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Working Scientifically Skills:

Enquire	Measure	Record	Test	Predict	Identify	Observe	Explain

Science	Autumn	Spring	Summer
EYFS	• Use all their senses in hands-on exploration of natural materials. Observe and question. • Explore collections of materials (verbally compare and contrast and sort) with similar and/or different properties - material, hard, soft, wood, metal, plastic, fabric, string, bendy, light • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. - beans and cress -text Jack and the Beanstalk • Understand the key features of the life cycle of a plant and an animal. (frogs,butterflies) • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel - pushes and pulls • Talk about the differences between materials and changes they notice. What material is best to build a boat? • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian • Explore the natural world around them, making observations and drawing pictures of animals and plants. (penguins, beards, walrus, orce, seals) • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class - Polar regions, Africa, rainforest, Great Barrier Reef • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter Winter,Spring, Summer, Autumn, weather (cold/hot), snow, freezing, rain, clouds, leaves, light dark. School grounds walk observing changes, ice exploitation. Look at Polar regions their habitat and threat from global warming, To understand some foods are healthy and some are unhealthy. Know different parts of the body and what they do, (head, legs, arms, feet, face, eyes, ears, mouth, tongue, teeth, heart, brain, bones, skin, muscles)		

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Plants (TRIP: Wakehurst trip-workshops:1) 'Potting Shed'
2) 'Plant Explorers'.
3) 'Tree Identification)
Key knowledge (including terminology):
- seeds *(Sweetcorn, runner beans, cucumber , peas, strawberries),*
- Parts of a plant: *petals, flowers, leaves stem, roots*
- conditions for growth *(soil, water sun),*
- Types of trees (around the school)

Key Skills:
- Ask simple questions What do seeds need to grow?(BIG QUESTION: /How do we plant a seed?)
- observing (orally, using magnifying glasses),
- comparing and contrasting (orally)(seeds and flowers)
- Identifying (seed types),
- plant a seed in soil, (write instructions)
- caring for a plant, predicting outcomes (orally/simple phrases/ words), explaining outcomes (orally) (plant growth).

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Identifying and Classifying Everyday Materials
Key knowledge (including terminology):
- All objects have a name, materials *(paper fabric brick/stone/rock, plastic, wood, metal, glass, water)*
- Properties of materials *(Hard, soft, bendy, waterproof, transparent, strong, stretchy, shiny, dull, absorbent, opaque)*

Key Skills:
- Ask simple questions (what properties do the materials have? How can we sort them?)
- Identification and Classification (organising materials by adjectives).
- Grouping (visually) (materials according to different criteria, including finding the odd one out)
- Identifying (materials in everyday life.)
- perform a simple test (fair-test-same amount of water, material)
- Record grouping of materials visually using hoops
- observing, explaining (orally) and predicting (whether materials are waterproof.)

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Classifying Animals (including humans)
Key knowledge (including terminology):
- Naming parts of the body (*head, hair, eye, ear, nose, mouth, lips, shoulders, elbows, hands, thumbs, fingers, legs, knees, feet , toes),*
- What humans need *(food, water, shelter, clothes/warmth)*
- Sense *(Sight, hearing, touch and smell.)*
- Vertebrates (5 types),
- *Carnivore, Omnivore, herbivore.*
- Sharks; key physical features, diet, species.

Key Skills:
- Comparing by measuring (size of humans-feet, height),using standard and non-standard units. (CROSS-CURRICULAR LINK TO MATHS)
- Labelling (Body),
- Observing and explaining (orally) (differences in human sizes)
- Identifying (senses walk-recording words, part of the body associated with each sense)
- Classification (sort pictures of mammals, birds, reptiles, fish and amphibians into groups)
- Record (using Hoops and pictures and Venn diagrams),
- Ask simple questions (secondary source-video to ask questions and acquire new knowledge)

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Seasonal Changes
Key knowledge:
- Months of the year and four seasons,
- changes in weather, temperature, clothing and the environment.

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- Changes in daylight hours across the seasons.
- Changes in Night and day.
- Earth as a spherical body and its effect on time zones across the world.

Key skills:
- observing (weather,temperature, environment) over time (drawing tree in the four seasons-sketch book),
- Describing, explaining changes in seasons, temperatures, environments, daylight,night (orally) and recording (draw)
- Ask simple questions (how does the length of the day vary in different seasons? (secondary source-video to ask questions and acquire new knowledge)
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Uses of Everyday Materials

Key knowledge (including terminology):
- Materials are substances the object is made from.
- Everyday materials *(paper fabric brick/stone/rock, plastic, wood, metal, glass, water)*
- Properties of materials *(smooth, hard, bendy, flexible, transparent, opaque, waterproof, rough, soft, absorbent, lightweight, light, stiff, hardwearing, elastic, strong)*
- distinguishing between an object and the material from which it is made.
- suitability of materials of everyday objects.
- Malleability of materials *(squash, bend, twist, stretch)*
- new materials and methods of making things change over time- John McAdam's invention of Tarmac.

Key Skills:
- Ask simple questions (what material would be suitable for…, Which is the bendiest?)

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Living things and their habitats /Animals including humans

Key knowledge (including terminology):
- Understand that things can be living, dead or never living.(7 features of living things are: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition, M-R-S G-R-E-N)
- Life processes *(reproduction, movement, nutrition, growth)*
- Habitats: name a variety of plants and animals in their habitats and micro-habitiats, and suitability of animals and their habitats.
- Animals get their food from plants and other animals: Food chains and cycles.
- name different sources of food.

Key Skills:
- Ask simple questions (What would happen if there were no more…?
- Observe and Compare (the difference between living, dead or never living) (hunt around

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Plants

Key knowledge (including terminology):
- Conditions for growth *(water,light,suitable temperature) (Grow,Seed,Light,Water, Temperature, Equipment, Method, Prediction, Fair test)*
- understand how seeds and bulbs grow into mature plants.

Key Skills:
- observe conditions for growth- walk around school grounds,
- Identify a range of seeds and bulbs
- Perform simple tests (seed-range-planted in cold,warm, light, dark, wet, dry)
- Ask simple questions.What do plants need to grow?
- Predict outcomes of experiment (which seed will grow the most?)
- - gather and record data. (observations over time (1 week/2 weeks)
- describe changes, measure height (cm), number of leaves.
- Record as a labelled drawing and description.
- Ask simple questions. (BIG QUESTION:Thomas says that a sunflower could grow in the desert, do

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	- Identify and Classify materials according to their properties and uses (match pictures/in a table) - Compare and Explain (sentences) suitability of materials of everyday objects, suit of armour (in a flow diagram/chart) - Perform simple tests and gather data (material hunt around the school) (tick chart) about how the shape of objects can be changed. - Label suit of armour, explaining reasons for material choice. - Explain (BIG QUESTION; Would you,like to live in a castle? - Explain how John McAdam's invention of Tarmac changed the effectiveness of roads.	school using bug pots, magnifying glasses, torches) - Classify found objects(living, dead or never living) (using hoops to sort) and explain reasoning (orally then sentences). - Explain (BIG QUESTION) True or false - a robot can move so it is alive. - Polar bears would like to live in Burgess Hill. True or false? Identify (habitats), gather words to describe habitat from around the school (draw and describe) - Sort and Classify animals into habitats (table-images) - Explain (why an animals is suited to living in its habitiat). - Explain how animals get their food (paper chain-food chain-flow diagram-sentences)	you agree?- Record answer to question with reasoning,scribe if needed)
Yr 3	**Forces and magnets** **Key knowledge** (including terminology): - identifying forces in everyday life *(pulling, pushing and twisting forces (draw and label)* - notice that some forces need contact between 2 objects (identify *contact and non contact forces- weight, air resistance, friction, magnetic, upthrust, water resistance, thrust)* - Use a range of materials to design an experiment (*Paper, card, foil, Newspaper, paper clips, rulers)* - compare how things move on different surfaces-Forces and friction	**Light** **Key knowledge** (including terminology): - Recognise light is needed to see things and dark is the absence of light. - light is reflected from surfaces *(Reflected, Surface, Dull, Shiny Smooth)* - Know that shadows are formed when the light from a light source is blocked by an opaque object *(Transparent, Opaque, translucent)* - light from the sun can be dangerous and that there are ways to protect their eyes	**Animals (including humans)** **Key knowledge** (including terminology): - Know that we get nutrition from the food we eat. *(carbohydrates, protein, calcium, water, energy, fruit and vegetables, dairy, fays and oil)* (label diagram of how they affect humans, design a healthy meal) - Understand what foods animals eat *(carnivore, herbivore, omnivore)* - To explore human and animal skeletons *(vertebrae, invertebrae, collar bone, ribs, tibia, thigh bone, fibula, skull, shoulder blade, spine, pelvis)* (label) - Understand how skeletons protect the body (*fish,snail,crab,dog,worm,spider)*

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	(Push, Pull, Air resistance, Measure, Distance)(Toy car, 3 surfaces, Metre stick) - Magnets have 2 poles. - Know the North and South Poles of the magnet are at the top and bottom of the Earth. - Know that magnets attract some materials and not others (Magnet, Attract, Repel,Force, Pole, North, South) (materials-rubber,metal, wood, plastic) - (Bar magnet, Horseshoe magnet Pole, North/South pole,Equipment Prediction Fair test) **Key Skills:** - To ask a simple question (Are all coins magnetic? Are big magnets more powerful than smaller ones? Does a magnetic force work through all solid objects?) - comparing and group magnetic and non-magnetic materials. - explain (what a force is, what happened to results,) - Plan a scientific enquiry/ fair test- (Does the length of the aeroplane/weight of the aeroplane/type of material used/ make any difference to the distance travelled?) - record results (table-templates/drawn, Carroll Diagram) - predict (what I think will happen to the flight of the plane, which material is magnetic, What will happen to the magnets next to each other,side by side/attract or repel each other.)	**Key Skills:** - To ask a simple question (*What would be the particular dangers from the sun?)* - comparing and group (sort statements true or false) - Explain (produce a leaflet to explain How to protect your eyes from the sun) - Plan a scientific enquiry/ fair test- - record results (table) - predict (Predict which surfaces will reflect surfaces well and those which will not.) **Plants** **Key knowledge** (including terminology): - Identify and describe parts of a plant **(***Flowering plant, Root, Stem, Flower, Leaves, Support, Anchor, Nutrients)* - Understand what a plant requires to grow (*air, light, water, nutrients,room)* and how it varies from plant to plant. - Understand the way water is transported through plants *(Celery in water and food dye)* - Explore the life-cylce of a flowering plant *(plant, seed, pollen, disperse)* **Key Skills** - To ask a simple question-What are the main parts of a flowering plant? What do they do? What do plants need to grow? Do plants and seeds need the same things to grow?	- Understand what muscles are and how they help us move. (*Muscle, Joint, Tendon, Pairs, Pull, Contract, Relax, Triceps, Biceps)* **Key Skills:** - To ask a simple question (why do animals have different skeletons?) - comparing(animal skeletons to humans) - Explain (the difference between animal and human skeletons and explain why) - - Explain using a model arm (Card, Paper fasteners, elastic bands) to demonstrate how muscles work/poster. -

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	Rocks **Key knowledge** (including terminology): - Identify rocks *(Sedimentary, Igneous, Metamorphic-Slate, Chalk, Granite, Sandstone)* on the basis of their appearance and simple physical properties (draw and describe: *colours, feel, permeability, hardness/durability)* - understand that fossils are formed when things that have lived are trapped within rock. *(Fossil, Paleontology)* - understand that soils are made from rocks and organic matter. (*permeability*, **Key Skills:** - To ask a simple question (How are fossils formed?what will happen to the rock if vinegar is poured onto it?) - Observe (what is the same/different about the types of rock-draw and explain) - comparing and group (rocks similarities/differences-table) (differences in colour, texture of soil-Compare the permeability of the soils-Using different sieves to look at different sized particles in the soils) - Plan a scientific enquiry/ fair test- To ask a simple question (How are fossils formed? what will happen to the rock if vinegar is poured onto it?) - Observe (what is the same/different about the types of rock-draw and explain) - comparing and group (rocks	- Identify (parts and functions of a flowering plant-label) - Plan a scientific enquiry/ fair test- - Do plants need water/soil/light: Growing of cress seeds in different environments. - record (template grid) - Measure seed growth over time. rulers,cm - Explain the role each part plays of the flowering plant-flow chart	

	similarities/differences-table) - Plan a scientific enquiry/ fair test- investigate the permeability of a variety of rocks (use pipettes) - record results (table,drawn and template) - predict - record results (table,drawn and template) - predict (		
Yr 4	**Living things and their habitats** **Key knowledge (including terminology):** - Understand that a habitat is - 7 features of living things are: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition, M-R-S G-R-E-N) - To group living things in a variety of ways *(mammal, reptile, bird, fish, amphibian, insect, invertebrates and vertebrates, Antennae, legs, wings, shell, plant, fly)* - Understand what environmental change is and understand man-made and natural changes *(natural seasons , weather, farming, chemicals, building, roads, pollution, railways, deforestation, earthquake, storm, flood, drought, tsunami, wildfire, hurricane)* - Understand dangers posed to living things by environmental changes	**Animals (including humans)/Teeth and digestive system** **Key knowledge (including terminology):** - Understand parts of the digestive system and their function. - Digestion is the way the body breaks down food to give the body energy. - The main parts of the digestive system are: *mouth, tongue, pharynx, oesophagus, liver, stomach, gallbladder, pancreas, large intestine, small intestine.* - There are 4 different types of teeth: incisors,canines, pre-molars, molars - Understand what a food chain is: a diagram that shows a producer and consumers. A	**States of matter** **Key knowledge (including terminology):** - Group materials according to their state *(solid,liquid gas) (steam, bubbles, water, clouds, stars, air, helium, sun, oxygen, coffee, tea, sprite, coke, wood, pen, ice, stone, cup, human,s books, wool)* - observe that some materials change state when they are heated or cooled *(cold,boiling, hot, warm) (ice)* - The role of evaporation and condensation in the water cycle. (*evaporating, condensing, condensation, evaporation, cycle, groundwater. Transpiration, run off, precipitation)* - Liquids evaporation more quickly when temperature is increased. **Key Skills:** - To ask questions (how materials change state if they are heated/cooled, How does temperature affect ice melting? How do

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	(Characteristics, ecosystem, danger, risk, extinct) **Key Skills:** - To ask questions (How can these living things be grouped?) - comparing and group (group animals into categories (does it lay eggs y/n, bird or no bird wings,shell,antenna-pictures/ table/carroll/ Venn diagrams, Classification key, branching database) - Group-Sort man-made and natural changes into groups-table) - explain (what is a habitat? -Written, difference between natural environmental man made environmental change-written-templates if needed) **Sound** **Key knowledge (including terminology):** - To understand sound is a type of energy made by vibrations *(vibration, volume, pitch, amplitude, sound wave, sound proof, vacuum,) (label ear - Pinna, Stirrup, Eardrum,Cochlea, Hammer, Nerve, Eustachian tube, anvil)* - Understand that sound is passed through vibrations hitting the eardrum and passing to the middle and inner ear, which are changed to electrical signals and sent to your brain.	consumer can be a predator,prey or both. The arrow means - 'is food for'. - Know what tooth decay is and how it can be prevented. *(Teeth, baby teeth, milk teeth, primary teeth, enamel, cavity, plaque)* **Key Skills:** - To ask questions How do we look after our teeth? What do you do to keep them healthy? Why is it important to look after our teeth?(BIG QUESTION: How do we keep our teeth healthy? What would happen if .. lion had teeth of elephant? give reasons, What if we only ate chips?) - comparing and group (look at the function of each teeth and its shape) - explain (what ate teeth, what types of teeth do humans have, how can we protect our teeth) - Explain (label parts of the digestive system and their function) (write instructions to show process of food being digested and exerted-using sentences and diagrams) - Plan a scientific enquiry/ fair test- (investigate the affect of liquids (milk, water sugar water, salt water, orange, tea, vinegar and coca cola) on egg shells) (create create their own human stomach- plastic bag, ….) - record results (label of tooth, written observations, labelling	wet clothes dry? What if water didn't evaporate?) - comparing and group (solids,liquids,gases- with pictoral particles) - explain (what happened to each ice cube and why, what happenes to water when it is heated, and cooled again using diagram, explain the water cycle using scientific processes-label diagram and write explanation) - Plan a scientific enquiry/ fair test- .(change of state due to heating/cooling) - record results (table, drawings,results over time, labeled diagrams) - predict (what will happen to the liquid when it is heated/cooled-written with explanation) **Electricity** **Key knowledge (including terminology):** - Know that electricity is used to power items and know where electricity comes from. - Know that electricity is very dangerous and understand some ways to stay safe around it and when handling electric appliances. *(Circuit, electricity, electrical appliances, plug, mains, battery, prediction, cell, buzzer, wires, crocodile clips, current, bulbs, switch)* - There are two main ways we use electricity to power items. With batteries (DC) and mains (AC). - Understand what a circuit is and identify and name basic parts, *(cells, wires, bulbs, switches and buzzers.)*

