Millhouse Primary School

	EYFS	KS1	LKS2	UKS2
Working scientifically	Asking questions			
	Provide children with have frequent opportunities for outdoor play and exploration.	Ask simple questions and recognise that they can be answered in different ways.	Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests.	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
	Measuring and Recording			
	Encourage focused observation of the natural world. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.	Observe closely, using simple equipment. Perform simple tests. Gather and record data to help in answering questions	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units. Use a range of equipment, including thermometers and data loggers. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Gather, record, classify and present data in a variety of ways to help in answering questions	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Concluding			
	Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.	Identify and classify. Use observations and ideas to suggest answers to questions.	Identify differences, similarities or changes related to simple scientific ideas and processes. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Identify scientific evidence that has been used to support or refute ideas or arguments. 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.

			Use straightforward scientific evidence to answer questions or to support findings	
	Evaluating			
	Make comments about what they have heard and ask questions to clarify their understanding.		Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Use test results to make predictions to set up further comparative and fair tests
	EYFS	**KS1**	**LKS2**	**UKS2**
Animals including humans	Make observations and drawings of animals and plants and explain why some things occur, and talk about changes. Know the importance for good health, of physical exercise, hygiene and a healthy diet, and talk about ways to keep healthy and safe.	What are the five senses and how do we use these to find out about the world? Explain their ideas as responses to an issue. Identify, name common and compare animals. (fish, amphibians, reptiles, birds and mammals) Identify and name common animals (carnivores, herbivores and omnivores) How do humans keep healthy? (exercise, food, hygiene) What are the basic needs for survival? (water, food, air)	Animals including humans need the right amount of nutrition Animals including humans get their nutrition from what they eat. Why do we have a skeleton and what does it protect? How do animals move their muscles? How do muscles work? What are the simple functions of the basic parts of the digestive system in humans? What are the different types of teeth in a human and what are their simple functions. Construct and interpret a variety of food chains. Identify producers, predators and prey.	What are the changes as humans develop to old age? What are the main parts of the human circulatory system? What are the functions of the heart, blood vessels and blood? What is the impact of diet, exercise, drugs and lifestyle on the way the body functions? What ways are nutrients and water transported within animals, including humans?
Vocabulary	Plant, animal, human,	senses fish, reptiles, mammals, birds, amphibians herbivore, omnivore, carnivore, wings, beak. survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.	nutrition, movement, muscles, bones, skull, skeleton mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar.	foetus, embryo, womb, gestation, baby, toddler, teenager, elderly, growth, development, puberty. circulatory, heart, blood vessels, veins, arteries, oxygenated, deoxygenated, valve, exercise, respiration.

Millhouse Primary School

	EYFS	KS1	LKS2	UKS2
Living things and their habitats	Make observations of animals and plants and explain why some things occur, and talk about changes	Identify/name plants and animals including microhabitats. How can we sort living, dead and never been alive things? Describe how animals get food – food chain. What are the similarities and differences between local habitats and how does it affect the animals and plants that live there? 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. How do plants and animals depend upon each other?	Recognise that living things can be grouped in a variety of ways. How do I use a key to identify local plants and animals? Understand that environments can change and that this can sometimes pose dangers to living things. What ways can we protect living things and the environment?	What is the difference between the life cycles of a mammal, an amphibian, and insect and a bird? Describe the life process of reproduction in some plants and animals. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including microorganisms, planets and animals. What are the reasons for classifying plants and animals (specific characteristics) ?
Vocabulary	plant, animal, home, human	living, dead, habitat, 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, reptile, fish, bird, offspring. classification, vertebrates, invertebrates, microorganisms,
	EYFS	KS1	LKS2	UKS2
Plants	Make observations of animals and plants and explain why some things occur, and talk about changes.	Can you name the parts of a flowering plant and trees? What do plants need to grow well? What plants can you find by our school? Can you identify and name common wild and garden plants? (deciduous and evergreen trees). How do seeds and bulbs grow into mature plants?	Explore the part the flower plays in the life cycle of flowering plants including pollination, seed formation and seed dispersal. How is water transported through the plant? What are the requirements of plants for life and growth? (air, light, water, nutrients from soil and room to grow) How can this vary from plant to plant? What is the job of roots, leaves and stems/trunk and flowers?	

		Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.		
Vocabulary	plant, flower, grass, tree, seed, leaf, stem, root	deciduous, evergreen trees, leaves, flowers, petals, fruit, roots, bulb. seed, trunk, branches, stem seeds, water, light, temperature, growth.	air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, flower.	
	EYFS	KS1	LKS2	UKS2
Seasonal changes	Make observations of plants and explain why some things occur, and talk about changes. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Observe changes across the four seasons. Observe and describe weather associated with the seasons. Observe and describe how the day length varies based on the season.		
Vocabulary	weather, rain, sunshine, snow cloud.	summer, spring, autumn, winter, sun, day, moon, night, light, dark.		
	EYFS	KS1	LKS2	UKS2
Materials	Children know about similarities and differences in relation to objects materials and living things.	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. To describe the simple physical properties of a variety of everyday materials . Compare and group together a variety of everyday materials based on their simple properties. Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.		Compare and group together everyday materials on the basis of the properties including hardness, solubility transparency, conductivity (electricity and thermal) and response to magnets. Some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Separate solids, liquids and gases through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials including wood, plastic and metals.

