Science at Lytham CE – Progression of Enquiry Skills, Knowledge and Vocabulary

	EYFS Development Matters		KS1 National Curriculum	KS2 National Curriculum	
Working Scientifically	-Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" (C&L) -Use all their senses in hands-on exploration of natural materials. (UTW) -Explore how things work. (UTW) -Use one-handed tools and equipment. (PD) -Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. (PD) *-Make comparisons between objects relating to size, length, weight and capacity. (M)* *-Compare quantities using language: 'more than', 'fewer than'. (M)* -Select and use activities and resources, with help when	-Ask questions to find out more and to check they understand what has been said to them. (C&L) -Explore the natural world around them. (UTW) -Describe what they see, hear and feel whilst outside. (UTW) -Develop their small motor skills so that they can use a range of tools competently, safely and confidently. (PD) -Count objects, actions and sounds. (M) -Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. (C&L) -Show resilience and perseverance in the face of	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: -asking simple questions and recognising that they can be answered in different ways -observing closely, using simple equipment -performing simple tests -identifying and classifying -using their observations and ideas to suggest answers to questions -gathering and recording data to help in answering questions.	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: -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.	During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: -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 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.
			See separate Lytham CE Key Learning in Science document for weekly breakdown of Scientific Enquiry skills.		

	needed. This helps them to achieve a goal they have chosen, or one which is suggested to them. (PSED) -Talk about what they see, using a wide vocabulary. (UTW) -Draw with increasing complexity and detail, such as representing a face with a circle and including details. (UTW) *-Make comparisons between objects relating to size, length, weight and capacity. (M)* *-Compare quantities using language: 'more than', 'fewer than'. (M)*	challenge. (PSED) *-Connect one idea or action to another using a range of connectives. (C&L)* *-Describe events in some detail. (C&L)* -Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary. (C&L) *-Connect one idea or action to another using a range of connectives. (C&L)* *-Describe events in some detail. (C&L)* -Compare length, weight and capacity. (M)						
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals, including Humans	**UTW** -Use all their senses in hands-on exploration of natural materials. -Begin to make sense of their own life-story and family's history. -Understand the key features of	**UTW** -Talk about members of their immediate family and community. -Name and describe people who are familiar to them.	-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,	-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,	-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.	-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	-Describe the changes as humans develop to old age*. *Note: This unit must be taught alongside PSHE and reflect the statutory requirements for Relationships and Health Education.	-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,

	the life cycle of an animal. -Begin to understand the need to respect and care for the natural environment and all living things. -Talk about what they see, using a wide vocabulary.	-Recognise some environments that are different to the one in which they live.	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.	eating the right amounts of different types of foo	-Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	producers, predators and prey.		exercise, drugs and lifestyle on the way their bodies function. -Describe the ways in which nutrients and water are transported within animals, including humans.
Animals, inc Humans Vocabulary	egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf.	Names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister,	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves. Names of animals experienced firsthand from each vertebrate group. Parts of the body including those linked to PSHE teaching. Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ears and tongue.	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta).	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine.	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	Puberty – the vocabulary to describe sexual characteristics.	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.

		mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman.						
Living Things and their Habitats	**UTW** -Use all their senses in hands-on exploration of natural materials. -Explore collections of materials with similar and/or different properties. -Begin to understand the need to respect and care for the natural environment and all living things.	**UTW** -Draw information from a simple map. -Explore the natural world around them. -Describe what they see, hear and feel whilst outside. -Recognise some environments that are different to the one in which they live.		-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.		-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.	-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.	-Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics.
Living Things and their Habitats Vocabulary	Natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones,	Plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a		Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed. Names of local habitats e.g. pond, woodland 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,

	same, different, pattern.	contrasting environment (e.g. beach, forest).		Names of microhabitats e.g. under logs, in bushes, etc				flowering, nonflowering.
Plants	**UTW** Use all their senses in hands-on exploration of natural materials. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant. Begin to understand the need to respect and care for the natural environment and all living things.	**UTW** Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant.	-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.	-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.	-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 Vocabulary	Plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil, names of plants they grow.	tree, bush, herb, names of plants they see (Reception - Living things and their habitats)	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in the local area. Names of garden and wild flowering	As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal).			

			plants in the local area.					
Seasonal Change	**UTW** Explore the natural world around them. Describe what they see, hear and feel whilst outside.	**UTW** Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them.	-Observe changes across the four seasons. - Observe and describe weather associated with the seasons and how day length varies.					
Seasonal Change Vocabulary	Grow, shoot, die, dead (Nursery - Plants). Egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young (Nursery - Animals, excluding humans).	Spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers.	Weather (sunny, rainy, windy, snowy etc.). Seasons (winter, summer, spring, autumn). Sun, sunrise, sunset, day length.					
Materials		**UTW** Explore the natural world around them. Describe what they see, hear and feel whilst outside.	**Everyday Materials** -Distinguish between an object and the material from which it is made. -Identify and name a variety of everyday	**Uses 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.		**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	**Properties and Changes of Materials** -Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency,	

			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.	-Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		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.	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.	

Materials Vocabulary		Ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back .	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.	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid. Shape, push/pushing, pull/pulling, 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.	
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.			
Rocks Vocabulary					Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat,			

					sandy/chalk/clay soil.			
Light Sound	**UTW** **Light** -Explore how things work. -Talk about the differences between materials and changes they notice.	**UTW** **Light** -Describe what they see, hear and feel whilst outside.			**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.	**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.		**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.
Light Sound Vocabulary	**Light** Light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror. **Sound** Sound, noise, loud, quiet, high, low, music, bang,	**Light** Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source. **Sound** Sound, noise, listen, hear, music, voices,			Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous .	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.		As for Year 3 - Light, plus straight lines, light rays.

	blow, pluck, soft, hard, fast, slow, names of instruments.	bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar.						
Forces Magnets		**UTW** Explore how things work. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. Explore the natural world around them. Describe what they see, hear and feel whilst outside.			-Compare how things move on different surfaces. -Notice that some forces need contact between two 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 two poles. -Predict whether two magnets will attract or repel each other, depending on which poles are facing.		- 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.	

Forces Magnets Vocabulary		Float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce.			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.	
Electricity	**UTW** Explore how things work. Talk about the differences between materials and changes they notice.					-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.		-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.

Electricity Vocabulary	Battery, plug, socket, electricity, wire, sound, light, move.					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 N.B. 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.
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.	
Earth and Space Vocabulary							Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system,	

							rotates, star, orbit, planets.	
Evolution and Inheritance* (*Note for Year 6 – see Plants; Animals, including Humans; Living Things and their Habitats; and Rocks for how some of these aspects have been covered lower down the school.)								-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.
Evolution and Inheritance Vocabulary								Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils.