Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans	• Starting to develop an understanding of growth, decay and changes over time • Showing care and concern for living things and the environment	• Explore the natural world around them, making observations and drawing pictures of animals and plants *(links to KS1 animals including humans 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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	Pupils should be taught to: • describe the changes as humans develop to old age	Pupils should be taught to: • 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
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• I can talk about some of the things they have observed such as plants, animals, natural and found objects • I notice detailed features of objects in my environment • I enjoy playing with small world models such as a farm or garage or train track	• I can look closely at similarities, differences, patterns and change in nature • I can make observations of animals and plants and explains why some things occur, and I can talk about changes	• I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • I can identify and name a variety of common animals that are carnivores, herbivores and omnivores • I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	• I notice that animals, including humans, have offspring which grow into adults • I can find out about and describe the basic need of animals, including humans, for survival (water, food and air) • I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	• I can 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 • I can identify that humans and some other animals have skeletons and muscles for support, protection and movement	• I can describe the simple functions of the parts of the digestive system in humans • I can identify the different types of teeth in humans and their simple functions • I can construct and interpret a variety of food chains, identifying producers, predators and prey	• I can describe the changes as humans develop to old age	• I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • I recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function • I can describe the ways in which nutrients and water are transported within animals, including humans
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To name an animal found in the jungle, on the farm and at home	• To be able to name three different types of animals (jungle, farm,	• Know how to classify a range of animals by	• Know the basic stages in a life cycle for	• Know about the importance of a	• Identify and name the parts of the human digestive system	• Create a timeline to indicate stages of growth in humans	• identify and name the main parts of the human circulatory system

Science knowledge progression

	• To match animals to the sounds they make.	domestic) and describe some features of their habitats.	amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things • Know the name of parts of the human body that can be seen	animals, (including humans) • Know why exercise, a balanced diet and good hygiene are important for humans	nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human	• Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth • Use and construct food chains to identify producers, predators and prey		• Know the function of the heart, blood vessels and blood • Know the impact of diet, exercise, drugs and lifestyle on health • Know the ways in which nutrients and water are transported in animals, including humans
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Tiger Monkey Snake Cow Sheep Pig Horse Dog Cat Hamster Fish Flower Tree	Tiger Monkey Frog Snake Cow Sheep Pig Horse Chicken Rabbit Dog Cat Hamster Fish Jungle Leaves Flower Trees Field Hutch Barn	Head Body Eyes Ears Mouth Teeth Leg Tail Wing Claw Fin Scales Feathers Fur Beak Paws Hooves Carnivore Herbivore Omnivore Fish Amphibian Reptile Bird	Offspring Reproduction Growth Child Young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly) Exercise Heartbeat Breathing Hygiene Germs Disease Air Water Food Food types (examples – meat, fish, vegetables, bread, rice, pasta)	Nutrition Nutrients Carbohydrates Sugars Protein Vitamins Minerals Fibre Fat Water Skeleton Bones Muscles Support Protect Move Skull Ribs Spine Muscles joints	Digestive system Digestion Nutrients Mouth Teeth Saliva Oesophagus Stomach Small intestine Large intestine Rectum Anus Teeth Incisor Canine Molar Premolars Herbivore Carnivore Omnivore Producer Predator Prey Food chain	Fertilisation Prenatal Gestation Reproduce Asexual reproduction Sexual reproduction Life cycle Adolescence Puberty Menstruation Adulthood Life expectancy	Heart Pulse Rate Pumps Blood Blood vessels Transported, Lungs Oxygen Carbon dioxide Nutrients Water Muscles Cycle Circulatory system Diet Exercise Drugs Lifestyle

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	• Starting to develop an understanding of growth, decay and changes over time • Showing care and concern for living things and the environment	• Explore the natural world around them, making observations and drawing pictures of animals and plants (links to KS1 animals including humans 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		Pupils should be taught to: • 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		Pupils should be taught to: • 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• I can talk about some of the things I have observed such as plants, animals, natural and found objects • I can make comments and ask questions about aspects of my familiar world such as the place where I live or the natural world • I can begin to understand the effect my behaviour can have on the environment	• I can look closely at similarities, differences, patterns and change in nature • I can talk about the features of my own immediate environment and how environments might vary from one another • I can make observations of animals and plants and explains why some things occur, and talks about changes • I recognise that some environments are different to the one in which I live. • I know some similarities and differences between the world around me and contrasting		• I explore and compare the differences between things that are living, dead, and things that have never been alive • I can 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 • I can identify and name a variety of plants and animals in their habitats, including micro-habitats • I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and I can identify and name		• I recognise that living things can be grouped in a variety of ways • I can explore and use classification keys to help group, identify and name a variety of living things in my local and wider environment • I recognise that environments can change and that this can sometimes pose dangers to living things	• I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • I can describe the life process of reproduction in some plants and animal	• I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals • I can give reasons for classifying plants and animals based on specific characteristics

Science knowledge progression

		environments, drawing on life experiences and what has been read in class.		different sources of food				
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To be able to talk about the colour, shape, size and texture of different plants that I have noticed. • To be able to recognise similarities and differences between different types of animals. • To be able to notice some seasonal changes and comment on them. • To know at least one way in which humans can cause damage to our natural world. • To be able to demonstrate one way in which I can help protect our environment against the damage caused by humans.	• Identify features of living things, such as animals with wings or those with legs. • To be able to describe a simple life cycle. • To be able to compare my environment to a jungle environment and list 3 key differences. • To be able to grow a plant from a seed and give it what it needs to survive.		• Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain		• Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things	• Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals	• Classify living things into broad groups according to observable characteristics and based on similarities and differences • Know how living things have been classified • Give reasons for classifying plants and animals in a specific way
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Leaves Green Brown Soft Bumpy Legs Eyes Tail Fur Wings Hot Cold Windy Rain Cloudy Sunny	Wings Fur Tail Legs Eyes Seed Water Light Heat Air Seed Soil Leaves Hot Trees Cold Windy Rain Cloudy Sunny		Living Dead Never been alive Suited Suitable Basic needs Food Food chain Shelter Move Feed Names of local habitats e.g. Pond, woodland etc., names of micro-habitats e.g. Under logs, in bushes etc.		Classification Classification keys Environment Habitat Human impact Positive Negative Migrate Hibernate	Life cycle Reproduce Sexual Sperm Fertilises Egg Live young Metamorphosis Asexual Plantlets Runners Bulbs Cuttings	Vertebrates Fish Amphibians Reptiles Birds Mammals Invertebrates Insects Spiders Snails Worms Flowering Non-flowering

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	• Starting to develop an understanding of growth, decay and changes over time • Showing care and concern for living things and the environment	• Explore the natural world around them, making observations and drawing pictures of animals and plants (links to KS1 animals including humans 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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	Pupils should be taught to: • 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		Plants – (North Yorkshire Unit. Additional non-statutory unit to revisit, embed and extend prior learning)	
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• I can talk about some of the things I have observed such as plants, animals, natural and found object • I can begin to understand the effect my behaviour can have on the environment	• I can look closely at similarities, differences, patterns and change in nature • I can make observations of animals and plants and explains why some things occur, and I can talk about changes	• I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • I can identify and describe the basic structure of a variety of common flowering plants, including trees i.e. roots, a stem, leaves and flowers	• I can observe and describe how seeds and bulbs grow into mature plants • I can find out about and describe how plants need water, light and a suitable temperature to grow and stay healthy	• I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • I find out and describe how water and warmth help seeds germinate • I explore the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow and the correct temperature) and how they vary from plant to plant • I investigate the way in which water is transported within plants. Water, taken in by the roots, goes up the stem to the leaves, flowers and fruit • I explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal		• I can find out and describe how keys are a way of identifying different living things, including plants • I recognise that leaves use light to make food for the plant • I can describe how nutrients are taken in through plant roots	

Science knowledge progression

	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To be able to spot a sign of spring • To be able to care for a plant and talk about some of the things that help it to grow	• To be able to identify three key things that plants need to grow. • To be able to describe seasonal changes across the year.	•Know and name a variety of common wild and garden plants •Know and name the petals, stem, leaves and root of a plant •Know and name the roots, trunk, branches and leaves of a tree	•Know and explain how seeds and bulbs grow into plants •Know what plants need in order to grow and stay healthy (water, light & suitable temperature)	•Know the function of different parts of flowing plants and trees •Know how water is transported within plants •Know the plant life cycle, especially the importance of flowers		• I can find out and describe how keys are a way of identifying different living things, including plants • I recognise that leaves use light to make food for the plant • I can describe how nutrients are taken in through plant roots	
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Flowers Daffodil Bird Nest Green leaf Water Air Light Heat/warmth	Water Air Light Heat/warmth Spring Summer Autumn Winter Leaves Flower bud Snow Rain Cold Warm Sun Seed Beanstalk Soil	Leaf Flower Blossom Petal Fruit Berry Root Seed Trunk Branch Stem Bark Stalk Bud	Leaf Flower Blossom Petal Fruit Berry Root Seed Trunk Branch Stem Bark Stalk Bud Light Shade Sun Warm Cool Water Grow Healthy Germinate	Photosynthesis Pollen Insect/wind pollination Seed formation Seed dispersal Wind dispersal Animal dispersal Water dispersal Petal Leaves Roots Stem Stamen Carpel Sepal		Photosynthesis Oxygen Carbon dioxide Chlorophyll Pollen Insect/wind pollination Seed formation Seed dispersal Wind dispersal Animal dispersal Water dispersal Petal Stem Roots Leaves Stigma Style Ovary Ovule Anther Sepal	

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evolution and inheritance								Pupils should be taught to: • 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
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
								• I recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • I recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	•							•Know how the Earth and living things have changed over time •Know how fossils can be used to find out about the past

Science knowledge progression

								•Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) •Know how animals and plants are adapted to suit their environment •Link adaptation over time to evolution •Know about evolution and can explain what it is
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
								Offspring Sexual reproduction Vary Characteristics Suited Adapted Environment Inherited Species Fossils

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Everyday materials/ States of Matter/ Properties of changing materials	• Starting to develop an understanding of growth, decay and changes over time	•Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (Links to KS1 seasonal change and materials)	Pupils should be taught to: • 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	Pupils should be taught to: • 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		**States of matter** Pupils should be taught to: • 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	**Properties of changing materials** Pupils should be taught to: • 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	
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• I notice detailed features of objects in my environment • I can begin to understand the effect my behaviour can	• I can talk about the features of my own immediate environment and how	• I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick,	• I can distinguish between an object and the material from which it is made • I can identify and name a variety of everyday materials, including wood,		• I can compare and group materials together, according to whether they are solids, liquids or gases	• I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility,	

	have on the environment	environments might vary from one another	rock, paper and cardboard for particular uses • I find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	plastic, glass, metal, water, and rock • I can describe the simple physical properties of a variety of everyday materials • I can compare and group together a variety of everyday materials on the basis of their simple physical properties		• I 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) • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	transparency, conductivity (electrical and thermal), and response to magnets • I know that some materials will dissolve in liquid to form a solution, and I can describe how to recover a substance from a solution • I use my knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • I give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • I can demonstrate that dissolving, mixing and changes of state are reversible changes • I can 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	
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To be able to use simple vocabulary to describe the texture of different natural materials. • To be able to change the texture of a material by manipulating it.	• To be able to identify and name ice, water and steam. • To be able to describe the texture of different materials and compare them for a purpose (e.g. building a house for the 3 little pigs or a waterproof boat)	•Know the name of the materials an object is made from •Know about the properties of everyday materials	•Know how materials can be changed by squashing, bending, twisting and stretching •Know why a material might or might not be used for a specific job		•Group materials based on their state of matter (solid, liquid, gas •Know the temperature at which materials change state •Know about and explore how some materials can change state •Know the part played by evaporation and condensation in the water cycle	•Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets •Know and explain how a material dissolves to form a solution •Know and show how to recover a substance from a solution •Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) •Know and demonstrate that some changes are reversible and some are not •Know how some changes result in the formation of a new material and that this is usually irreversible	

Science knowledge progression

	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Bumpy Soft Scratchy Smooth Fluffy Rough Roll Crush Scrunch	Ice Water Steam Strong Bendy Weak Floppy Rough Smooth	Object Material Wood Plastic Glass Metal Water Rock Brick Paper Fabric Elastic Foil Card/cardboard Rubber Wool Clay Hard Soft Stretchy Stiff Bendy Floppy Waterproof Absorbent Breaks/tears Rough Smooth Shiny Dull See through Not see through	Opaque Transparent Translucent Reflective Non-reflective Flexible Rigid Shape Push/pushing Pull/puling Twist/twisting Squash/squashing Bend/bending Stretch/stretching		Solid Liquid Gas State Change Melting Freezing Melting point Boiling point Evaporation Temperature Water cycle	Thermal/electrical insulator/conductor, Change of state Mixture Dissolve Solution Soluble Insoluble Filter Sieve Reversible/non-reversible change Burning Rusting New material	

