

Curriculum Intent & Progression Document

SCIENCE

St. Mary's Catholic Voluntary Academy, Grantham

2022-23



Subject Leader: Mrs Emma Glover

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St. Mary's Catholic Voluntary Academy, Grantham
2022-23

Mission Statement

Christ is at the centre of St. Mary's as we strive to nurture and care for all our community members by encouraging them to **Believe, Succeed** and **Soar** within God's love, to achieve the very best that they can, in all areas.

Our Vision

We are disciples who put our faith into action in all that we do.
We are role models who encourage others to shine and be the best version of themselves that they can be.
We are investigators who ask questions about the past, the present and the future.
We are artists who show our creativity and talents with flair and imagination.
We are storytellers who have a passion for reading and are able to communicate in many ways.
We are problem solvers who tackle tasks with an open mind and a positive approach.
We are team players who work together to achieve our goals.
We are explorers who learn new skills, embrace other cultures and value our locality and the wider world.
We **Believe. We Succeed. We Soar.**

Our Gospel Virtues

To achieve our full Christian potential, we all need to live out our Gospel Virtues: -

Love

A Christ-like love respects the talent of each person in our school.

Faith

Faith helps us to do God's will in this world.

Hope

Hope helps us to see a new life beyond our present one.

Peace

We know that if we love one another, peace will be all around us.

Mercy

We believe that mercy will be shown by the way we forgive others.

Community

We believe our community here unites us all as followers of Jesus.

Curriculum Intent General Principles:

Below, the General Principles of our whole school curriculum intention are in black print, along with what this translates to as regards Science in red:

The **General Principles** of our curriculum are that children:

- Meet Jesus through all aspects of their work. It is our intention that the children will encounter Jesus through elements of their Science work. We hope to encourage them to look at the wonderful and complex world in which we live through new eyes and with greater understanding of how things work, how things change and their role in its preservation. Studying Science can allow children to question and to experience God's awe and wonder and they will be encouraged to do this.
- Experience the challenge and enjoyment of learning. Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way that they do. It teaches methods of enquiry and investigation to stimulate creative thought. It encourages questioning, hypothesising and analysis through hands-on practical investigations, drama, craft and research.
- Learn within a coherent and progressive framework. Following a time of somewhat fragmented planning, that lacked fluency and clear progression, we have adopted the Plymouth Science Scheme. This scheme allows many opportunities for reinforcement of sticky knowledge and for children to access scientific knowledge through a wide variety of activities. We have also structured the framework to allow staff to use their own professional experiences and external resources to augment this planning.
- See clear links between different aspects of their learning. Science is not a stand-alone subject. Every day and in all aspects of our lives, we engage in scientific tasks as part of our routine activities. Through-out the activities, the children will see connections with other aspects of their learning including History, RHSE, Maths and their work in the WOW area
- Understand the purpose and value of their learning and see its relevance to their past, present and future. We aim to equip our pupils with the knowledge, conceptual understanding, enquiry skills to understand the uses and implications of Science today and in the future through the study of Biology, Chemistry and Physics.
- Explore the breadth and depth of the national curriculum. The intention is that the learning goes beyond that of the National Curriculum and that areas of learning are more clearly defined and allow for investigation, questioning, hypothesising and the drawing of conclusions.

Curriculum Intent: Science (2022-23)

EYFS SCIENCE					
ADVENT 1 – Growth and Change (Humans) Children will...	ADVENT 2 – Light and Dark (Grouping and Classifying) Children will...	LENT 1 – Comparing and Grouping. Floating and Sinking. Properties of Materials. Children will...	LENT 2 – Sounds and Senses Children will...	PENTECOST 1 – Growth and Change (Animals) Children will...	PENTECOST 2 – Growing plants Children will...
<p>Know the lifecycle of a human.</p> <p>Know how to talk about how they have changed since they were a baby.</p> <p>Know how to talk about similarities/differences/pattern and change in relation to people.</p> <p>Know how to talk about changes in Autumn</p>	<p>Know how to talk about changes they can see in Winter.</p> <p>Know how make different shadows and colours with torches.</p> <p>Know and talk about why some animals hibernate or migrate in Winter.</p> <p>Know that they need to care for the natural environment and all living things.</p>	<p>Know what Floating and Sinking are and to sort objects accordingly.</p> <p>Know some properties of everyday materials and talk about their similarities and differences.</p>	<p>Know how to talk about the changes I see in Spring.</p> <p>Know how to talk about a famous scientist – linked to Sound and Technology, including their name.</p> <p>Know what the 5 senses are.</p>	<p>Know how to talk about similarities and differences in relation to some farm animals.</p> <p>Know about the life cycles of butterflies and chickens</p> <p>Know what animals needs to grow and stay healthy and how they can help with this.</p> <p>Know that they need to care for the natural environment and all living things.</p> <p>Know some features of our school environment and how they might differ from another environment.</p>	<p>Know the names of the basic parts of a plant (leaf, stem, petal, flower)</p> <p>Know what a plant needs to grow and how they can help with this</p> <p>Know some similarities and differences between plants.</p> <p>Know how to talk about the changes they see in summer.</p>
VOCABULARY					
Baby, child, teenager, adult, elderly, leaves, changes, red, orange, brown, crunchy, yellow, falling, season	Cold, ice, snow, bare trees, dark, freeze, frozen, warm, shadow, shape, migrate, fly,	Float, sink, heavy, light, bottom, top, soft, rough, smooth, hard, bendy, same, different	Buds, shoots, leaves, warmer, blossom, rain showers, daffodils, eye, seeing, ear,	Farm animal names. Butterfly, egg, caterpillar, cocoon/chrysalis,	Plant, leaf, stem, petal, flower, water, light, soil, food, sun, tee - shirt, shorts,

	south, warmer, hibernate, shelter, warm, food store, curl, Gloves, scarf, boots, coat		hearing, nose, smelling, mouth, tasting, fingers, touching, feeling, senses.	hatch, chick, chicken, incubator, life cycle, changes, food, water, shelter, clean, humans, help, care,	sunglasses, hot, sunburn, safe, sun cream, shade.
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Year 1 SCIENCE					
ADVENT 1 – Seasonal Changes (Physics) Children will...	ADVENT 2 – Animals including Humans (Biology) Children will...	LENT 1 - Animals including Humans (Biology) Children will...	LENT 2 – Everyday Materials (Physics) Children will...	PENTECOST 1 – Everyday Materials (Physics) Children will...	PENTECOST 2 – Plants (Biology) Children will...
<p>L1: Know the names of the 4 seasons; describe the similarities and differences</p> <p>L2: Know the changes that take place in Autumn in trees, plants and animals</p> <p>L3: Know what conditions are like in Winter; know how snow is formed</p> <p>L4: Know some of the signs of Spring</p> <p>L5: Know the conditions in Summer; the dangers of the sun</p> <p>L6: Know how to compare the 4 seasons</p>	<p>L1: Know the basic parts of the human body</p> <p>L2: Know the 5 senses and which body part is associated with which sense (taste, sight)</p> <p>L3: Know the 5 senses and which body part is associated with which sense (smell, touch, hearing)</p> <p>L4: Know how to sort and classify animals using simple characteristics (e.g. legs, no legs); know the names of some common animals (fish, amphibians, reptiles, birds and mammals)</p>	<p>L1: Know how their body moves and that not all bodies move in the same way.</p> <p>L2: Know how to use their 5 senses when exploring the outdoor environment and how to record their findings</p> <p>L3: Know a variety of common mini-beasts</p> <p>L4: Know some names of common birds and their characteristics</p> <p>L5: Know what camouflage is and that some animals use this to protect themselves</p>	<p>L1: Know the difference between an object and the material: know what a material is and be able to sort common materials including wood, plastic, glass, metal, water and rock.</p> <p>L2: Know how to identify and classify different materials</p> <p>L3: Know group and classify different materials based upon how they feel.</p> <p>L4: Know what a property is and know the simple physical properties of a variety of everyday materials</p>	<p>L1: Know what the term 'waterproof' means and that some materials are waterproof and some are not.</p> <p>L2: Know which materials to use to create a waterproof shelter with a roof and legs.</p> <p>L3: know what floating and sinking are: know how to test some everyday materials to see which float/sink.</p> <p>L4: Know how to apply their learning to make a sail boat that holds a Lego character</p>	<p>L1: Know what fruit and vegetables are and the differences between them. Know how to observe and record the structures of some common fruits and vegetables.</p> <p>L2: Know what a seed is and that plants grow from seeds.</p> <p>L3: Know the basic parts of a plant and their function</p> <p>L4: Know how to use their knowledge of plant parts to dissect and label the parts of a pansy</p>

(e.g clothes, weather, trees)	L5: Know what a vertebrate and an invertebrate are and the similarities/differences between them. L6: Know what carnivores, herbivores and omnivores are and to sort some animals accordingly.		L5: Know that you can't see through opaque materials but that you can see through transparent materials. L6: Know that some materials are stretchy and that some are not.	L5: Know what a magnet is and does; know how magnets react with a range of everyday materials. L6: Know how to apply their knowledge of materials and their properties to play 'The Materials Game'.	L5: Know what deciduous and evergreen trees are and the difference between them; be able to identify them in the local environment. L6: Know the basic structure of a tree and investigate why some leaves fall from some trees.
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VOCABULARY

Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses.	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses.	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.	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.	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in local area, garden and wild flowering plants.
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**Year 2
SCIENCE**

ADVENT 1 – Living things and Habitats (Biology) Children will...	ADVENT 2 – Everyday Materials (Physics) Children will...	LENT 1 – Animals including Humans (Biology) Children will...	LENT 2 - Animals including Humans (Biology) Children will...	PENTECOST 1 – Plants (Biology) Children will...	PENTECOST 2 - Plants (Biology) Children will...
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<p>L1: Know what it means to be alive and dead; know how to classify objects into living, dead and never been alive.</p> <p>L2: Know what the word 'biome' means and that each biome has a variety of habitats within it. (Biomes- rainforest, desert, grassland, temperate forest, tundra, savannah)</p> <p>L3: Know that animals and plants live in habitats that provide their basic need and that the animals and plants depend upon each other.</p> <p>L4: Know what a 'micro-habitat' is.</p> <p>L5: Know how to apply their knowledge of habitats to create a habitat for an imaginary creature</p> <p>L6: Know what a food chain is and be able to create simple food chains.</p>	<p>L1: Know how to sort materials into metal, wood, plastic, paper, glass and fabric.</p> <p>L2: Know the difference between natural and synthetic and be able to sort materials accordingly.</p> <p>L3: Know that the shape of some solid objects can be changed by squashing, bending, stretching and twisting.</p> <p>L4: Know how to apply their knowledge of materials to build a house which will be tested for strength, rigidity and its waterproofing.</p> <p>L5: Know which materials best protect an egg from cracking</p> <p>L6: Know that some materials bounce and others do not.</p>	<p>L1: Know what the word 'offspring' means; know that animals including humans have offspring which grow into adults.</p> <p>L2: know what the term 'lifecycle' refers to, know the basic lifecycles of Chicken, butterfly, human and frog</p> <p>L3: Know what it means to be 'alive'. Know what animals, including humans, need to stay alive. Know how to use secondary sources to pose and answer questions.</p> <p>L4: Know the features an animal may have that help it survive (eg whale-blubber)</p> <p>L5: Know what humans need to do to stay healthy (eg. exercise, diet, hygiene). Know the impact of exercise on heart rate.</p> <p>L6: Know some of the healthy foods that humans should have in</p>	<p>L1: Know what represents a 'balanced diet' (linked to the work of artist Guiseppe Archimboldo)</p> <p>L2: Know the importance of good personal hygiene. Know how germs spread. Know why soap is important.</p> <p>L3/4: Know what a microbe is. Know the difference between good and bad microbes.</p> <p>L5: Know why hygiene is really important. Know how to evaluate a comparative test.</p> <p>L:6 Knowledge Quiz.</p>	<p>L1: Know the parts of a plant</p> <p>L2: Know the lifecycle of a common plant (sunflower/strawberry)</p> <p>L3: Know how to sort and classify a variety of different seeds</p> <p>L4: Know how to collect and identify some different seeds in the local area.</p> <p>L5: Know what germination is and make predictions as to the growth rate of different seeds.</p> <p>L6: Know that plants can grow in different conditions</p>	<p>L1: Know the structure of a bulb and the purpose of each part</p> <p>L2/L3: Know that plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>L4: Know what a climate is and some of the different climates to be found. Know that some plants adapt to living in different conditions.</p> <p>L5: Know the common trees in our local area.</p> <p>L6: Know how to apply their knowledge to create an information sheet about how to look after plants, incorporating what they need for growth.</p>
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		their diet. Know what the food wheel shows us and some facts about the food groups represented.			
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VOCABULARY

Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland, names of micro habitats e.g. under logs, in bushes etc.	Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, stretchy/stiff. Rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching.	Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise, lifecycle.	Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise, germ, microbe	Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, germinate, climate, nutrients.	Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, germinate, climate, nutrients.
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**Year 3
SCIENCE**

ADVENT 1 – Rocks (Physics) Children will...	ADVENT 2 – Light (Physics) Children will...	LENT 1 – Animals including Humans (Biology) Children will...	LENT 2 – Animals including Humans (Biology) Children will...	PENTECOST 1 – Forces and Magnets (Physics) Children will...	PENTECOST 2 – Plants (Biology) Children will...
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<p>L1: Know what a rock is and that they vary in appearance.</p> <p>L2: Know how to classify rocks using appearance and simple physical properties. (igneous, metamorphic and sedimentary)</p> <p>L3: Know that magnets attract or repel different materials; Know which rocks are magnetic and non-magnetic.</p> <p>L4: Know what is a fossil is and how they are formed (link to Mary Anning Y1 History)</p> <p>L5: Know how rocks are formed</p> <p>L6: Know that there is more than one type of soil and that it is made from rock and organic matter.</p>	<p>L1: Know that we need light in order to see and that dark is the absence of light; know what a light source is.</p> <p>L2: (use lesson 3) Know that our primary light source is the sun; that it can be dangerous and how we can protect ourselves (especially eyes)</p> <p>L3:(use lesson 2) Know that light is made up of different colours; know what a reflection is and that light is reflected light from surfaces.</p> <p>L4: Know that shadows are formed when the light source is blocked by a solid object</p> <p>L5: Know what can cause the size of a shadow to change</p> <p>L6: Know what type of shadows form when light is shone on transparent, translucent and opaque materials.</p>	<p>L1: Know what a skeleton is and the names of some of the bones in the human body</p> <p>L2: Know what the purpose of a skeleton is</p> <p>L3: Know what a muscle is and what they do</p> <p>L4: Know how to apply their knowledge of the skeleton and muscles to create a bionic hand.</p> <p>L5: Know that some animals do not have a back bone and that they are called invertebrates and that some animals have no bones at all.</p>	<p>L1: Know that skeletons and muscles provide protection and allow us to move.</p> <p>L2: Know how muscles contract and relax</p> <p>L3: Know that Humans and Animals cannot make their own food and have to get their nutrition from what they eat; Know what nutritional value is and how this helps us decide if a food choice is healthy or not.</p> <p>L4: Know represent nutritional data in graph form</p> <p>L5: Know how to apply their knowledge to play the Eatwell game.</p>	<p>L1: Know what a force is; know that friction and gravity are forces and what they do.</p> <p>L2: Know how things move on different surfaces</p> <p>L3: Know that magnets attract or repel each other and different materials and sort a range of objects accordingly</p> <p>L4: Know that some forces need contact between 2 objects; know that magnetic forces can act from a distance</p> <p>L5: Know that magnets have 2 poles</p> <p>L6: Know how to predict whether 2 magnets will attract or repel each other depending upon which poles are facing</p>	<p>L1: Know the names of the reproductive parts of a flower (lily) and describe their functions</p> <p>L2: Know that plants require light, water and the correct temperature for healthy growth</p> <p>L3: Know how water is transported in plants</p> <p>L4: Know what pollination is and how it works</p> <p>L5: Know that seeds are dispersed by animals, wind, explosion and water.</p> <p>L6: Know how to apply their knowledge to complete a knowledge quiz.</p>
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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, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, support, protect, skull, ribs, spine, muscles, joints	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, support, protect, skull, ribs, spine, muscles, joints	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	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style
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Year 4 SCIENCE					
ADVENT 1 – Animals including Humans (Biology) Children will...	ADVENT 2 – States of Matter (Chemistry) Children will...	LENT 1 - States of Matter (Physics/Chemistry) Children will...	LENT 2 – Electricity (Physics) Children will...	PENTECOST 1 – Sound (Physics) Children will...	PENTECOST 2 – Living Things and their Habitats (Biology) Children will...
<p>L1: (use lesson 2) Know the names of the different teeth and their functions</p> <p>L2: (use lesson 3) Know that different substances react with teeth and predict the outcome of an investigation into this</p> <p>L3: (Use lesson 1) Know the names and simple functions of the basic parts of the</p>	<p>L1: Know what 'matter' is and that there are 4 states of matter; solid, liquid, gas and plasma (Y4 do not do plasma). Know how to group materials according to whether they are solids, liquids or gases. Know the molecular structure of solids, liquids and gases. Know how they react when placed in a container.</p>	<p>L1: Know how to predict what will happen to the contents of 3 balloons when emptied over a tray in relation to solids, liquids and gases (balloon containing 1 each of air, water and solid (e.g. Lego))</p> <p>L2: Know that some liquids can contain gas and know what happens when raisins are added to lemonade and why</p>	<p>L1: Know that many common appliances run on electricity and name some</p> <p>L2: Know what electricity is, know that electricity travels around a circuit. Know how to create a simple circuit including a lamp and know the names of the components</p> <p>L3: Know that circuit has to be complete for it to work</p>	<p>L1: Know that sounds are made by something vibrating</p> <p>L2: Know that vibrations travel through a medium to the ear. Know what sound waves are</p> <p>L3: (Use lesson 6) Know how the ear works</p> <p>L4: Know that pitch of a sound varies upon the length of the object</p>	<p>L1: Know that living things can be grouped in a variety of ways</p> <p>L2: Know what a classification is and to be able use human classification keys</p> <p>L3: Know how to classify mini-beasts using the appropriate classification keys</p> <p>L4: Know how to classify leaves using an</p>