	- Recognise that sounds get fainter as the distance from the sound source increases - Understand patterns between pitch and object-faster vibrations higher pitch, slower vibrations lower pitch. - Understand the louder the sound the bigger the vibration. **Key Skills:** - To ask a simple question (how we can investigate the shape/feature of the pitch?) - Observe the affects of (banging rice on a drum… tuning fork into water to see vibrations, glass bowl with tight cling film and sprinkle with metal dish and spoon next door, hand on voice box) Observe: outside activity, Listen to sounds and locate where they are on the map. - comparing and group - explain (order the events of sound reaching ear and hearing the sound) What did you find out about the experiment and State what they would change or investigate next time. - Plan a scientific enquiry/ fair test- How does the size and shape of an instrument affect its pitch? Variables-what will I keep the same, what will I change) - record results (table-templates/drawn, label ear, record template for investigation) - predict (what will happen to the	digestive system-parts and functions) - predict (what will happen to the egg shells in each liquid-written)	- Know circuits can be both complete and incomplete. - Recognise that a switch opens and closes a circuit **Key Skills:** - To ask questions (how is electricity generated, how do you stay safe around electricity, what would be a good conductor/insulator? - comparing and group (using image order danger level 1-6 and explain) - explain (using images explain the risk and how to stay safe around electricity? How is electricity generated, results from circuit-what happens to the electricity in the circuit-written) - Plan a scientific enquiry/ fair test- (follow the instructions to make a simple electrical circuit and test it) - record results (table, electrical diagrams, - predict (is the circuit complete or incomplete-will it work?

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Yr 5	**Earth and Space / Forces** **Key knowledge *(including terminology)*:** - name the planets in our Solar System (*Solar system, Earth, Sun, Moon, Planets, Solar system, Orbit , order, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune*) - Know that year is the time taken to orbit the Sun. A day is the time taken for the Earth to rotate on its axis. - describe the movement of the Earth, and other planets, relative to the Sun in the solar system. - Understand that the moon rotates around the Earth. - know that the Moon reflects the Sun's rays - Understand moon phases - To describe the Sun, Earth and Moon as approximately spherical bodies. - To understand the rotation of the Earth and explain day and night and the apparent movement of the sun across the sky. - explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - Know that the ground provides an 'equal and opposite' balancing force to our weight. - Know what force means and show the effects of air resistance, water resistance and friction, that act between moving surfaces. *(support, fall, Earth, gravity, air resistance,*	**Properties of and changes in materials** **Key knowledge *(including terminology):*** - Classify objects by their properties *(hardness, solubility, magnetism, absorbency, permeability, translucent, flexibility, flammability, transparency, conductivity-electrical and thermal).* - Know some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - Know methods of separating solids, liquids and gases including through filtering, sieving and evaporating. - Understand reversible and irreversible changes *(sugar dissolving, chocolate melting, ice melting, mixing colours, candle burning)* - Understand how chromatography separates colours in a mixture due to their rate of dissolving. **Key Skills:** - To ask a simple question (what materials will make a good Viking spoon?) - Observe, (which parachute fell the fastest? Which spoon is the butter melting on quickest?	**Living things and their habitats** **Key knowledge (including terminology):** - Know differences in the life cycles of a mammal, an amphibian, an insect and a bird . - Know the life process of reproduction in some plants and animals. - Describe in detail the parts of flowering plants and their functions.Life cycle *(Plant, Stamen, Carpel, Flowering, Reproduce, Sexually, Anther, Petal, Style, Filament, Stem, Stigma, Ovary, Male, Female, Seed)* - Understand the difference between sexual and asexual reproduction in plants. Know that asexual reproduction form of reproduction is a type of cloning. *(pollination, fertilisation, Bulbs, Tubers, Stem, Roots, Nectar, Shoots, Pollination, Pollen, Identical, Clone)* - **Key Skills:** - To ask a simple question (How do plants reproduce? - Observe, comparing and group take apart a flower and sort its parts *(stigma, style, ovary, anther, filament, pollen, petal, sepal*) compare how different mammals breed and care for their young) - explain (the process of asexual reproduction in plants-written with diagrams, stages of development in humans-flow chart) - Plan a scientific enquiry/ fair test- (- record results (table-templates/drawn, Carroll Diagram)

