Science Curriculum and Knowledge Map

Nursery	Exploring natural materials and know we can find them around our classroom and outdoors (UW) Know new vocabulary (CL) Developing knowledge of oral hygiene – know they must brush their teeth (PSED) To know about personal hygiene and the importance of being clean and tidy (PSED) To know that washing hands is important after using the toilet and before we eat (PSED)	Know they are free to investigate new and enjoy learning new words (CL) To know that oral hygiene is important and also know that eating fruits and vegetables is healthy for teeth and our bodies (PSED)	To know there are changes in states of matter(UW) Know and observe seasonal changes (UW) To be able to differentiate and categorise objects based on their properties (CL) To remember new words I am learning when talking to others (CL) To know what making right food choices looks like (PSED)	Know about growth and decay (UW) Know about an animal farm (UW)	Know the mini beasts around our environment (UW) Know farm animals and their life cycles (UW) Know that some foods are healthy and some are not (PSED) Know we must brush our teeth and begin to understand why - reviewing oral Hygiene (PSED)	Model and encourage scientific investigations to promote new vocabulary and thinking skills – children know and are enthusiastic to carry out investigations (CL)
Reception	Know changing seasons - the environment outside (KU) Know new vocabulary (CL) Know about oral hygiene (PSED) Know why we hand wash (PSED)	Know different materials and their strength and resistance (KU) Know how to answer how and why questions (CL) To begin to talk about why things happen using new vocabulary learnt (CL) Know new vocabulary (CL)	Know changes to weather and change to growth (KU) Know changes to weather and change to growth Fieldwork – Know the use of quadrants (KU) Know different changing materials (KU) To know a range of healthy food and exercise (CL)	Know it's Spring and there will be preparation for growth (KU) Know different animals live in different countries. Know polar bears live in cold places (KU) Know changing environment – explore our outdoor Hobbit Hole and see signs of Spring (KU) Know new vocabulary(CL) To talk confidently about why things happen using new vocabulary learnt (CL) Know why do we exercise (PSED)	Know the life cycles of some animals and me (KU) Know animals that live in warmer countries near the equator (KU) Know new vocabulary (CL) Know how to ask questions to find out more (CL) To name and sort a range of living things (CL) To be able to talk about different habitats (CL) Know what ia a healthy picnic and food choices (PSED) Know the importance of exercise (PSED) Know how to care for living creatures and being kind to the environment (PSED)	Know animals living in the wild in our country (KU) Know how we can help creatures by looking after our planet (KU) Know about floating and sinking – understanding the basic principles (KU) Know the different seasons, animals behaviour, weather (KU) Know we can review our quadrant use to compare seasons (KU) Know we can ask questions of others (CL) Know and continue to explore new vocabulary(CL) To know different life cycles (CL)

KS1 (Red NC)

Biology	Chemistry	Physics

Working Scientifically

asking simple questions and recognising that they can be answered in different ways
observing closely, using simple equipment
performing simple tests
identifying and classifying
using their observations and ideas to suggest answers to questions
Gathering and recording data to help in answering questions.

Year 1

Term 1		Term 2	Term 3	
Plants	Plants	Everyday Materials	Animals Including Humans	Animals including Humans

Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.

Sc Scientific vocabulary T Transferable vocabulary S Specific theme vocabulary

Learning End Points

Term 1	Term 1	Term 2	Term 3	Term 3
To know which plants are deciduous and evergreen To know and identify common, wild and garden plants To know and define deciduous and evergreen	To know and name blossom, petals, fruit, root, bulb, bud, seed, trunk, leaf, branches, stem.	To know what an object is made out of (i.e. glass, wood, plastic, metal, water, rock) To know that an object is different from the material it is made from. To know about the properties of everyday materials To know how to group objects based on the simple physical properties/material it is made from.	To know how to identify and name a range of animals by amphibian, reptile, mammal, fish and birds Know and classify animals by what they eat (carnivore, herbivore and omnivore) The five groups are: mammals (warm-blooded, have fur or hair, give birth to live young and produce milk); reptiles (cold-blooded, lay eggs on land, scaly skin); fish (live in water, have gills, lay eggs); birds (warm-blooded, have feathers and wings, lay eggs); amphibians (lay eggs in water, their young have gills and live in water, the adults have lungs and breathe air).	To describe and compare the structure of common animals To know how to identify, name, draw and label the basic parts of the human body. To know which part of the body is associated with each sense.