		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		Demonstrate that dissolving, mixing and changes of state are reversible changes. Some changes result in the formation of new materials. Changes associated with burning and the action of acid on bicarbonate of soda are irreversible.
Vocabulary	Sand, playdough, paint, mix, soft, hard.	wood, plastic, glass, paper, water, metal, rock, hard, soft, bendy, rough, smooth stretchy, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent brick, paper, fabrics, squashing, bending, twisting, stretching elastic, foil.		hardness, solubility, transparency, conductivity, magnetic, filter, evaporation, dissolving, mixing
	EYFS	KS1	LKS2	UKS2
Forces	Children know about similarities and differences in relation to objects and materials.		Compare how things move on different surfaces. Magnets can attract, repel each other and have two poles. That magnets can attract some materials and not others. Predict whether two magnets will attract or repel each other based on which poles are facing. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. Identify some magnetic materials.	Why do unsupported objects fall towards the Earth (forces of gravity)? What are the effects of air resistance, water resistance and friction on moving surfaces? That some mechanicalness, including levers, pulleys and gears, allow a smaller force to have a greater effect
Vocabulary	Stop, Start, push, pull	Stop, Start, Roll, Move Slow Fast. Push, Pull, Speed, Direction Force.	Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull.	Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys.
	EYFS	KS1	LKS2	UKS2
Rocks	Children know about similarities and differences in relation to places, objects,		Compare and group together different kinds of rocks based on appearance and simple physical properties.	

	materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another		Describe in simple terms how fossils are formed when things have lived and then are trapped within rock. Recognise that soils are made from rocks and organic matter.	
Vocabulary	Hard, Smooth, Rough.		fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent.	
	EYFS	KS1	LKS2	UKS2
States of Matter	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.		Compare and group materials together according to whether they are solids, liquids or gases How do some materials change state when they are heated or cooled? I can measure or research the temperature at which this change happens in degree Celsius Identify the part played by evaporation and condensation in the water cycle. Associate the rate of evaporation with temperature.	
Vocabulary	Hard, Soft, Water, Hot, Cold		Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating	
	EYFS	KS1	LKS2	UKS2
Electricity	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.		What common appliances run on electricity? Construct a simple series circuit Identify the different parts to a circuit including cell, wires, bulbs, switches and buzzers Identify whether 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. How does a switch work and will this light the lamp in the simple series circuit?	How does the number and voltage of cells affect the brightness of a lamp or the volume of a buzzer? Compare and give reasons for variations in how components function including brightness of bulb, loudness of buzzer, on/off position of switches. Recognise symbols when representing a simple circuit in a diagram

			What are the common conductors and insulators? Are metals good conductors?	
Vocabulary	Bright, Dark.		Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators.	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts, Cell.
	EYFS	KS1	LKS2	UKS2
Earth and Space	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.			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 Why does the sun seem to move across the sky, rising in the East and setting in the West? Why do we have day time and night time?
Vocabulary	The World, Sky, Space, Stars, Planets.			Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, Star, Constellation, Solar System.
	EYFS	KS1	LKS2	UKS2
Sound	Children know about. similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how		How are sounds made? (vibration). Vibrations travel through a medium to the ear. Find patterns between the volume of a sound and the strength of the vibration. What happens to sound as the distance from the sound source increases?	

	environments might vary from one another.			
Vocabulary	Quiet loud		Volume, Vibration, Wave, Pitch, Tone	
	EYFS	KS1	LKS2	UKS2
Light	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.		Recognise the need for light to see things and that dark is the absence of light? Light is reflected from surfaces Light from the sun can be dangerous and that there are ways to protect your eyes. Shadows are formed when the light from light sources is blocked by a solid object.	What direction does light travel? Objects are seen because they give out or reflect light into the eye. How do we see things? (light travels from light sources to our eyes or from light sources to objects then to our eyes). Understand that light travels in straight lines which explain why shadows have the same shape as the object that cast them
Vocabulary	Bright, Dark		Light, Shadows, Mirror, Reflective, Dark, Reflection.	Refraction, Reflection, Light, Spectrum, Rainbow, Colour.
	EYFS	KS1	LKS2	UKS2
Evolution and Inheritance				How do living things change over time? What information does a fossil provide? (information about living things that inhabited the Earth millions of years ago) Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. How do animals and plants adapt to suit their environment? How does adaptation lead to evolution?
Vocabulary				Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics.