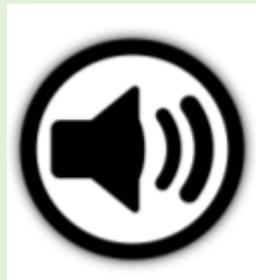
States of matter



Animals including humans



Sound



Electricity



Upper Key Stage 2

5

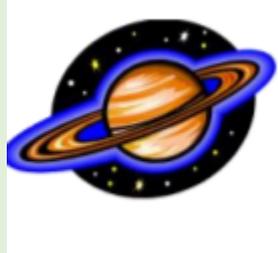
All living things



Properties of materials and reversible change



Earth and space



Animals including humans



Forces



How we see things



6

Living things and their habitats



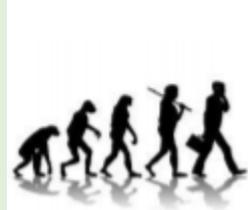
Animals including humans



Light



Evolution and Inheritance



Electricity



Forces



# Scientific Enquiry

Year 1						
	Observing over time	Pattern seeking	Research	Identify and classifying	Comparative test	Fair tests
Healthy eating				How can food be sorted?	Where is the best place to store fruit?	
Ourselves (including senses)		Do you get better at smelling as you get older?			Is our sense of smell better when we can't see?	
Materials	What happens to ___ (material) over time?		What material can be recycled?	What materials are waterproof?	What material is most absorbent?	
Plants	How do plants change throughout the year?			How can we collect and sort leaves in our local area?	Where does a plant grow best?	
Seasons <b>unit runs throughout the year</b>	How does the sun change throughout the year?	Do trees with bigger leaves lose their leaves in Autumn?				
Animals And their habitats				How can you organise the animals into groups?		

Year 2

	Observing over time	Pattern seeking	Research	Identify and classifying	Comparative test	Fair tests
<b>Living things and their habitats</b>	What conditions do woodlice prefer to live in?	Which habitat do worms prefer – where can we find the most worms?	How does the habitat of the artic compare to the habitat of the rainforest?	How would you group things to show which are living, dead or have never been alive?		
<b>Materials</b>	Would a paper boat float forever?		How are plastics made?	Which materials will let electricity go through them, and which will not?	Which material would be best for the roof of the little pig's house?	
<b>Plants</b>	What happens to my bean after I have planted it? (	Do bigger seeds grow into bigger plants?	How can we identify the trees that we observed on our tree hunt?		Do cress seeds grow quicker inside or outside?	
<b>Animals including humans</b>	How does a tadpole change over time?	Which age group of children wash their hands the most in a day?		Which offspring belongs to which animal?	Do bananas make us run faster?	
<b>Electricity</b>	How long does your bulb stay alight for?		Why are electric cars better for the environment?	What sources do these electrical items give out?	What materials can electricity travel through?	

**Year 3**

Year 3						
	<b>Observing over time</b>	<b>Pattern seeking</b>	<b>Research</b>	<b>Identify and classifying</b>	<b>Comparative test</b>	<b>Fair tests</b>
<b>Animals and humans</b>		Do male humans have larger skulls than female humans?		How do skeletons of different animals compare?		How does the angle that your elbow is bent affect the circumference of your upper arm?
<b>Rocks</b>	How does tumbling change a rock over time?		Who was Mary Anning and what did she discover?		Which soil absorbs the most water?	How does adding different amounts of sand to soil affect how quickly water drains through it?
<b>Plants</b>	What happens to celery when it is left in a glass of coloured water?)		What are all the different ways that seeds disperse?		Which conditions help seeds germinate faster?	How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?
<b>Light</b>	When is our classroom the darkest? Is the Sun the same brightness all day?	Are you more likely to have bad eyesight and to wear glasses if you are older?	How does the Sun make light?			How does the distance between the shadow puppet and the screen affect the size of the shadow?
<b>Forces and magnets</b>	What happens to celery when it is left in a glass of coloured water?	How does all the different ways that seeds disperse?		Which conditions help seeds germinate faster?	How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?	