<p>human digestive system</p> <p>L4: Know what a producer, a predator and prey are and how they fit into a food chain.</p> <p>L5: Know how to produce a variety of food chains; know what a food web is.</p> <p>L6: Know how to identify which food chains belong to predators, producers and prey.</p>	<p>L2: Know how to predict what will happen when vinegar is poured onto bicarbonate of soda, in a bottle, with a balloon on top.</p> <p>L3: Know that some materials change when they are heated or cooled. Know the melting and boiling points of water.</p> <p>L4: Know what happens when a liquid changes to a solid</p> <p>L5: Know what evaporation and condensation are and how they work; know that the rate of evaporation changes with temperature</p> <p>L6: Know the part played by evaporation and condensation in the Water cycle</p>	<p>L3: Know what happens when heat is applied to chocolate and describe this in scientific terms.</p> <p>L4: Know that adding salt lowers the freezing point of a liquid. Know that not all liquids freeze at 0 degrees.</p> <p>L5: Know that the water cycle is continuous and has been in operation since the creation of the earth.</p>	<p>L4: Know how to add a switch to a circuit and the effect it has on that circuit including a bulb</p> <p>L5: Know what conductors and insulators are and which materials act as conductors and insulators.</p> <p>L6: Know that Alessandro Volta, Michael Faraday were scientists involved in the early development of electricity; know that Henry Snith is a modern scientist involved in the development of solar electricity.</p>	<p>being blown and that the volume varies according to the strength of the vibrations that produce it</p> <p>L5: Know that sounds get fainter the further away they are from the source</p> <p>L6: (use part of lesson 5) Know how to explain, using scientific vocabulary, why a range of materials make different sounds when shaken in similar containers.</p>	<p>appropriate classification key</p> <p>L5: Know the meaning of the word endangered and to know at least 3 of the top ten endangered species; Know why one of the endangered animals is in danger, how humans have impacted the environment and how they can support the environment for this animal.</p> <p>L6: Know how environmental changes can cause dangers to living things; to include litter, pollution, oil spills, deforestation, development and global warming.</p>
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VOCABULARY