SK

Term 1	Term 1	Term 2	Term 3	Term 3
That evergreen trees don't lose their leaves. That deciduous trees lose their leaves in the autumn Poppies, heathers, dandelions, foxglove and daisies are wild flowers Roses, pansies, crocuses, daffodils and tulips are common garden plants Elder, Sycamore, Rowan, Chestnut and Conifer are deciduous and evergreen trees.	Locate the petals, stem, leaves and roots of a plant. Locate the root, trunk, branches and leaves of a tree	Objects can be made from a variety of materials and some are more suitable than others. Some materials are called metal, glass, wood, plastic, water and rock Materials can be bendy/not bendy, waterproof, non-waterproof, absorbent/not absorbent, transparent/opaque, hard/soft, stretchy/stiff, shiny/dull, rough/smooth	A horse, cat, dog, whale and human are examples of mammals and they have fur/hair A frog, toad and newt are examples of amphibians and can live on water and land. A lizard, crocodile and tortoise are examples of reptiles and have scaly skin. A chicken, penguin, robin, blackbird are examples of birds and have wings and feathers. A shark, cod, clown fish, tuna are all examples of fish and live in water. A carnivore eats meat, a herbivore eats plants, an omnivore eats meats and plants	Identify head, neck, arms, elbows, legs, knees, face, ears, eyes, mouth, teeth, and hair. We use eyes to see, skin to touch, mouth to taste, ears to hear, nose to smell.

Vocab

	Term 1		Term 1		Term 2		Term 3		Term 3	
Sc	Plant, wild, grow, tree, rose, honeysuckle, lavender, ivy, heather, poppy, pansy, holly,	Sc	Leaves, flower, blossom, petals, roots, bulbs, seed, trunk, branches, stem,	Sc	waterproof, not waterproof, absorbent, not absorbent, opaque, transparent,	Sc	Vertebrates, ,mammal Amphibians, Bird, Reptiles, Fish, tuna, mackerel, shark, clownfish, carp/koi carp, salmon, piranha	Sc	Head, forehead, ear, mouth, eyes, nose, nostril, shoulder, elbow, knee, leg, arm, teeth, fingers, thumb, hand, palm, foot, sole, toes
T	deciduous, evergreen, vegetable,	T	Tree, growth, conditions	T	Material, Hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy,	T	characteristic, classify, sort, Carnivore, herbivore, omnivore,	T	Bones, skeleton, foot, length, height, tall, short,
S	sunflower, daisy, bluebell, forget-me-not, dandelion, fir,	S	bush, sycamore, elder, chestnut, rowan oak, tulip, daffodil,	S	brick, paper fabric, elastic, foil	S	frog, toad, salamander, newt blackbird, sparrow, magpie, chicken, long tailed tit, seagull, turtle, crocodile, lizard, snake	S	dog, cat, rabbit, guinea pig, cow goat, pig, horse, camel, polar bear, monkey, elephant, tiger, lion, hedgehog, deer, seal, dolphin, bat

NC

Term 1	Term 1	Term 2	Term 3	Term 3
identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Identify and describe the basic structure of a variety of common flowering plants, including trees.	distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties.	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, draw and label the basic parts of the human body and say which part of the body is associated with each sense

Y1/2 Skills Progression

Asking Questions	Measuring and Recording	Concluding	Evaluating
ask simple questions and recognise that they can be answered in different ways	observe closely, using simple equipment perform simple tests gather and record data to help in answering questions	identify and classify use their observations and ideas to suggest answers to questions	

Seasonal Changes

Learning End Points
To know the features of the four seasons.
To know the weather and the length of day changes with the season.