Year 4

	Observing over time	Pattern seeking	Research	Identify and classifying	Comparative test	Fair tests
<b>All living thins</b>		Where in our school is the most polluted?	Can we find other animals to add complexity to our classification key?	Can we use the classification keys to identify all the animals that we caught pond dipping?	Does the amount of light affect how many woodlice move around?	
<b>States of matter</b>	How does the level of water in a glass change when left on the windowsill?	Is there a pattern in how long it takes different sized ice lollies to melt?			Do all liquids freeze at the same temperature?	How does the surface area of a container of water affect how long it takes to evaporate?
<b>Animals and their habitats</b>	How does an egg shell change when it is left in cola?		How do dentists fix broken teeth?	What are the names for all the organs involved in the digestive system? (4a) How can we organiser our teeth into groups?		
<b>Sound</b>	When is our classroom the quietest				Which material is best to use for muffling sound in ear defenders?	How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound?
<b>Electricity</b>	How long does a battery light a torch for?			How would you group these electrical devices based on where the electricity comes from?	Which material is the best conductor of electricity?	How does the thickness of a conducting material affect how bright the lamp is?

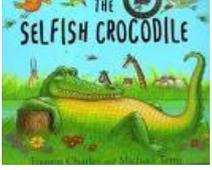
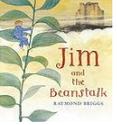
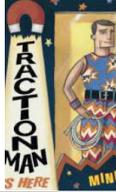
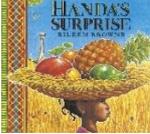
Year 5

	Observing over time	Pattern seeking	Research	Identify and classifying	Comparative test	Fair tests
<b>All living things and their habitats</b>	How does a bean change as it germinates?		Can you explain the work of David Attenborough?		What are the differences between the life cycle of an insect and a mammal?	How does the level of salt affect how quickly brine shrimp hatch?
<b>Properties of materials and irreversible change</b>	How does a container of salt water change over time? Which type of sugar dissolves the fastest?				How does a nail in salt water change over time?	How does the temperature of tea affect how long it takes for a sugar cube to dissolve?
<b>Earth and space</b>	How does shadow length change over the day?	Is there a pattern between the size of a planet and the time it takes to travel around the sun?	What unusual objects did Jocelyn Bell Burnell discover? How did Tim Peake prepare for space?	Can you observe and identify all the phases in the cycle of the moon?		
<b>Animals and humans</b>		Are the oldest children in our school the tallest?		Can you identify all the stages in the human life cycle?	Who grows the fastest, girls or boys?	How does age affect a human's reaction time
<b>Forces</b>		Do all objects fall through water in the same way?	How does gravity effect people in space?	Can you label and name all the forces acting on the objects in each of these situations?	Which shape parachute takes the longest to fall?	How does the surface area of a container affect the time it takes to sink?
<b>How we see things</b>	What happens to a piece of bread if you leave it on the windowsill for two weeks?			What do different microorganisms do? Are they always harmful	Where in the school are the most microorganisms found?	

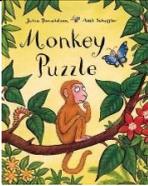
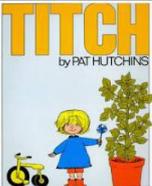
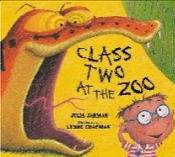
Year 6

