Science Knowledge Progression & Coverage:

WOODVALE PRIMARY ACADEMY

Programme of Study:	Year 1:	Year 2:	Year 3:	Year 4:	Year 5:	Year 6:
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. *Are all leaves the same?*	Observe and describe how seeds and bulbs grow into mature plants. *The Scented Garden* *Can seeds grow anywhere?* *What's on your wellies?* Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. *The Scented Garden* *Can seeds grow anywhere?* *How does grass grow?*	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. *What are flowers for?* Investigate the way in which water is transported within plants. *Predator!* *Why are trees tall?* Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. *What are flowers for?*			

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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). *Paws, Claws & Whiskers* Identify, name, draw and label the basic parts of the human body and say which part of the body is	Notice that animals, including humans, have offspring which grow into adults. *Wriggle & Crawl* *What is the lifecycle of a ladybird?* Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). *Wriggle & Crawl* *Do insects have a favourite colour?* *Do snails have noses?* Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. *How do germs spread?* *Wriggle & Crawl*	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. *Predator! x5* *What do owls eat?* Identify that humans and some other animals have skeletons and muscles for support, protection and movement. *Predator!* *What are our joints for?* *How do worms move?*	Describe the simple functions of the basic parts of the digestive system in humans. *Burps, Bottoms & Bile* *What is spit for?* Identify the different types of teeth in humans and their simple functions. *Burps, Bottoms & Bile x3* *How does toothpaste protect teeth?* Construct and interpret a variety of food chains, identifying producers, predators and prey. *Blue Abyss* *What do squirrels eat?* *Can worms sense danger?*	Describe the changes as humans develop to old age. *Time Traveller x3*	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. *Blood Heart x3* *How does blood flow?* *What's in blood?* Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. *Blood Heart x2* *How does blood flow?* *What can your heart rate tell you?* Describe the ways in which nutrients and water are transported within animals, including humans.

	associated with each sense. *What can our hands do?*					*Blood Heart x2* *What's in blood?* BUILDS ON WORK IN Y3 AND Y4
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. *Moon Zoom!*	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. *Can you make a paper bridge?* Identify and compare the suitability of a				

		variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. *Can water make music?*				
Seasonal Changes	Observe changes across the four seasons. *Splendid Skies* *Does it snow in summer?* Observe and describe weather associated with the seasons and how day length varies. *Splendid Skies* *How big is a raindrop?* *Does it snow in summer?* *How wild is the wind?*					

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Living Things and their Habitats		Explore and compare the differences between things that are living, dead, and things that have never been alive. *Will it degrade?* 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. *Where do snails live?* *Wriggle & Crawl* Identify and name a variety of plants and animals in their habitats, including microhabitats.		Recognise that living things can be grouped in a variety of ways. *Blue Abyss x2* *What do squirrels eat?* *Are all sea creatures the same?* Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. *Blue Abyss x2* *What do squirrels eat?* *Are all sea creatures the same?* Recognise that environments can change and that this can sometimes pose dangers to living things. *Blue Abyss*	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. *Sow, Grow & Farm* Describe the life process of reproduction in some plants and animals. *Sow, Grow & Farm x2* *Time Traveller*	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. *Darwin's Delights* *Frozen Kingdom x3* *Why are things classified?* *How many worms are underground?* *Where do wild plants grow best?* Give reasons for classifying plants and animals based on specific characteristics. *Why are things classified?* BUILDING ON WORK IN Y4

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		Towers, Tunnels & Turrets *Where do snails live?* *Wriggle & Crawl* *Do insects have a favourite colour?* 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. *Wriggle & Crawl* *Do snails have noses?* *What is the lifecycle of a ladybird?*		*How does pollution affect habitats?* *Why does it flood?* *Can worms sense danger?*		
Rocks			Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.			

