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Pattishall Knowledge Threads Through the Curriculum

Subject knowledge and disciplinary knowledge (skills)

EARLY YEARS – understanding the world

- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps
- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

KEY STAGE ONE		Pupils should be taught to:
Year 1	Plants	• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees
Year 1	Animals including humans	• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
Year 1	Everyday materials	• distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties
Year 1	Seasonal changes	• observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies
Year 2	Living things and their habitats	• 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 microhabitats • 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
Year 2	Plants	• 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
Year 2	Animals including humans	• notice that animals, including humans, have offspring which grow into adults • find out about 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
Year 2	Use of everyday materials	• 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

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LOWER KEY STAGE TWO		Pupils should be taught to:
Year 3 and 4	Working scientifically	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings.
Year 3	Plants	• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • 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 • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Year 3	Animals including humans	• 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 • identify that humans and some other animals have skeletons and muscles for support, protection and movement
Year 3	Rocks	• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter
Year 3	Light	• 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
Year 3	Forces and magnets	• 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

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Year 4	Living things and their habitats	• recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things
Year 4	Animals including humans	• describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, identifying producers, predators and prey
Year 4	States of matter	• compare and group materials together, according to whether they are solids, liquids or gases • 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) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
Year 4	Sound	• 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
Year 4	Electricity	• 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

UPPER KEY STAGE TWO		Pupils should be taught to:
Year 5 and 6	Working scientifically	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments
Year 5	Living things and their habitats	• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals

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Year 5	Animals including humans	• describe the changes as humans develop to old age
Year 5	Properties and changes in materials	• 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 • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • demonstrate that dissolving, mixing and changes of state are reversible changes • 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
Year 5	Earth and space	• describe the movement of the Earth and other planets relative to the sun in the solar system • describe the movement of the moon relative to the Earth • describe the sun, Earth and moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
Year 5	Forces	• 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
Year 6	Living things and their habitats	• 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
Year 6	Animals including humans	• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans
Year 6	Evolution and inheritance	• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Year 6	Light	• recognise that light appears to travel in straight lines • 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 • 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 • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Year 6	Electricity	• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • 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 • use recognised symbols when representing a simple circuit in a diagram

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SCIENCE	TOPICS						
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Topic Names:	Understanding the world	Plants Animals including Humans Everyday Materials Seasonal Changes	Living things and their Habitats Plants Animals including Humans Uses of Everyday Materials	Animals including Humans Plants Rocks Light Forces and Magnets	Living things and their Habitats Animals including Humans States of Matter Sound Electricity	Living things and their Habitats Animals including Humans Properties and Changes of Materials Earth and Space Forces	Animals including Humans Evolution and Inheritance Light Electricity

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VOCABULARY							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ANIMALS INCLUDING HUMANS	Science Experiment Test, Fair, Find out, Explain, Reason, Why, Record Senses Body parts – head, arm, leg, body Life cycle	Head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivores, Back, Wings, Beak skeleton, organ, sight, smell, taste, touch	egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep, baby, toddler, child, teenager, adult, Survival, Water, Air, Food, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene	Movement, Muscles, Bones, Skull, Nutrition, Skeletons,	Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar, enzymes	Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty	Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration
LIVING THINGS	Habitat Living Animal		Habitat Micro-Habitat Living, Dead, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert		Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	Mammal, Reproduction, Insect, Amphibian, Bird, Offspring	Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects
PLANTS	Bean, seed, roots, shoots, stem, leaf, water, light, soil, petals, pollen	Leaves, flowers blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem, Deciduous, Evergreen trees, Leaves, Flowers	Seed, bulb, reproduction, Plants, Water, Light, Temperature,	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower			

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VOCABULARY							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		(blossom), Petals, Fruit, Roots, Bulb					
FORCES	Push, pull, float, sink, heavy, light			Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull		Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	
LIGHT / SOUND	Diwali Light Shadow Dark Light source			Light, Shadows, Mirror, Reflective, Dark, Reflection	Volume, Vibration, Wave, Pitch, Tone, Speaker		Refraction, Reflection, Light, Spectrum, Rainbow, Colour, Wave
ELECTRICITY					Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators		Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts
EARTH & SPACE / SEASONS	9 planet names Space Autumn Spring Summer Winter	Sun, Rain, Wind, Snow, Hail, Season, Weather, Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark				Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation	
MATERIALS / ROCKS / EVOLUTION / STATES OF MATTER		Hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not	Squashing, bending, twisting and stretching Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent	RK: Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent	SOM: Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating	Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing	Ei: Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics

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VOCABULARY							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		absorbent; opaque/ transparent.	Brick, Paper, Fabrics, Elastic, Foil				

WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
OBSERVING	Discuss what they can see, touch, smell, hear or taste. Use simple equipment to help them make observations. GD: Can they find out by watching, listening, tasting, smelling and touching?	Can they discuss what they can see, touch, smell, hear or taste? Can they use simple equipment to help them make observations? GD: Can they find out by watching, listening, tasting, smelling and touching?	Can they use - see, touch, smell, hear or taste to help them answer questions? Can they use some scientific words to describe what they have seen and measured? Can they compare several things? GD: Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting?				
PLANNING				Can they use different ideas and suggest how to find something out? Can they make and record a prediction before testing? Can they plan a fair test and explain why it was fair?	Can they plan and set up a fair test and isolate variables, explaining why it was fair and which variables have been isolated? Can they suggest improvements and predictions?	Can they plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary?	Can they explore different ways to test an idea, choose the best way, and give reasons? Can they identify the key factors when planning a fair test? Can they vary one factor whilst keeping

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WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Can they set up a simple fair test to make comparisons? Can they explain why they need to collect information to answer a question? GD: Can they record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables?	Can they ask their own questions? Can they decide which information needs to be collected and decide what the best way to collect it is? Can they use their findings to draw a simple conclusion? GD: Can they plan and carry out an investigation by controlling variables fairly and accurately? Can they use test results to make further predictions and set up further comparative tests?	Can they make a prediction with reasons? Can they use test results to make predictions to set up comparative and fair tests? GD: Can they explore different ways to test an idea, choose the best way and give reasons? Can they vary one factor whilst keeping the others the same in an experiment? Can they use information to help make a prediction? Can they explain, in simple terms, a scientific idea and what evidence supports it?	the others the same in an experiment? Can they explain why they do this? Can they use information to make a prediction and give reasons for it? Can they use test results to make further predictions and set up further comparative tests? Can they explain, in simple terms, a scientific idea and what evidence supports it? GD: Can they choose the best way to answer a question and use information from different sources to plan an investigation? Can they make a prediction which links with other scientific knowledge?
TESTING (KS1) / GATHERING EVIDENCE (KS2)	Perform a simple test. Describe/ explain what they have done. GD: Can they give reasons for their answers?	Can they perform a simple test? Can they describe/ explain what they have done? GD:	Can they carry out a simple fair test Can they explain why it might not be fair to compare two things?	Can they take accurate measurements using different equipment and units of measure? Can they record their observations in different	Can they take measurements using different equipment and units of measure and record what they have found in a range of ways? Can they use a	Can they take measurements using a range of scientific equipment with increasing accuracy and precision?	Can they explain why they have chosen specific equipment? (including ICT based equipment)

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WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Can they give reasons for their answers?	Can they say whether things happened as they expected Can they suggest how to find things out? Can they use prompts to find things out? GD: Can they say whether things happened as they expected and if not why not?	ways? - labelled diagrams, charts etc. Can they describe what they have found using scientific language? GD: Can they explain their findings in different ways (display, presentation, and writing)? Can they use their findings to draw a simple conclusion? Can they suggest improvements and predictions for further tests?	range scientific equipment's to take accurate measurements or readings? Can they explain their findings in different ways (display, presentation, writing)? Can they record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs? GD: Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models?	Can they take repeat readings when appropriate? Can they record more complex data and results using scientific diagrams, labels, classification keys, table, scatter graphs, bar and line graphs? GD: Can they decide which units of measurement they need to use? Can they explain why a measurement needs to be repeated?	Can they decide which units of measurement they need to use? Can they make precise measurements? Can they explain why a measurement needs to be repeated? Can they record their measurements in different ways? (including bar charts, tables and line graphs) Can they read and record measurements systematically using a range of scientific equipment with increasing accuracy and precision? Can they present a report of their findings through writing, display and presentation? GD: Can they plan which equipment they will need and use it effectively? Can they explain qualitative and quantitative data?
IDENTIFYING (KS1) / EVALUATING (KS2)	Identify and classify things they observe.	Can they identify and classify things they observe?	Can they organise things into groups?	Can they explain what they have found out and use their	Can they find any patterns in their	Can they use a graph to answer scientific questions?	Can they find a pattern from their data and explain what it shows?

