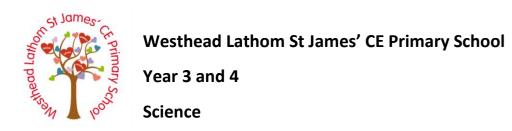


Questions to Develop Children's Spirituality in Science:	Do you believe there is creator of the earth? Do you believe in evolution, that humans came from monkeys and we all developed from fish? Does the theory of evolution mean you are just a monkey? Are you just a pile of atoms? In what ways are you like your parents (made in their image)? What is it like to be made in the image of God? Why is it that no two people on the earth are exactly the same- not even twins? Is your behaviour learnt of inbuilt- are we naturally selfish? When you look around at the wonders of the natural world do you think these things were created by accident or by design?
Development of the child:	Questioning, wonder, critical mind, reasoning and awe.



Year 3 and 4

Topic: How Does Your Garden	Prior Knowledge/Links:	
Grow?- Plants	Growth and Green Fingers- Plants (Y1/2)	
	The Farm Shop - Plants (Y1/2)	
Subject: Science		
	Children should already know:	
	 a variety of common wild and garden plants, including deciduous and evergreen trees. 	
	 the basic structure of a variety of common flowering plants, including trees. 	
	 how seeds and bulbs grow into mature plants. 	
	 how plants need water, light and a suitable temperature to grow and stay healthy. 	
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Plants (Y3)	 Know the different parts of flowering plants: roots, stem/trunk, leaves and flowers. 	function
Identify and describe the	 Know the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow). 	roots
functions of different parts of	 Know that the requirement for growth can vary from plant to plant. 	stem
flowering plants: roots,	Know how water is transported within plants.	trunk
stem/trunk, leaves and	 Know the part that flower play in the life cycle of flowering plants, including pollination, seed formation 	nutrients
flowers.	and seed dispersal.	transported
Explore the requirements of	 Know that roots grow downwards and anchor the plant, 	pollination
plants for life and growth (air,	 Know that water, taken in by the roots, goes up the stem to the leaves, flowers and fruit. 	life cycle
light, water, nutrients from	 Know that nutrients (not food) are taken in through the roots. 	seed
soil and room to grow)	 Know that stems provide support and enable the plant to grow towards the light. 	formation
Investigate the way in which	 Know that plants make their own food in the leaves using energy from the sun 	seed dispersal
water is transported within	 Know that flowers attract insects to aid pollination. 	germination
plants. Explore the part that flowers	 Know that pollination is when pollen is transferred between plants by insects, birds, other animals and 	
play in the life cycle of	the wind.	
flowering plants, including	 Know that seeds are formed after the flowers are pollinated. 	
pollination, seed formation	 Know that many flowers produce fruits which protect the seed and/or aid seed dispersal. 	
and seed dispersal.	 Know that Seed dispersal, by a variety of methods, helps to ensure that new plants survive. 	
and deed dispersuit	 Know that plants need nutrients to grow healthily (either naturally from the soil or from fertiliser added 	
	to soil).	



Topic: Marvellous Creations-	Prior Knowledge/Links:	
Animals, including humans	Animals – Animals, including humans (Y1/2)	
, 3	Robots – Animals, including humans (Y1/2)	
Subject: Science		
	Children should already know: 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 and draw and label the basic parts of the human body and say which part of the body is associated with each sense.	
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Animals, including humans (Y4)	 Know the basic parts of the digestive system in humans 	digestive
Describe the simple functions	 Know the simple functions of the basic parts of the digestive system in humans. 	predator/prey
of the basic parts of the	 Know the producer, predator and prey in a food chain. 	carnivore
digestive system in humans.	 Know the types of teeth humans have. 	herbivore
Identify the different types of	 Know the function and position of human teeth in the mouth. 	omnivore
teeth in humans and their	Know what damages teeth.	stomach
simple functions.	 Know how teeth and gums have to be cared for in order to keep them healthy. 	intestines
Construct and interpret a	 Know the differences between the teeth of carnivores and herbivores and the reasons for this. 	large/small intestines
variety of food chains,		oesophagus
identifying producers,		stomach
predators and prey.		duodenum
		liver
		gall bladder
		pancreas
		saliva
		saliva glands
		mouth
		teeth
		molars
		incisors
		pre-molars
		canines