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			Rocks, Relics & Rumbles *What is sand?* Recognise that soils are made from rocks and organic matter. *Rocks, Relics & Rumbles* *What is soil?* Describe in simple terms how fossils are formed when things that have lived are trapped within rock. *Predator!* *Rocks, Relics & Rumbles* *How do fossils form?*			
Light			Recognise that they need light in order to see things and that dark is the absence of light. *Urban Pioneers*			Recognise that light appears to travel in straight lines. *Hola Mexico!* *How does light travel?*

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			Why do cats eyes glow at night? Notice that light is reflected from surfaces. *Urban Pioneers* *Why do cats eyes glow at night?* Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. *Urban Pioneers* *Why do shadows change?* *What are sunglasses for?* Recognise that shadows are formed when the light from a light source is blocked by a solid (opaque) object. *Urban Pioneers* *Why do shadows change?*			*Tomorrow's World* *What colour is a shadow?* 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. *What are reflections?* *Tomorrow's World* *Can you see through it?* *How have eyes evolved?* 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. *Tomorrow's World* *What are reflections?*

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			Find patterns in the way that the size of shadows change. *Urban Pioneers* *Why do shadows change?*			*Can you see through it?* *How have eyes evolved?* Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. *Hola Mexico!* *How does light travel?* *What colour is a shadow?* BUILDS ON WORK IN Y3 ON LIGHT
Forces and Magnets			Compare how things move on different surfaces. *Mighty Metals* *What does friction do?* Notice that some forces need contact		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	

			between two objects, but magnetic forces can act at a distance. *Mighty Metals x2* *How mighty are magnets?* Observe how magnets attract or repel each other and attract some materials and not others. *Mighty Metals x2* *Can you block magnetism?* *How mighty are metals?* 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. *Mighty Metals x2*		*Stargazers* Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. *Stargazers* *Why are zip-wires so fast?* Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. *How do levers help us?*	

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			Can you block magnetism? *How mighty are magnets?* Describe magnets as having two poles. *Mighty Metals x2* *Why do magnets attract and repel?* Predict whether two magnets will attract or repel each other, depending on which poles are facing. *Mighty Metals x2* *Why do magnets attract or repel?*			
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		

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				research the temperature at which this happens in degrees Celsius (°C). *How do smells get up your nose?* Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. *Misty Mountain, Winding River* *Where does water go?* *Why does it flood?*		
Sound				Identify how sounds are made, associating some of them with something vibrating. *Playlist x2* *Can we block sound?*		

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				How can we change a sound? Recognise that vibrations from sounds travel through a medium to the ear. *Playlist x2* *Can we block sound?* *How can we change a sound?* Find patterns between the pitch of a sound and features of the object that produced it. *Playlist* *How can we change a sound?* *How far can sound travel?* Find patterns between the volume of a sound and the strength of the vibrations that produced it.		

				Playlist *How far can sound travel?* Recognise that sounds get fainter as the distance from the sound source increases. *Playlist* *How far can sound travel?*		
Electricity				Identify common appliances that run on electricity. *How do plugs work?* Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. *Can you make a circuit from playdough?*		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. *Tomorrow's World* Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the

				What conducts electricity? *Can we block sound?* Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. *Can you make a circuit from playdough?* *What conducts electricity?* *Can we block sound?* 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.		on/off position of switches. *Can you send a coded message?* *Can you turn a light down?* Use recognised symbols when representing a simple circuit in a diagram. *Can you send a coded message?* *Tomorrow's World x2* *Can you turn a light down?*

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				Can you make a circuit from playdough? Recognise some common conductors and insulators, and associate metals with being good conductors. *How do plugs work?* *What conducts electricity?*		
Properties and Changes of 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.	

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					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. *Alchemy Island* Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. *Stargazers*	

					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. *How do rockets lift off?* LINKED TO MAGNETISM (Y3) AND ELECTRICTY (Y4)	
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. *How does the moon move?* *Stargazers* 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. *Stargazers*	
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. *Darwin's Delights* *How have eyes evolved?* Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents *Darwin's Delights x3* Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. *Darwin's Delights x3* *Frozen Kingdom x2* *Where do wild plants grow best?*

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						Why do birds have different beaks? *Why is holly prickly?* *Can we slow cooling down?* *How do animals stay warm?* BUILDS ON ROCKS IN Y3