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WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Think of some questions to ask. Answer some scientific questions. Give a simple reason for their answer. Explain what they have found out. GD: Can they discuss similarities and differences? Can they explain what they have found out using scientific vocabulary?	Can they think of some questions to ask? Can they answer some scientific questions? Can they give a simple reason for their answer? Can they explain what they have found out? GD: Can they discuss similarities and differences? Can they explain what they have found out using scientific vocabulary?	Can they find simple patterns (or associations)? Can they identify animals and plants by a specific criteria, e.g. lay eggs or not; have feathers or not? GD: Can they suggest more than one way of grouping animals and plants and explain their reasons?	measurements to say whether it helps to answer their question? GD: Can they suggest how to improve their work if they did it again?	evidence or measurements? Can they evaluate and communicate their methods and findings? Can they make a prediction based on something they have found out? Can they ask further questions based on their data and observations? Can they evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? Can they identify differences, similarities or changes related to simple science GD: Can they report findings from investigations through written explanations and conclusions? Can they use a graph or diagram to answer scientific questions?	Can they present a report of their findings through writing, display and presentation? GD: Can they find a pattern from their data and explain what it shows? Can they link what they have found out to other science? Can they suggest how to improve their work and say why they think this?	Can they use a graph to answer scientific questions? Can they link what they have found out to other science? Can they suggest how to improve their work and say why they think this? Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? Can they draw conclusions from their work? Can they report findings from investigations through written explanations and conclusions using appropriate scientific language?
RECORDING	Show their work using pictures, labels and captions.	Can they show their work using pictures, labels and captions?	Can they use text, diagrams, pictures,				

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WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Record their findings using standard units. Record some information in a chart or table, or using ICT. GD: Can they compare measurements?	Can they record their findings using standard units? Can they record some information in a chart or table, or using ICT? GD: Can they make accurate measurements using non-standard measurements i.e. unifix	charts, tables to record their observations? Can they measure using simple equipment? GD: Can they use information from books and online information to find things out?				
INVESTIGATING			Observing changes over time Noticing similarities, differences and patterns. Grouping and classifying. Carrying our comparative tests. Finding things out using secondary sources of information. GD: Can they begin to independently consider controlling variables to create a fair test?	Observing changes over different periods of time Noticing patterns Grouping and classifying Carrying out comparative and fair tests Finding things out using secondary resources	Observing changes over different periods of time Noticing patterns Grouping and classifying Carrying out comparative and fair tests Finding things out using secondary resources. GD: Can they use a range of variables to investigate?		Recognising and controlling variables accurately and fairly, including changes over different periods of time Noticing patterns, groupings and classifying Carrying out comparative and fair tests Finding things out using a wide range of secondary sources. GD: Can they identify scientific evidence that has been used to support or to refute ideas or arguments and

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WORKING SCIENTIFICALLY – SKILLS PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
							link their conclusions to it? Can they explain how they could improve their way of working? Can they report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations?