	Observing over time	Pattern seeking	Research	Identify and classifying	Comparative test	Fair tests
<b>Living Things and their Habitats</b>	Observe the growth of mould on bread.	Why have these living things been grouped in this way?	The Carl Linnaeus classification system. Research Alexander Fleming and the discovery of anti-biotics.	Use keys and classification systems to group organisms and classify them.	What affects the rate of mould growth on bread?	Will changing the moisture of bread affect mould growth?  Will changing the temperature of stored bread affect mould growth?
<b>Animals including humans</b>	How does my heart rate change over the day?	Which organs of the body make up the circulatory system?			Which types of exercise has the greatest effect on our heart rate?	Can exercising regularly affect your lung capacity?
<b>Light</b>		Is there a pattern to how bright it is in school over the day? Is it the same in every classroom?	Research the development of the light bulb – look at the work of Edison (US) and Swan (GB).	Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?	Which material is most reflective?	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface? (6)
<b>Evolution and inheritance</b>		Is there a pattern between the size and shape of a bird's beak and the food it will eat?	What happened when Charles Darwin visited the Galapagos islands?	Compare the skeletons of apes, humans and Neanderthals? How are certain animals adapted to their environments?		
<b>Electricity</b>			How has our understanding of electricity changed over time?	Which make of battery lasts the longest?	Which type of fruit makes the best fruity battery? What effect will adding/removing cells in a circuit have on the brightness of bulbs?	How does the voltage of the batteries in a circuit affect the brightness of the lamp?
<b>Forces</b>		Relate the knowledge of air pressure to other situations – e.g. a sucker sticking to a surface.	Research the development of the aerofoil for uplift using differences in air pressure.			

# Science Vocabulary

Year 1						
Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Healthy eating 	Ourselves 	Plants 	Materials 	Seasons <u>unit runs throughout the year</u> Seasons* 	Animals and their habitats 
Suggested stories linked to topic						
Key vocabulary	Healthy unhealthy fruit vegetables grow group sugar fat	sight taste cleanliness aroma healthy exercise hearing require leg arm elbow head ear nose back wings beak	warmth evergreen deciduous bud leaf branch root stem	object material hard soft stretchy stiff bendy rough smooth waterproof absorbent everyday dull see through plastic recycle	humidity cloudy pouring droplet crystal blizzard shiver clear	carnivore omnivore herbivore identify predator construct responsibility grouping fish reptiles mammals birds amphibians (+ examples of each) herbivore omnivore carnivore

Year 2

Year 2						
Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	living things and their habitats 	Materials 	Plants 	Animals and their habitats 		Electricity 
Suggested stories linked to topic						
Key vocabulary	exercise hygiene allergy vitamins portion balanced active perspire reproduction frogspawn tadpole hygiene germs spread flock generation living dead habitat energy food chain predator prey woodland pond desert	absorbent waterproof stretch man-made material metal suitable properties hard soft, stretchy stiff shiny dull rough smooth bendy opaque transparent brick paper fabrics squashing bending twisting elastic foil	germinate require stunted dormant shade condition moist produce seeds bulbs water light temperature growth	suited suitable habitat micro-habitat food chain shelter feature leaf litter survival water air food adult baby, offspring kitten calf puppy exercise hygiene		wire battery circuit current bulb bulb holder switch danger

Year 3

Year 3						
Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals including humans 	Rocks 	Plants 	Light 	Forces and Magnets 	
Key vocabulary	bone x-ray tendon cartilage ligament voluntary muscle reflex joint hollow fracture movement skull nutrition skeleton	fossil sedimentary rock metamorphic rock igneous rock amber magma preserved decay permeable erosion soils sandstone granite marble pumice crystals absorbent	vascular xylem phloem spore sucrose starch fertilisation conifer transpiration respiration air light water, nutrients soil, reproduction transportation dispersal pollination flower	proximity defined ultraviolet concave convex emit reflect transparent translucent opaque light shadows mirror reflective dark reflection	lodestone iron attract repel maglev train magnetic needle pendulum magnetize force poles force friction push pull	

Year 4

Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals including humans 	States of Matter 	Living things and their habitats 	Sound 	Electricity 	
Key vocabulary	habitat ecology bacteria reintroduce emission pesticide complacent woodland ecosystem interdependent mouth tongue teeth, oesophagus stomach small Intestine large Intestine herbivore carnivore canine incisor molar	solid liquid gas grains melting freezing evaporation condensation transpiration precipitation solid liquid gas, temperature, freezing, heating	decay digestion enamel plaque stomach intestine predator prey omnivore oesophagus vertebrates fish, amphibians reptiles birds mammals invertebrates snails slugs worms, spiders insects environment habitats	eardrum sound waves decibel frequency distorted muffle vibration insulation vocal chords pitch volume vibration tone speaker	electricity electron battery motor bulb circuit switch insulator conductor national grid cells wires buzzers series	

Year 5

Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals and their habitats 	Properties of materials and irreversible change 	Earth and space 	Animals including humans 	Forces 	How we see things 
Key vocabulary	mammal amphibian insect life-cycle naturalist asexual reproduction sexual reproduction environment tuber diversity mammal reproduction insect amphibian bird offspring	chemical change physical change particle solution substance sieve filter evaporate polymers reversible/irreversible hardness solubility transparency conductivity magnetic evaporation dissolving mixing	universe orbit solar system axis spherical revolve rotate gravitational pull solar eclipse lunar eclipse Earth Sun Moon Rotation Day Night phases of the Moon star constellation	gestation puberty reproduce adolescence hormone memory dormant fertilisation chromosome degeneration foetus embryo womb gestation baby toddler teenager elderly growth development puberty	air resistance water resistance upthrust friction Newton mass lever fulcrum pulley equilibrium gravity, Newton, gears	magnification nucleus cell membrane cytoplasm cellulose chloroplast photosynthesis reproduce contamination sample

Year 6

Overview	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Living things and their habitats 	Light 	Animals including humans 	Electricity 	Evolution and inheritance 	Forces 
Key vocabulary	mammal amphibian insect life-cycle naturalist asexual reproduction sexual reproduction environment tuber diversity classification vertebrates invertebrates micro-organisms amphibians reptiles mammals insects	light rays haze distort primary colour secondary colour variance obstruct alteration refraction fluorescent refraction reflection Spectrum rainbow colour	respiration displace trachea cilia circulation blood vessels pulse BPM oxygen debt heart attack circulatory heart veins arteries oxygenated deoxygenated, valve exercise	static electricity charge electron insulator conductor short circuit fuse electromagnet detector synchronise cells wires bulbs switches buzzers battery circuit series conductors insulators amps volts	variation offspring ancestor natural selection fossilisation decompose sediment dissolve inherit offspring Fossils adaptation evolution Characteristics reproduction genetics	air resistance water resistance upthrust friction newton mass lever fulcrum pulley equilibrium

# Suggested content

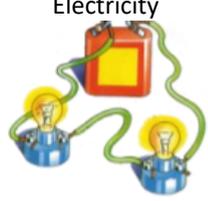
## Year 1

Overview	Suggested Content
<p>Autumn 1 Healthy eating</p> 	<p>Design a healthy meal. Describe why a healthy diet is important. Sort and classify different types of food Analyse and describe the healthiness of different meals. Design a meal based on knowledge of healthy eating Choose a physical activity and evaluate the impact on their bodies Examine if certain foods increase our running pace</p>
<p>Autumn 2 Ourselves</p> 	<p>Understand the parts of the body Associate parts of the body with different senses. Explore the sense of touch using different parts of the body. Make close observations of facial features. Compare different parts of the body both between people and over time.</p>
<p>Spring 1 Plants</p> 	<p>Examine seeds in an apple Visit and examine a variety of local trees over time. Find weeds and examine their roots. Identify and name plants in the school grounds. Note changes in growth of a sunflower. Experiment with different types of compost. Collect and sort leaves.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>• identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul>
<p>Spring 2 Materials</p> 	<p>Identify between an object and how it is made. Name a variety of everyday materials including plastic, wood, metal, glass, water and rock. Understand which materials can be recycled. Examine absorption when selecting a material for a puppy's bedding. Consider and experiment with materials for creating an umbrella. Identify and name materials based on their properties. Describe how shaving foam changes over time.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• distinguish between an object and the material from which it is made</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe the simple physical properties of a variety of everyday materials</li> <li>• compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>
<p>Summer 1 and into summer 2 Animals</p>	<p>Name and identify common animals Describe the structures of different animals. Compare the structures of different animals. Classify animals based on their features. Understand the features of fish, amphibians, reptiles and birds Group animals as fish, amphibians, reptiles and birds. Identify what different animals eat Classify animals as carnivores, herbivores and omnivores.</p>

<p>and their habitats</p> 	<p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>• identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</li> <li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul>
<p>Summer 2 – unit runs throughout the year – consolidate in summer 2 Seasons* Seasons*</p> 	<p>Compare leaves on the ground and on the trees Describe leaves and their structure Use senses to describe a leaf Compare leaf loss and tree size. Measure rainfall at different points in the year. Describe weather over a short period of time. Describe weather in different the seasons. Observe how day length varies Understand why animals hibernate</p> <p><b>*unit runs throughout the year</b></p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• observe changes across the 4 seasons</li> <li>• observe and describe weather associated with the seasons and how day length varies</li> </ul>

## Year 2

Overview	Suggested Content
<p>Autumn 1 Living things and their habitats</p> 	<p>Explore and compare the difference between living and dead things. Identify things that have never lived. Take a survey to compare animals in two habitats. Research to compare two different habitats. Describe the features of a habitat that are suitable for woodlouse growth. Create a simple food chain.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• 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</li> <li>• identify and name a variety of plants and animals in their habitats, including microhabitats</li> <li>• 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</li> </ul>
<p>Autumn 2 Materials</p> 	<p>Examine and investigate different materials Describe the properties of everyday materials. Describe the suitability of everyday materials for particular uses. Explore how paper changes when left in water. Apply knowledge of materials. Design a box to keep an egg safe Investigate boxes that keep eggs safe. Explore fabrics for a particular use Investigate how materials can be shaped. Research how plastics are made. Identify a new use for a material.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>
<p>Spring 1 Plants</p> 	<p>Observe how plants grow from a seed/bulb into a plant. Know that plants need water to survive Know plants need light to survive. Know plants need a suitable temperature to survive. Compare the growth of different sized seeds.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• observe and describe how seeds and bulbs grow into mature plants</li> <li>• find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>
<p>Spring 2 and Summer 1 Animals including humans</p>	<p>Investigate and how germs spread through contact. Write a set of instructions for how to wash your hands Match animals to their offspring. Sort and group the needs of a human baby. Observe tadpoles as they grow. Organize and sort animals into groups.</p>

	<p><b>National Curriculum</b></p> <ul style="list-style-type: none"><li>• notice that animals, including humans, have offspring which grow into adults</li><li>• find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li><li>• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li></ul>
<p>Summer 2 Electricity</p> 	<p>Create a circuit using equipment. Identify which materials let electricity pass through them. Identify why some circuits won't work. Research different types of electricity. Describe the dangers of electricity.</p>

## Year 3

Overview	Suggested Content
<p>Autumn 1 Animals including humans</p> 	<p>Examine the structure of a skeleton. Describe the functions of a skeleton Examine how skeletons vary between animals. Describe how muscles and bones work together. Compare strengths of muscles. Investigate voluntary and involuntary muscles. Learn how to care for our bones.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li> <li>• identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>
<p>Autumn 2 Rocks</p> 	<p>Understand what rocks are and how they can be classified Examine how rocks change. Understand what fossils are and the legacy of Mary Anning. Classify fossils by type. Explain how fossils are formed. Examine different types of soils and understand what it is made up of. Examine absorption of different types of soil.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• recognise that soils are made from rocks and organic matter</li> </ul>
<p>Spring 1 Plants</p> 	<p>Understand what a plant needs for growth. Describe the function of roots. Describe the function of the stem. Describe the function of leaves Describe the function of flowers. Understand the life cycle of a plant Compare how plants disperse their seeds.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>• explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>• investigate the way in which water is transported within plants</li> <li>• explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>
<p>Spring 2 Light</p>	<p>Examine different sources of light. Examine how light changes in our classroom over time. Understand how light allows us to see different objects. Understand how sight changes as people get older. Experiment with how light travels through different materials Vary the position, shape and size of a shadow. Understand the dangers of light</p>



and how you can protect yourself from them. Examine different types of mirrors. Understand how mirrors can be used in espionage.