<p>Digestive system, digestion, moth, teeth, saliva, oesophagus, stomach, small intestine, large</p>	<p>Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, temperature, water</p>	<p>Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, temperature, water</p>	<p>Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative,</p>	<p>Sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation</p>	<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate,</p>
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intestine, nutrients, rectum, anus, teeth, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	cycle, matter, air, oxygen, ice, water, water vapour, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, evaporate, evaporation, condense, condensation, precipitation, infiltration	cycle, matter, air, oxygen, ice, water, water vapour, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, evaporate, evaporation, condense, condensation, precipitation, infiltration	connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, voltage, current		hibernate, fish, amphibian, reptile, bird, mammal, vertebrate, invertebrate, shelter, food, protection
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Year 5 SCIENCE					
ADVENT 1 – Properties and Changes of Materials (Physics) Children will...	ADVENT 2 – Properties and Changes of Materials (Physics) Children will...	LENT 1 – Earth and Space (Physics) Children will...	LENT 2 - Forces (Physics) Children will...	PENTECOST 1 – Living Things and their Habitats (Biology) Children will...	PENTECOST 2 – Animals including Humans (Biology) Children will...
L1: Know how to group together everyday materials of the basis of their properties. Know how to use your knowledge of solids, liquids and gases to decide how mixtures might be separated through filtering, magnetic attraction, sieving and evaporating. L2: (use first part of lesson 2)	L1: Know that dissolving, mixing and changes of state are reversible changes L2: Know that some changes result in the formation of new materials and that this kind of change is not usually reversible (burning, acid on bicarb) L3: Know what a 'conductor' is. Know	L1: Know what we mean by the Solar System. Know that it contains 8 planets and their moons orbiting the sun. Know the names of the planets. L2: Know the relative size of each of the planets in relation to the sun L3: Know how the moon moves in relation	L1: Know what a force is. Know that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object. L2: Know that there is a very small amount of gravity on the moon (but not air). Know the difference between mass and weight.	L1: Know how to describe the lifecycles of an amphibian (frog), a bird and a mammal (human). L2: Know how to describe the lifecycles an insect (butterfly and grasshopper). Know what metamorphosis is. L3: (use lesson 4) Know how plants reproduce	L1: Know what a gestation period is and compare the gestation periods of different animals, including humans. (explain why animals have different gestation periods) L2: Know how the human foetus develops L3: Know that there are 4 main stages of human life; know that babies under-go rapid

<p>Know what dissolving is. Know that some solids will dissolve in liquid to form a solution.</p> <p>L3: (continuing lesson 2) Know the difference between dissolving and melting</p> <p>L4: Know what soluble and insoluble means. Know how to use their knowledge to make predictions about materials and whether they are soluble or insoluble.</p> <p>L5: Know that the original solid material is recoverable from some solutions through the process of evaporation. Know that the addition of heat increases the rate of evaporation</p>	<p>what a 'thermal insulator' is. Know which materials are thermal conductor and insulators. Know why thermal conductors and insulators are used.</p> <p>L4: Know the reasons, based on evidence from comparative and fair tests, for the particular use of metal wire compared to wood and plastic in an electrical circuit.</p> <p>L5: Know about a famous scientific discovery. Know how glue is made and its properties.</p>	<p>to the earth. Know the 4 main moon phases.</p> <p>L4: (use lesson 6) Know how the surface of the moon is created and changes</p> <p>L5: Know how we know that the earth, sun and moon are approximately spherical</p> <p>L6: (Use lesson 5) Know how to explain day and night using Earth's rotation and the apparent movement of the sun across the sky.</p>	<p>L3: Know what air resistance is and how it works</p> <p>L4: Know what water resistance is and how it works</p> <p>L5: Know what friction is and how it works</p> <p>L6: Know what a lever is, a pulley and gears are and how they work to allow a smaller force to have greater effect.</p>	<p>L4: Know how mammals reproduce (linked to RHSE)</p> <p>L5/6: Know what conservation is and why it is necessary. Know some of the work of Jane Goodall. Know some of the work of Richard Attenborough.</p>	<p>development in the first year</p> <p>L4: Know what puberty is and be able to describe the changes that occur during this time (emotional and physical)</p> <p>L5: Know some of the changes that take place in old age</p> <p>L6: Know what life expectancy is and know that there are many factors that can influence life expectancy</p>
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VOCABULARY