Year 3 and 4

% ▲ 6° Science		
Topic: The Iron Man-Forces	Prior Knowledge/Links:	
and Magnets	Great Outdoors- Everyday Materials (Y1/2)	
	Buckets and Spades- Use of Everyday Materials (Y1/2)	
Subject: Science	Inventors and Inventions- Forces (Y5/6)	
	 Children should already know: how to distinguish between an object and the material from which it is made. a variety of everyday materials, including wood, plastic, glass, metal, water and rock. the simple physical properties of a variety of everyday materials. how to compare and group together a variety of everyday materials on the basis of their simple physical properties of a variety of everyday materials, including wood, metal, plastic, particular uses. how the shapes of solid objects made from certain materials can be changed by squashing, bending, twisting 	glass, brick, rock, paper and cardboard for
National Curriculum Objectives	Key Knowledge and Vocabulary	
Forces and Magnets (Y3) 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 material 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 in which poles are facing.	 Know how objects can move on different surfaces. Know that some forces need contact between two objects. Know that magnetic forces can act at a distance. Know how magnets attract or repel each other. Know how magnets attract some materials and not others. Know that magnets have two poles. Know if magnets will attract or repel each other, depending on which poles are facing each other. Know the everyday uses of different magnets (bar, ring, button, horseshoe). Know that different magnets have different strengths 	move/movement surfaces push/pull forces contact distance magnet magnetic attract repel poles bar magnet ring magnet horseshoe magnet magnetic materials



Topic: Water, Water- States	Prior Knowledge/Links:	
of Matter	Great Outdoors- Everyday Materials (Y1/2)	
	Buckets and Spades- Use of Everyday Materials (Y1/2)	
Subject: Science	A Kingdom United- Properties and Changes of Materials (Y5/6)	
•	Food, Glorious Food – Properties and Changes of Materials (Y5/6)	
	Children should already know:	
	 how to distinguish between an object and the material from which it is made. 	
	 a variety of everyday materials, including wood, plastic, glass, metal, water and rock. 	
	the simple physical properties of a variety of everyday materials.	
	 how to compare and group together a variety of everyday materials on the basis of their simple physical pro 	perties
	 how to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic 	
	cardboard for particular uses.	
	 how the shapes of solid objects made from certain materials can be changed by squashing, bending, twisting 	g and stretching.
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
States of matter (Y4)	Know how to group a material according to whether they are a solid, liquid or gas, by their observable	solid
Compare and group materials	properties.	liquid
together, according to	Know that solids have a fixed size and shape	gas
whether they are solids,	 Know that the size and shape of a solid can be changed, but it remains the same after the action. 	temperature
liquids or gases.	 Know that liquids can pour and take the shape of the container in which they are put. 	heat/heating
Observe that some materials	Know that liquids form in a pool not a pile.	cool/cooling
change state when they are	 Know that solids in the form of powders can pour as if they were liquids but make a pile not a pool. 	melt/melting
heated or cooled, and	Know that gases fill the container in which they are put.	freeze/freezing
measure or research the	Know that gases escape from an unsealed container.	water cycle
temperature at which this	Know that gases can be made smaller by squeezing/pressure.	evaporation
happens in degrees Celsius.	Know that liquids and gases can flow.	condensation
Identify the part played by	Know the effect of temperature on water and ice	precipitation
evaporation and	Know how liquids can evaporate over time.	water vapour
condensation in the water	Know that the rate of evanoration can be altered according to temperature	states of matter
cycle and the associate rate of evaporation with temperature	• Know the different stages of the water cycle including evaporation, condensation, precipitation	



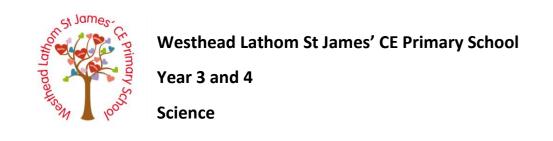
Year 3 and 4

Topic: Healthy Humans-	Prior Knowledge/Links:	
Animals, including humans	Animals- Animals, including humans (Y1/2)	
	Robots- Animals, including humans (Y1/2)	
Subject: Science	Fighting Fit- Animals, including humans (Y1/2)	
	Higher, Faster, Stringer- Animals, including humans (Y5/6)	
	Heroes and Villains- Animals, including humans (Y5/6)	
	Children should already know:	
	 animals, including humans, have offspring which grow into adults. 	
	 the basic needs of animals, including humans, for survival (water, food and air) 	
	• the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Animals, including humans	 Know that animals, including humans, need the right types and amount of nutrition. 	nutrition
(Y3)	 Know that animals, including humans, cannot make their own food; they get nutrition from what 	diet
Identify that animals,	they eat.	skeleton
including humans, need the	 Know that an adequate and varied diet is beneficial to health. 	varied
right types and amount of	 Know that a good supply of oxygen is beneficial to health. 	oxygen
nutrition.	Know that clean water is beneficial to health.	beneficial
	 Know that regular and varied exercise from a variety of different activities is beneficial to health. 	omnivore
	 Know the diets of different animals (including pets). 	herbivore
	Know how to group animals according to what they eat.	carnivore
	Know how different food groups keep us healthy.	health/healthy
	- Know how anterest room groups keep as healthy.	food chains