**National Curriculum**

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

Summer 1 and 2  
Forces and  
Magnets



Examine which types of objects are magnetic. Undertake experiments to measure the strengths of different magnets. Understand how one magnet reacts to another. Create a temporary magnet. Find out how magnets are used in real-life situations.

**National Curriculum**

- compare how things move on different surfaces
- notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having 2 poles
- predict whether 2 magnets will attract or repel each other, depending on which poles are facing

## Year 4

Overview	Suggested Content
<p>Autumn 1 Animals including humans</p> 	<p>Identify types of teeth in humans. Describe the functions of different teeth types. Compare teeth between carnivores and herbivores. Examine tooth decay. Describe how teeth should be cared for. Understand the purpose of the digestive system. Describe the functions of the parts of the digestive system. Examine and describe a food chain Construct a food chain using provided information.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>describe the simple functions of the basic parts of the digestive system in humans</li> <li>identify the different types of teeth in humans and their simple functions</li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>
<p>Autumn 2 States of matter</p> 	<p>Examine features of the three states of matter. Classify materials and objects by state of matter Investigate how quickly solids melt. Find out if all liquids freeze at the same temperature. Investigate evaporation pace. Understand condensation Examine how water changes state in nature.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>compare and group materials together, according to whether they are solids, liquids or gases</li> <li>observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>
<p>Spring 1 Living things</p> 	<p>Recognise different ways animals can be grouped. Classify animals using classification keys. Add animals to a classification key. Examine how a light changes the behaviour of woodlice. Undertake investigations to find out where in the school is most polluted.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>recognise that living things can be grouped in a variety of ways</li> <li>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>
<p>Spring 2 Sound</p>	<p>Investigate the volume of sound at different points in the day. Explore how sounds are made by vibrations. Explore how sounds travel through different objects. Investigate how sounds change with distance from the source. Find patterns</p>

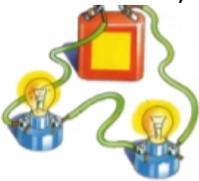


between the volume of a sound and the strength of the vibrations it produces. Explore how the pitch of an object can be changed.

**National Curriculum**

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Summer 1 and 2  
Electricity



Identify and group appliances that run on electricity. Construct simple series cells using common electrical parts. Identify whether a lamp will light in a circuit. Investigate whether materials are conductors or insulators or electricity. Examine the thickness of a conductor on the brightness of a bulb. Investigate battery life.

**National Curriculum**

- 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 a 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

## Year 5

Overview	Suggested Content
<p style="text-align: center;">Autumn 1 Living things and their habitats</p> 	<p>Research about a famous naturalist. Order the life cycle of a house fly Seek patterns in life cycles of different animals. Classify and group animals based on their life cycles. Grow plants from parts of a parent plant. Investigate the impact of a habitat on the hatching of brine shrimp</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• describe the life process of reproduction in some plants and animals</li> </ul>
<p style="text-align: center;">Autumn 2 States of matter and irreversible change</p> 	<p>Consolidate our knowledge of state of matter. Classify materials based on their conductivity Understand and explain how simple solutions are made. Investigate how the temperature of water affects how much sugar can be dissolved? Investigate which type of sugar dissolves the fastest. Examine how a container of salt changes over time. Utilise evaporation as a method for separation of a solution. Make informed decisions about how to separate solutions and mixture. Examine how a nail in salt water changes over time. Understand that some changed can be reversed whilst others cannot.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</li> </ul>
<p style="text-align: center;">Spring 1 Earth and Space</p> 	<p>Describe the movements of the planets in the solar system. Compare key features of the planets in the solar system. Describe how our knowledge of the solar system has changed over time. Explain why day and night occur. Investigate how shadows change throughout the day. Identify and order the phases in the cycle of the moon.</p> <p><b>National Curriculum</b></p>