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks					Pupils should be taught to: • 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			
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
					• I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • I can describe in simple terms how fossils are formed when things that have lived are trapped within rock • I recognise that soils are made from rocks and organic matter			
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	•				•Compare and group rocks based on their appearance and physical properties, giving reasons •Know how soil is made and how fossils are formed •Know about and explain the difference between sedimentary, metamorphic and igneous rock			
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
					Rock Stone Pebble Boulder Grain Crystals Layers Hard Soft Texture Absorb water Soil			

Science knowledge progression

					Fossil Marble Chalk Granite Sandstone Slate Soil Peat Sandy/chalk/clay soil			

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Change	• Starting to develop an understanding of growth, decay and changes over time	•Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (Links to KS1 seasonal change and materials)	Pupils should be taught to: • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies					
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• I can talk about some of the things I have observed such as plants, animals, natural and found objects • I can comment on and asks questions about aspects of my familiar world such as the place where they live or the natural world • I talk about why things happen and how things work • I am developing an understanding of changes over time • I show care and concern for living things and the environment • I am beginning to understand the effect my behaviour can have on the environment	• I know the seasons of the year • I notice detailed features of objects in my environment • I can ask questions about aspects of the familiar world such as the place where I live. • I can describe what I can see, hear and feel whilst outside. • I understand the changing seasons and the effect on the natural world around them.	• I can observe the changes across the four seasons • I can observe and describe weather associated with the seasons and I observe how day length varies					
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To be able to make observations about a part of our natural environment and key points in the year, comparing them to previous observations and noticing what has changed (e.g. an apple tree in Autumn compared to Spring) • To be able to come up with a simple explanation about what	• To have a greater awareness of seasonal change • To correctly identify which season of the year it is • To use appropriate vocabulary to describe sensory experiences in each season and begin to make comparisons between them • To demonstrate an understanding of the cycle of the seasons e.g. what	• Name the seasons and know about the type of weather in each season					

Science knowledge progression

	• happens when the seasons change and why • To be able to care for our environment by giving plants and animals what they need to survive. • To be able to know which season they are experiencing in their environment.	will happen to an apple tree once the apples have fallen in Autumn with a basic explanation why.						
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Hot Cold Rain Wind Cloudy Sunny	Spring Summer Autumn Winter Warm Cold Wet Windy Rain Sunny Cloudy Leaves	Weather (sunny, rainy, windy, snowy etc.) Seasons Winter Summer Spring Autumn Sun Sunrise Sunset Day length Monsoon Thunder storm					

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	• Starting to develop an understanding of growth, decay and changes over time	• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (Links to KS1 seasonal change and materials) • Talks about why things happen and how things work • Notices detailed features of objects in their environment	(Light & Dark – North Yorkshire Unit. Additional non-statutory unit to build foundations for future learning)		Pupils should be taught to: • 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			Pupils should be taught to: • 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
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• To know that it is dark if it is not light • To be able to show the difference between dark and light.	• Recognise that the sun is our main source of light • Recognise some sources that give out light	• Recognise that we see with our eyes • Recognise that light helps us see things • Identify a variety of sources that give out light • Recognise that light sources vary in colour and brightness • Recognise that without light it is dark • Recognise that It is dangerous to look at the Sun • Recognise that the Sun gives us daylight		• I recognise that I need light in order to see things and that dark is the absence of light • I notice that light is reflected from surfaces • I recognise that light from the Sun can be dangerous and that there are ways to protect my eyes • I recognise that shadows are formed when the light from a light source is blocked by a solid object • I can find patterns in the way that the sizes of shadows change			• I recognise that light appears to travel in straight lines. • I can 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. • I can 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 • I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• I know that it is dark at night • I know that it is light during the day	• To identify 3 different sources of light • To know that the sun is our main source of light	• Recognise that we see with our eyes and that light helps us see things • Identify a variety of light sources.		• Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface			• Know how light travels • Know and demonstrate how we see objects

Science knowledge progression

		• To be able to explore different materials and make comparisons between them based on their translucency.	• Recognise that light sources can vary in brightness and colour • Recognise that without light it is dark • Recognise that it is dangerous to look at the sun and that the sun gives us daylight		• Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected			• Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Light Dark Day Night	Light Dark Day Night Sun Lamp Torch	Light Eyes Light source Brightness Dark Sun safety		Light Light source Dark Absence of light Transparent Translucent Opaque Shiny Matt Surface Shadow Reflect Mirror Sunlight Dangerous			Light Light source Dark Absence of light Transparent Translucent Opaque Shiny Matt Surface Shadow Reflect Mirror Sunlight Dangerous Straight lines Light rays