<p>Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve,</p>	<p>Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve,</p>	<p>Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system,</p>	<p>Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton,</p>	<p>life cycle, live, young, fertilises, egg, runners, reproduce, sperm, metamorphosis gestation, cuttings, plantlets, bulb,</p>	<p>Adolescent, adult, asexual reproduction, sexual reproduction, fertilization, death, teenager, elderly, toddler, reproduction,</p>
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reversible/not reversible, change, burning, rusting, new material.	reversible/not reversible, change, burning, rusting, new material.	rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite, celestial	up thrust, opposing, streamline, brake, cog, weight, mass.	sexual/asexual reproduction	foetus, growth, puberty, menstrual cycle, gestation
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Year 6 SCIENCE					
ADVENT 1 – Animals including Humans (Biology) Children will...	ADVENT 2 – Evolution and Inheritance (Biology) Children will...	LENT 1 - Living Things and their Habitats (Biology) Children will...	LENT 2 – Electricity (Physics) Children will...	PENTECOST 1 – Light (Physics) Children will...	PENTECOST 2 – Whizz, Bang, Wallop! (George’s Marvellous Experiments) Children will...
<p>L1: Know the names of the key organs in the circulatory system and their function.</p> <p>L2: Know the structure of the heart and what heart rate is. Know how heart rate can be measured and affected. (heart dissection lesson available if required)</p> <p>L3: Know about the structure of blood and the functions of the component parts.</p> <p>L4: Know the ways in which nutrients and water are transported within animals and humans.</p>	<p>L1: Know what extinction is and name some extinct species. Know that fossils provide information about living things. Know that animals and plants have changed over time.</p> <p>L2: Know who Charles Darwin was and his significance. Know Darwin’s theory of Evolution.</p> <p>L3: Know what natural selection is and how this promotes adaptation.</p> <p>L4: Know how some plants have adapted to</p>	<p>L1: Know how living things are classified into broad groups; common observable features, similarities and differences. – specifically leaves and some animals</p> <p>L2: Know how to use a classification key; know how to use a key to group mini-beasts</p> <p>L3: Know why scientists classify things; know how to use the Linnaeus classification to classify some animals.</p> <p>L4: Know how to research an animal so that it can be classified</p>	<p>L1: Know the link between the brightness of a lamp and the volume of a buzzer with the voltage being applied. Know the effects of ‘overloading’ a circuit.</p> <p>L2: Know what a symbol is. Know how to draw a circuit diagram using component symbols.</p> <p>L3: Know how to use their knowledge to repair a broken circuit. Know how to identify a problem in a faulty circuit.</p> <p>L4: Know the impact of the length and</p>	<p>L1: Know that light appears to travel in straight lines.</p> <p>L2: Know how to use the idea of light travelling in straight lines to explain that objects are seen because they give out, or reflect, light into the eye. Know what a periscope is.</p> <p>L3: Know about the structure of the eye and the function of the constituent parts. Know that signals from the eye connect with the brain to enable us to see.</p>	<p>L1: Know how to make delicious crunchy candy crystals (p.40)</p> <p>L2: Know how to make worms wiggle (p.44)</p> <p>L3: Know how to find colours in cabbage (p.48)</p> <p>L4: Know how to make a simple magnetic car (p.30)</p> <p>L5: Know how to make a sonic blaster (p.18)</p>

<p>L5/6: Know the impact of diet, exercise, drugs and lifestyle on the way that their bodies function.</p>	<p>a changing or different environment</p> <p>L5: Know what genetic mutation is and how this affects future generations. Know how to explain the principle of 'survival of the fittest'.</p> <p>L6: Know what inheritance means in regards to evolution. Know that characteristics are passed through genes which a segments of DNA.</p>	<p>L5: Know what a microorganism is and how some can be bad for us.</p> <p>L6: Know what bacteria is and how it can link to food poisoning.</p>	<p>thickness of the wires in a circuit. Know how to devise a fair test to answer a question.</p> <p>L5: Know whether number & voltage of the cells in a simple circuit affect the brightness of bulbs, the loudness of buzzers or the speed of motors. Know how to present their findings.</p> <p>L6: Know what 'series' and 'parallel' mean in relation to circuits. Know the differences between series and parallel circuits. Know how to build simple series and parallel circuits to solve problems</p>	<p>L4: Know how to explain why shadows have the same shape as the objects that cast them.</p> <p>L5/6: Know what happens to light in water. Know what refraction is. Know that light changes direction when moving through different mediums. Know how rainbows are formed.</p>	
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VOCABULARY

<p>Heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle</p>	<p>Offspring, sexual reproduction, vary, variation, characteristics, suited, adapted, environment, inherited, species, fossils, adaptation, acquired characteristic, inherited characteristic, gene, natural selection, artificial selection.</p>	<p>Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering, bacteria, micro-organism, spore</p>	<p>Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, insulate, bright, conductor, insulator, dim, lamp, voltage, components, loudness, noise, diagram, symbol</p>	<p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense</p>	<p>plan variables measurements accuracy precision, prediction, hypothesis, investigate, comparative test, support, refute ideas or arguments identify, classify and describe patterns systematic</p>
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