	<ul style="list-style-type: none"> <li>• describe the movement of the Earth and other planets relative to the sun in the solar system</li> <li>• describe the movement of the moon relative to the Earth</li> <li>• describe the sun, Earth and moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>
<p>Spring 2 Animals including humans</p> 	<p>Identify all stages in the human life cycle. Understand changes which happen during adolescence. Compare growth by both age and gender. Describe changes that happen as humans develop to old age. Investigate how age affects a human's reaction time. Examine gestation in a variety of animals.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• describe the changes as humans develop to old age</li> </ul>
<p>Summer 1 Forces</p> 	<p>Understand what a force is and how it can affect an object Investigate friction caused by different material. Investigate whether the mass of an object affects how quickly it falls to the ground. Explore the effects of air resistance. Understand the effects of water resistance and up-thrust. Explain how simple levers work.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul>
<p>Summer 2 How we see things</p> 	<p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Use a ruler to draw the shape of a shadow cast by an object on a simple plan diagram. Predict and then measure the width of each shadow, and try to find what kind of set-up produces the widest shadows.</p>

## Year 6

Overview	Suggested Content
<p style="text-align: center;">Autumn 1 Living things and their Habitats</p> 	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics and that broad groupings, such as micro-organisms, plants and animals can be subdivided. Use classification systems and keys to identify some animals and plants in the immediate environment and link this to the Carl Linnaeus classification system.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>• give reasons for classifying plants and animals based on specific characteristics</li> </ul>
<p style="text-align: center;">Autumn 2 Animals including Humans</p> 	<p>Describe the respiratory system. Understand the impact of smoking on the lungs. Describe the circulatory system. Describe how the heart pumps blood around the body. Examine the effects of exercise on the pulse. Explain the impact of a poor diet on the circulatory system.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>• describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>
<p style="text-align: center;">Spring 1 Light</p> 	<p>Examine brightness over the day in different locations. Explore the reflectiveness of materials. Understand that light travels in straight lines Predict light direction using mirrors. Investigate shadow length and understand how shadow size can be altered. Explore the shapes of shadows of different objects Experiment with light refraction.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• recognise that light appears to travel in straight lines</li> <li>• use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li> <li>• explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>

<p>Spring 2 Evolution and inheritance</p> 	<p>Understand how animals are adapted to their environment. Explain the discoveries of Charles Darwin. Describe how variations become adaptations. Describe types of fossils Understand the evidence for evolution. Detail the process of fosillisation. Explain how selective breeding in animals is utilised.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>• recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>
<p>Summer 1 Electricity</p> 	<p>Understand how static electricity is created Investigate the creation of static electricity. Understand how the understanding of electricity developed. Investigate resistance in bulbs and associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit or the resistance of a circuit. Create an electromagnet. To use semi-conductors to show that current flows in one direction: negative to positive. To illustrate this with an electric motor – observing how it rotates in the opposite direction when current is reversed. To represent a simple circuit in a diagram using recognised symbols.</p> <p><b>National Curriculum</b></p> <ul style="list-style-type: none"> <li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• 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</li> <li>• use recognised symbols when representing a simple circuit in a diagram</li> </ul>
<p>Summer 2 Forces</p> 	<p>To investigate the effects of air pressure on objects. To explain that a difference in air pressure causes movement. Link this to how a vacuum cleaner 'sucks' dirt up or how a drink is 'sucked' up through a straw. Look at how water will hold in a jar when turned upside down with a piece of card and explain how differences in air pressure push the card up and keep the water in. Link this to uplift in aeroplanes and study the design of aerofoils.</p>