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans	Autumn 1: To know how have they changed from being a baby to present. Autumn 1: To know the main senses. Autumn 1: To know how to move and control movement of different body parts. Summer 1: To know the life cycle of a butterfly.	Know and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Know and compare the structure of a variety of common animals. Identify, name, draw and label the basic parts of the human body and say which part is associated with each sense.	Know that animals, including humans, have offspring which grow into adults. Know about and describe the basic needs of animals, including humans, for survival (water, food and air). Know the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Know that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Know that humans and some other animals have skeletons and muscles for support, protection and movement.	Know the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Know, construct and interpret a variety of food chains, identifying producers, predators and prey.	Know the changes as humans develop to old age.	Know and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Know the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Know the ways in which nutrients and water are transported within animals, including humans.
Living Things and their habitats	Summer 1: To know and be able to compare animal habitats around the world.		Know, explore and compare the differences between things that are living, dead and things that have never been alive. Know that most living things live in habitats to which they are suited and describe how different habitats		Know that living things can be grouped in a variety of ways. Know and use classification keys to help group, identify and name a variety of living things in their local and wider environment.	Know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Know the life processes of reproduction in some plants and animals.	Know how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Know and name a variety of plants and animals in their habitats, including microhabitats. Know 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.		Know that environments can change and that this can sometimes pose danger to living things.		Give reasons for classifying plants and animals based on specific characteristics.
Plants	Summer 1: To know the life cycle of a bean. Summer 1: planting seeds to observe changes. Summer 2: To observe and draw flowers, noticing their parts.	Know and name a variety of common wild and garden plants, including deciduous and evergreen trees. Know and describe the basic structure of a variety of common flowering plants and trees.	Know and describe how seeds and bulbs grow into mature plants. Know and describe how plants need water, light and suitable temperature to grow and stay healthy.	Know and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Know the requirements of plants for life and growth and how they vary from plant to plant. Know the way in which water is transported within plants.			

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and dispersal.			
Seasonal changes / Earth and Space	Autumn 1: To observe Autumn and know the main features of Autumn and to recognise seasonal changes. Autumn 2: To know the planets. Spring 2: To observe Spring and know the main features of Spring and to recognise seasonal changes. Summer 2: To observe Summer and know the main features of Summer and to recognise seasonal changes.	**SEASONS** Know the changes across the seasons. Know and describe weather associated with the seasons. Know how day length varies.				**E&S** Know the movement of the Earth, and other planets, relative to the Sun in the solar system. Know the movement of the Moon relative to the Earth. Know that the Sun, Earth and Moon are approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	
Materials / Rocks / States of Matter / Evolution	Spring 1: To be able to recognise and select different materials to create a collage for 'We're Going on a Bear Hunt'.	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including	Know and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and	**ROCKS** Know and group together different kinds of rocks on the basis of their appearance and	**SOM** Know and group materials together, according to whether they are solids, liquids or gases.	Know, 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.	**EVOLUTION** Know that living things have changed over time and that fossils provide information about living things that inhabited

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Spring 2: To know and select the best materials to make Gethsemene.	wood, plastic, glass, metal, water, and rock. Know the simple physical properties of a variety of everyday materials. Know and group together a variety of everyday materials on the basis of their simple physical properties.	cardboard for particular uses. Know how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	simple physical properties. Know in simple terms how fossils are formed when things that have lived are trapped within rock. Know that soils are made from rocks and organic matter.	Know 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). Know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. 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.	earth millions of years ago. Know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Forces	Summer 2: Pirate Day – Know what materials and shapes are good for floating and sinking: build a boat to hold as much treasure as possible.			Know how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Know how magnets attract or repel each other and attract some materials and not others.		Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Know the effects of air resistance, water resistance and friction, that act between moving surfaces.	

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Know and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Know magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.		Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
Electricity					Know 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. Know 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.		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Know 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. Use recognised symbols when

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Know some common conductors and insulators, and associate metals with being good conductors.		representing a simple circuit in a diagram.
Light / Sound	Autumn 2: Light, dark and Space... Diwali – to know that shadows are formed by blocking light from a light source. Bonfire Night – to know different types of light source.			**LIGHT** Know that they need light in order to see things and that dark is the absence of light. Know that light is reflected from surfaces. Know that light from the sun can be dangerous and that there are ways to protect their eyes. Know 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.	**SOUND** Know how sounds are made, associating some of them with something vibrating. Know 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.		**LIGHT** Know that light appears to travel in straight lines. 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. Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines

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KNOWLEDGE PROGRESSION							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Know that sounds get fainter as the distance from the sound source increases.		to explain why shadows have the same shape as the objects that cast them.

Pattishall Primary is committed to safeguarding and promoting the welfare of children

and expects all staff and volunteers to share this commitment.