	friction, balancing force, weight, newtons, resistance force) - MASS= how much 'matter' it is made of (measured in g/kg). WEIGHT= force of gravity on the mass of an object (measured in Newtons) - Ancient Greeks thought that objects fell because they were trying to find their natural places - Aristotle said heavy objects fall faster than lighter ones – this was believed by people for nearly two thousand years until Galileo and Newton proved him wrong. **Key Skills:** - To ask questions (Does the sun rise and set in the same place? Why does the sun appear to move across the sky?Can we see the Moon during the day? Why does the Moon appear to change shape?)Does the moon glow? BIG QUESTION: How do you know the Earth is spherical? - explain (Why do scientists use model to understand the solar system? Why don't we float off into space? What affect did your experiment have on how quickly the parachute fell? - Measure the time taken for the parachute to fall (seconds) - record results diagram, scientific model-playground chalk, balls) Match the definition to the description. Label forces with	Which object falls first, which colours spread the quickest) - comparing and group together everyday materials on the basis of their properties (match definitions-) - explain (results of property testing -written, the process of filtration, evaporation, sieving to separate materials-diagrams,written) - Measure the time it takes for the butter to melt. (seconds using a stopwatch) - Plan a scientific enquiry/ fair test- (test the properties of materials-hardness, magnetism, transparency, flexibility and permeability) (investigate thermal conductors-testing spoons with butter,hot water and cold water - controlled/independent variables, investigate which materials will dissolve) - record results (match definitions-written,templates, table-templates/drawn, - predict and explain why(which parachute will fall quickest, which spoon will the butter melt on first? What will happen to the colours when they are put in water)	**Animals (including humans) Life cycles** **Key knowledge (including terminology):** - Understand changes as humans develop to old age. (gestation, infancy, childhood, old age, adulthood, adolescence) - Identify changes in the bodies of boys and girls during puberty. (Puberty, Hormones, pubic hair, Vulva, Breasts, Penis, Vagina, Testicles, Scrotum, Ovaries, vagina) - Know the process of conception. ((life cycle, Stages, Reproduction, sex cells, Egg, Sperm, Testes, Vagina, womb (uterus), Penis, Intercourse, egg cell, sperm cell, menstruation, ejaculation, erection) - Know how babies grow by a process of dividing cells to make an embryo and how this grows into a baby Gestation, Embryo, Fetus, birth) - Understand changes that occur during adulthood and old age. **Key Skills:** - To ask a simple question (How do humans change with age?, How are babies made? How does your body change during puberty?) - Observe, changes that occur during puberty (label) - explain (the stages of development in humans -flow chart, written, drawings) - record label diagrams

	arrows-(air resistance, gravity, friction upthrust,) - Plan a scientific enquiry/ fair test- (Testing the effects of gravity on objects of different mass. What happens if you drop an apple? Does the height make a difference? What if you use a ¼ or ½ an apple? What if you drop the apple to the right/left? Is it the same for a tennis ball? Plan an experiment to test the falling of a parachute-controlled, independent variables, repat test, record-table - predict (what will happen to the apple? written)		
Yr 6	**Animals including humans (circulatory system)** **Key knowledge (including terminology):** - Understand the main parts of circulatory system and their function *(Heart, Chamber, Vessel, Pump, Ventricle, Atrium, Atria, Ribcage, Contract, relax)* - Know that pulse rate is a measure of the number of times the heart beats in a minute. *(Pulse, Resting rate, Average mean, Beats per minute-resting, jogging on spot and jumping in class)* - Know the parts and functions of the lungs. - Understand respiration and how the lungs and heart work together to transport oxygen. (balloon lung capacity whilst exercising test)	**Electricity/Light** **Key knowledge (including terminology):** - Understand how electricity flows *(Electrical components, Mains electricity, Renewable energy, Non-renewable energy)* - Identify electrical components and their affect on voltage *(switch, battery, cell, motor, lamp, ammeter, voltmeter)* - Understand and draw complete and incomplete circuits.*(Symbol, Circuit, Voltage, Input, Output)* - Know how to create a complete circuit. - Understand others scientific ideas relating to electricity (Steven Sasson-portable digital camera)	**Animals (including humans)** **Key knowledge (including terminology):** - Living things can be classified in a number of ways - 7 features of living things are: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition, M-R-S G-R-E-N) - .(*classification tree, Carl Linnaeus, Linnaean, Classification, Standard, Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species)* - taxonomists are people who group living things. - To understand what an microorganism is and know some helpful and harmful examples (*Microorganism, fungus, bacteria, virus, microscopic, mould)* **Key Skills:**