Year 3 and 4

Topic: Rock and Roll- Rocks	Prior Knowledge/Links:	
and Soils	Great Outdoors- Everyday Materials (Y1/2)	
	Buckets and Spades- Use of Everyday Materials (Y1/2)	
Subject: Science	Survival – Evolution and inheritance (Y5/6)	
	 Children should already know: how to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and the simple physical properties of a variety of everyday materials. how to compare and group together a variety of everyday materials on the basis of their simple physical p how to identify and compare the suitability of a variety of everyday materials, including wood, metal, plas for particular uses. 	roperties
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Rocks (Y3) 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.	 Know how to group different kinds of rocks on the basis of their appearance and simple physical properties. Know how to describe, in simple terms, how fossils are formed when things that have lived are trapped within a rock. Know that soils are made from rocks and organic matter. Know the similarities and differences between rocks. Know the similarities and differences between soils (hardness, permeability). Know that rocks and soils can be different in different places/environments. Know how and why rocks used in buildings might have changed over time. Know how to use a hand lens/microscope to identify and classify rocks according to whether they have grains or crystal and whether they have fossils in them. Know the different kinds of living things whose fossils are found in sedimentary rock. 	soil rock fossil organic material grains crystals sedimentary rock igneous rock metamorphic rock formation hardness permeability/permeable properties purposes/uses pressure heat decay



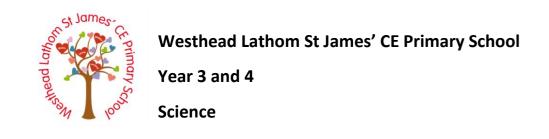
Topic: Sparks Might Fly-	Prior Knowledge/Links:	
Electricity	Oh I Do Like to Be Beside the Seaside- Electricity (Y5/6)	
Subject: Science National Curriculum Objectives	Children should already know: N/A Key Knowledge and Vocabulary	
Electricity (Y4) Identify some common appliances that run on electricity. 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.	 Know that common appliances run on electricity. Know how to construct a simple series electrical circuit. Know how to identify and name the basic parts of a simple series electrical circuit, including cells, wires, bulbs, switches and buzzers. Know if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Know that a switch opens and closes a circuit. Know some common conductors and insulators. Know that metals are good conductors. Know that electricity can be dangerous. Know that electrical sources can be mains or battery. Know that batteries 'push' electricity round a circuit which can make bulbs, buzzers and motors work. Know that faults in circuits can be found by methodically testing connections. Know that drawings, photographs and diagrams can be used to represent circuits. Know that bulbs get brighter if more cells are added. 	electricity circuit light bulb cell wire buzzer switch motor battery series circuit conductor insulator break circuit diagram



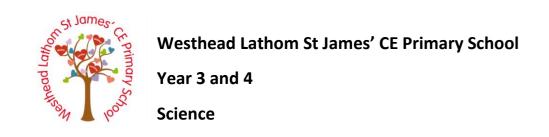
Topic: Hunted-Living Things	Prior Knowledge/Links:	
and Their Habitats	Wind in the Willows-Living things and their habitats (Y1/2)	
	Amazon Adventure— Living things and their habitats (Y5/6)	
Subject: Science	Super Sleuth – Living things and their habitats (Y5/6)	
	 Children should already know: the differences between things that are living, dead and things that have never been alive. 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. the names of a variety of plants and animals in their habitats, including microhabitats. 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. 	
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Living things and their habitats (Y4) 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 the local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to	 Know that living things can be grouped in a variety of ways (animals, flowering and non-flowering plants) Know how to use classification keys to help group, identify and name a variety of living things in the local and wider environment. Know how to construct and interpret a variety of food chains. Know the producer, predator and prey in a food chain. Know that environments can change and that this can sometimes pose dangers to living things (population and development, litter, deforestation). Know the positive human impacts on environments (nature reserves, ecologically planned parks, garden ponds). Know how to use and make identification keys for plants and animals. 	environment flowering/non-flowering ferns mosses grasses vertebrate animals invertebrate animals mammals/amphibians/reptiles fish/birds human impact litter deforestation population
living things.		increase/decrease nature reserves protection conservation