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound	• Starting to develop an understanding of growth, decay and changes over time • Talks about why things happen and how things work • Notices detailed features of objects in their environment	•Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (Links to KS1 seasonal change and materials) • Talks about why things happen and how things work • Notices detailed features of objects in their environment	(Sound – North Yorkshire Unit. Additional non-statutory unit to build foundations for future learning)			Pupils should be taught to: • 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		Sound– (North Yorkshire Unit. Additional non-statutory unit to revisit, embed and extend prior learning)
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• Creates sounds by rubbing, shaking, tapping, striking or blowing • Shows an interest in the way sound makers and instruments sound and experiments with ways of playing them, • Experiments with ways to create sounds • Explores and learns how sounds and movements can be changed	• Develops an understanding of how to create and use sounds intentionally	• I identify sounds that people think are nasty or nice • I recognise that sounds can be made in a variety of ways • I recognise that most objects can be made to make sounds • I recognise that sounds can be loud or soft • I recognise that sounds are heard when they enter our ears • I recognise that sounds can be used to indicate when something is happening or is going to happen • I recognise that different objects make different sounds • I recognise that sounds can be made by striking, shaking, scraping, plucking and blowing			• I can identify how sounds are made, associating some of them with something vibrating • I recognise that vibrations from sounds travel through a medium to the ear • I can find patterns between the pitch of a sound and features of the object that produced it • I can find patterns between the volume of a sound and the strength of the vibrations that produced it • I recognise that sounds travel away from their source • I recognise that sounds get fainter as the distance from the sound source increases		• I recognise that vibrations can travel at different speeds through different mediums • I recognise that not all objects can be seen to vibrate • I can describe how sounds are made when objects vibrate I recognise that sounds can be high or low (pitched)
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	• To be able to make loud, quiet, high pitched and low pitched sounds using instruments, voices or resources in the setting • To be able to make my own sounds using	• To use resources intentionally to create different sounds, responding to known vocab e.g. make an instrument that makes a 'shaking' sound.	• Identify sounds that people think are nice or nasty • Recognise that sounds can be loud or soft • Recognise that sounds are heard when they enter our ears			• Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears		• I recognise that vibrations can travel at different speeds through different mediums • I recognise that not all objects can be seen to vibrate

	equipment that I have created • To use some simple language to describe the sounds I am able to make.		• Recognise that sounds can be used to indicate when something is happening or is about to happen • Recognise that most objects can be made to make sounds • Recognise that sounds can be made by striking, shaking, scraping, plucking and blowing			• Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source		• I can describe how sounds are made when objects vibrate I recognise that sounds can be high or low (pitched)
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Loud Quiet Shake Noise	Noise Sound Loud Quiet Shake Clang Bang Scrape	Sound Noise Ear Hear Warning Striking Shaking Scraping Plucking Blowing			Sound Source Vibrate Vibration Travel Pitch (high, low) Volume Faint Loud Insulation		Sound Source Vibrate Vibration Travel Pitch (high, low) Volume Faint Loud Insulation Reverberation Sound waves Soundproof Loud

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity				(Electricity – North Yorkshire Unit. Additional non-statutory unit to build foundations for future learning)		Pupils should be taught to: • 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		Pupils should be taught to: • 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
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
				• I recognise that electricity can be dangerous • I recognise that batteries produce electricity • I recognise that batteries can make bulbs, buzzers and motors work I recognise that electricity travels through wire • I use drawings as a way of representing simple electrical circuits		• I can identify common appliances that run on electricity • I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells (batteries), wires, bulbs, switches and buzzers • I can identify whether or not a lamp (bulb) will light in a simple series circuit, based on whether or not the lamp (bulb) is part of a complete loop with a battery • I recognise that a switch opens and closes a circuit and associate this with whether or not a lamp (bulb) lights in a simple series circuit		• I associate the brightness of a lamp (bulb) or the volume of a buzzer with the number and voltage of cells (batteries) used in the circuit • I can 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 • I use recognised symbols when representing a simple circuit in a diagram

Science knowledge progression

						• I recognise some common conductors and insulators, and associate metals with being good conductors		
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
	•			• • Know that electricity can be dangerous • Know that batteries produce electricity • Know that batteries can make bulbs, buzzers and motors work Know that electricity travels through wires • Use drawings as a representing a simple electrical circuit		• Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each		• Compare and give reasons for why components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
				Electricity Battery Bulb Buzzer Motor Wire Circuit		Electricity Electrical appliance/device Mains Plug Electrical circuit Complete circuit Component Cell Battery Positive Negative, connect/connections Loose connection Short circuit Crocodile clip Bulb Switch Buzzer Motor Conductor, Insulator Metal Non-metal Symbol		Circuit Complete circuit Circuit diagram Circuit symbol Cell Battery Bulb Buzzer Motor Switch Voltage - NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces and Magnets	**Forces and Magnet play in provision** • UTW - Talks about why things happen and how things work • UTW - Notices detailed features of objects in their environment • UTW - Comments and asks questions about aspects of their familiar world • UTW- Begin to understand the effect their behaviour can have on the environment	**Forces and Magnet play in provision** • UTW - Talks about why things happen and how things work • UTW - Notices detailed features of objects in their environment • UTW - Comments and asks questions about aspects of their familiar world • UTW- Begin to understand the effect their behaviour can have on the environment		(Forces– North Yorkshire Unit. Additional non-statutory unit to build foundations for future learning)	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		Pupils should be taught to: • 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	
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
	• To be able to explore magnetism for an extended period using resources in the environment	• To begin to test ideas about magnetism for example by testing lots of materials in the environment and making a record of magnetic and non-magnetic materials. • To be able to move resources in a range of ways including pushing, rolling, pulling and using magnets.		• I have experienced how pushing, pulling and twisting can make objects change shape • I recognise that pushes and pulls can make objects move • I recognise that pushes and pulls can make objects speed up, slow down, change direction or stop • I notice that objects fall downwards • I recognise that pushes and pulls are forces	• I compare how things move on different surfaces • I notice that some forces need contact between two objects, but magnetic forces can act at a distance • I observe how magnets attract or repel each other and attract some materials and not others • I 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 • I can describe magnets as having two poles • I can predict whether two magnets will attract or repel each other, depending on which poles are facing		• I explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces • I recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**

Science knowledge progression

	• To begin to come up with some simple ideas about why some materials are magnetic and why some materials are non-magnetic materials.	• To notice how effort is improved or inhibited by changing the environment e.g. using a ramp to roll toy cards down vs pushing them up.		• Know that pushing, pulling and twisting can change an objects shape • Recognise that pushes and pulls make objects move, speed up, slow down, change direction and stop • Know that objects fall downwards • Know that push and pull are forces	• Know about and describe how objects move on different surfaces • Know how a simple pulley works and use to on to lift an object • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason		• Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction • Explain how levers, pulleys and gears allow a smaller force to have a greater effect	
	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
	Magnet magnetic	Magnet Magnetic Push Pull Roll		Push Pull Twist Speed Direction Forces	Force Push Pull Twist Contact force Non-contact force Magnetic force Magnet Strength Bar magnet Ring magnet Button magnet Horseshoe magnet Attract Repel Magnetic material Metal Iron Steel Poles North pole South pole		Force Gravity Earth Air resistance Water resistance Friction Mechanisms Simple machines Levers Pulleys, gears	

Science knowledge progression

	EYFS – Nursery	EYFS - Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and Space					(Earth and Space– North Yorkshire Unit. Additional non-statutory unit to build foundations for future learning)		Pupils should be taught to: • 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	
	Key Learning Outcomes	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**	**Key Learning Outcomes**
					• I observe how the Sun appears to move across the sky from East to West • I observe how the Sun appears to move and this causes shadows to change • I can describe how we can see the Moon because the Sun's light reflects off it • I can describe how the Earth and Moon go around the Sun in one year • I recognise that humans have been to the Moon		• I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system • I can describe the movement of the Moon relative to the Earth • I can describe the Sun, Earth and Moon as approximately spherical bodies • I use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky	
	Key Knowledge	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**	**Key Knowledge**
					• Observe how the sun appears to move across the sky from East to West • Observe how the sun appears to move and how this causes shadows to change • Describe how we see the moon because the Sun's light reflects off it • Describe how the Earth and Moon go around the Sun in one year • Recognise that humans have been to the moon		• Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical)	

Science knowledge progression

	Key vocabulary	**Key vocabulary**	**Key vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**	**Key Vocabulary**
					Earth Sun East West Shadow Reflect Moon Orbit		Earth Sun Moon, Mercury Jupiter Saturn Venus Mars Uranus Neptune Spherical Solar system Rotates Star Orbit Planets	