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	(Oxygen, Carbon dioxide, Respiration, Transport, Nutrients, circulation, Lungs, Respirations vein, Artery, Oxygenated, deoxygenated, Veins - To know what nutrients are transported in humans blood and their function (*Arteries, Capillaries, White blood cells, Plasma, Platelets, Nutrients, hormones)* - Know how to keep our bodies healthy *(balanced diet, sleep, lifestyle)* **Key Skills:** - To ask a simple question (how is blood pumped around the body? What is the function of…. How does physical activity affect your lung capacity? Ho)w will aciticy chnage your pulse rate? - Measure size of ballon *(cm-tape measure),* record their resting pulse rate several times in a table. - comparing-compare results in table - explain (how is blood pumped around the body-written with missing words) (what part of the circulatory system is the most important-why) the significance of scientists work (Marie Maynard Daly-Cholesterol-written) - Plan a scientific enquiry/ fair test- (How does physical activity affect your lung capacity? - record results label organs of the human body, table, diagram able-templates/drawn) - predict (how will your lung capacity change whilst exercising) How	**Key Skills:** - To ask a simple question (How can you use electricty safely? how do components affect the voltage of a circuit? How is brightness affected by the number of lamps?) - comparing which circuits are complete, how components affect voltage - group - explain (what was theresults of your test? Why? Why did you present your work in this way?) - Plan a scientific enquiry/ fair test- (how do components affect the voltage of a circuit? How is brightness affected by the number of lamps?) Children to plan their experiment: Question, Hypothesis, Prediction, Equipment, Variables, Fair Test, Method) - record results (table-drawn, diagram and labels, repeat testing, bar graph using Microsoft Excel) - predict (what will the change be in voltage? brightness? **Light** **Key knowledge (including terminology):** - Know light travel in straight lines *(oqaque, transparent, transulcent, shadow)Light ray,*	- To ask a simple question (how can the living things be grouped in different ways?what is a micro organism?) - - comparing and group Sort and group animals and plants based on their features, Identify types of microorganism and classify them based on their characteristics) - explain (Give reasons for why IClassifying have classified animals and plants in a certain way) (Describe helpful and harmful microorganisms) - record results (classification tree,table-Linnaean system (*Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species).* **Evolution and inheritance** **Key knowledge (including terminology):** - To know what a habitat is (shelter,water, enough space and plenty of food) and identify different types of habitats. - know how animals and plants in a particular habitat are suited and adapted to their environment. *(adaptation, Evolution, Survival, Reproduce, Characteristic, Variation, Mutation, Natural selection, Offspring, Parents, Identical)* - Adaptive Traits are characteristics that are influenced by the environment the living things live in.These adaptations can develop as a result of many things, such as food and climate. - Environments fossils let scientists know how plants and animals used to look

	would your pulse change with acitiicy?)	*Light source, Blocking, Beam, Reflect).* - Know how shadows are formed by an object blocking the light. (torch to test transparent, opaque, translucent materials and record the shadows formed) - Understand the parts of the eye and how images are conveyed to the brain *(iris, sclera, retina, lens, pupil cornea, optic nerve)* - Understand how light is reflected off surfaces. *(Reflection, Shiny, Dull, Smooth)* - Shadows can be elongated or shortened depending on the angle of the light source. **Key Skills:** - To ask a simple question (what affect do different materials have on the formation of shadows how do penguins see) - comparing and group materials properties *(shiny,dull, transulcent, transparent, reflective,dull, smooth)* - explain (how light travels through materials-written, how images are processed by the eye- diagram and written) - Plan a scientific enquiry/ fair test- (torch to test transparent, opaque, transulcent materaisl and record the shadows formed) - record results - predict (	millions of years ago.This is proof that living things have evolved over time. - Evolution is the gradual process by which different kinds of living organisms have developed from earlier forms over millions of years. - Natural Selection is when Living things gradually evolve over long periods of time through natural selection as to deal with a changing environment - Natural selection in the animal world takes place over huge time scales - mutations are random changes in characteristics and can prove useful in survival- (*Peppered moth)* **Key Skills:** - To ask a simple question How have some animals adapted to their environment? How have animals changed over time? What is mutation? - explain (How have animals adapted to their habitat- adaptation of the animal, what the function is and why. what natural selection is and how it works. differences between evolution and natural selection. Evolution of the Peppered Moth-written:) - Record one page information page, timeline