Topic: There's No Place Like	Prior Knowledge/Links:	
Home-Light and Shadows	A Ship Called Hope – Light (Y5/6)	
(standalone science unit)		
	Children should already know:	
	• N/A	
Subject: Science		
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Light (Y3)	Know that we need light in order to see things.	light
Recognise that they need light	 Know that dark is the absence of light. 	dark
in order to see things and that	Know how light travels in straight lines	absence of light
dark is the absence of light.	Know that light is reflected from surfaces.	reflect
Notice that light is reflected	 Know what happens when light reflects off a mirror or other reflective surfaces. 	shadows
from surfaces.	Know that light from the sun can be dangerous.	opaque
Recognise that light from the	Know that there are ways to protect our eyes.	mirror
sun can be dangerous and	 Know that shadows are formed when light from a light source is blocked by a solid object. 	reflective
that there are ways to protect	Know the patterns in the way that the size of shadows can change.	surface
their eyes.	The control of the co	
Recognise that shadows are		
formed when the light from a		
light source is blocked by a		
solid object.		
Find patterns in the way that		
the size of shadows changes.		



Topic: The Great Plague-	Prior Knowledge/Links:	
Sound (standalone science	n/a	
unit)		
	Children should already know:	
Subject: Science		
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Sound (Y4) Identify how sounds are made, associating some of them with something vibrating. Recognise that vibration 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 vibration that produced it. Recognise that sounds get fainter as the distance from the sound increases.	 Know how sounds are made, associating them with something vibrating. Know that vibrations from sounds travel through a medium to the ear. Know that sounds are heard when they enter our ears. Know the patterns between the volume of a sound and the strength of the vibrations that produced it. Know that sounds get fainter as the distance from the sound increase. Know that sounds can be made in a variety of ways (pluck, bang, shake, blow). Know that sounds can be made using a variety of things (instruments, everyday materials, body). Know that sounds travel away from their source in all directions. Know that vibrations may not always be visible to the naked eye. Know that sounds can be high or low pitched. Know that the pitch of a sound can be altered by changing the material, tensions, thickness or length of vibrating objects. Know that sound travels through solids, liquids and air/gas by making the materials vibrate. Know that sound travel can be reduced by changing the material that the vibrations travel through. Know that sound travel can be blocked. 	sound vibrate vibration pitch volume insulation travel sound waves distortion



Topic: Passport to Europe-	Prior Knowledge/Links:	
Skeletons (standalone science	Animals- Animals, including humans (Y1/2)	
unit)	Robots- Animals, including humans (Y1/2)	
	Fighting Fit- Animals, including humans (Y1/2)	
Subject: Science	Faster, Higher, Stronger – Animals including humans (Y5/6)	
	Heroes and Villains- Animals, including humans (Y5/6)	
	Children should already know:	
	 the names of a variety of common animals including fish, amphibians, reptiles, birds and mammals. 	
	 the names of a variety of common animals that are carnivores, herbivores and omnivores. 	
	 the structure of a variety of common animals (fish amphibians, reptiles, birds and mammals including pets). 	
	 the names of the basic parts of the human body and say which part of the body is associated with each sense. 	
National Curriculum	Key Knowledge and Vocabulary	
Objectives		
Animals including humans	 Know that humans and some other animals have skeletons and muscles for support, protection and 	vertebrate
(Y3)	movement.	invertebrate
	 Know that vertebrates have a skeleton which supports their body, aids movement and protects vital organs. 	mammals/amphibians/reptiles
Identify that humans and	 Know that invertebrates do not have skeletons/backbones. 	fish/birds
some other animals have	 Know how invertebrates have adapted other ways to support themselves, move and protect their vital 	human impact
skeletons and muscles for	organs.	reproduction
support, protection and	 Know how the skeletons of birds, mammals, fish, amphibians or reptiles are similar (backbone, ribs, skull, 	alive/living
movement.	bones used for movement) and the differences in their skeletons.	dead
	 Know that muscles, which are attached to the skeleton, help animals move parts of their body. 	movement
	 Know how humans grow bigger as they reach maturity by making comparisons linked to body proportions 	reproduction
	and skeleton growth.	respiration
	 Know that animals are alive; they move feed, grow, use their sense and reproduce. 	nutrition
		excretion
		growth
		senses skeleton
		exoskeleton
		muscles
		backbone
		מנגטטווכ