Sticky Knowledge
Name the seasons and know about the type of weather in each season
Winter is traditionally colder in Britain Spring weather is milder than Winter and there are changes in the flora and fauna.
Summer is warmer and dryer and deciduous trees will have their leaves.
Autumn deciduous trees will lose their leaves.

Vocab

Winter, Spring, Autumn, Summer, season, change, weather,
sky, cloud, sunshine, sun, heat, hot, cold, chilly, frost, frozen, snow, sleet, mist, thunder, lightning, storm, grey, fluffy, white, fog,
dark, light, sunrise, sunset, morning, evening, day, night, time, clock, early, late

NC
observe changes across the four seasons
observe and describe weather associated with the seasons and how day length varies.

KS1 (Red NC)	Biology	Chemistry	Physics	Working Scientifically
				asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions.

	Term 1		Term 2		Term 3	
Year 2	Living things and their habitats	Living things and their habitats	Use of everyday materials	Animals Including Humans	Plants	Use of everyday materials
	Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.				Sc Scientific vocabulary T Transferable vocabulary S Specific theme vocabulary	
Learning End Points	To know the differences between things that are living, dead, and things that have never been alive. To know how to identify that most living things live in habitats to which they are suited. To know and identify and name a variety of plants and animals in their habitats, including microhabitats.	To know why animals and plants survive in that habitat and how they depend on each other. To know and describe how animals obtain their food from plants and other animals, using the idea of a simple food chain. To know and name different sources of food.	To know and identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. To know that Pilkington's were the first company to develop the float glass process in the World.	To know the basic needs of animals including humans for survival. To know the basic stages in a life cycle for animals, (including humans) To know why exercise, a balanced diet and good hygiene are important for humans	To know and explain how seeds and bulbs grow into plants To know what a seed or bulb is To know what plants need in order to grow and stay healthy (water, light & suitable temperature)	To know and identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. To know that Pilkington's were the first company to develop the float glass process in the World.
SK	There are certain characteristics that tell us that something is living, non-living or never been alive. A habitat is a natural environment or home of a variety of plants and animals.	Different conditions suit different animals and plants. Food chains are created when things eat other things e.g. sun, plant, insects, mouse, bird; Grass, cow, human.	Objects are made out of different materials e.g. spoons can be plastic or metal but not glass.	Babies grow into toddler, child, teenager, adults. Eggs hatch into chicks, spawn changes to tadpoles then frogs. To live, animals including humans need water, air, food. For humans, exercise, hygiene and a balanced diet are important.	Seeds and bulbs germinate and grow into plants. Plants need water, light and a suitable temperature to grow and stay healthy.	When a force is applied some materials change shape.
Vocab	Sc: Living, Dead, Habitat, Energy, Food chain, T: living, dead, never alive S: Predator, Prey, Woodland, Pond, Desert	Sc: Habitats micro-habitats Logs leaf litter stony path under bushes seashore woodland ocean rainforest conditions T: shelter hot/warm/cold dry/damp/we bright/shade/dark S: Food food chain sun grass Cow human alive healthy	Sc: Waterproof, Absorbent, Opaque, Transparent T: Hard, Soft, Stretchy, Stiff, Squashing, Bending, Twisting Shiny, Dull, Rough, Smooth, Bendy, S: Brick, Paper, Fabrics, Stretching Elastic, Foil	Sc: Offspring adults Egg caterpillar pupa Butterfly spaw Tadpole frog lamb Sheep adult reproduce egg chick chicken T: Exercise hygiene Nutrition baby Toddler child teenager grow S: survival water food air	Sc: Bulbs Common wild plants garden plants plant leaf root leaves bud flowers blossom petals root stem tree trunk branches leaf root fruit vegetables bulb seed water T: Light, water suitable Growth temperature healthy S: Plant reproduction germination reproduction deciduous evergreen	Sc: Spoons plastic rubber waterproof fabric metal table legs wood matches floors wood, metal but not glass T: Coins cans cars Wood metal plastic Glass brick rock Paper cardboard S: John Dunlop, telegraph poles John McAdam 'macadamisation' Charles Macintosh
NC	explore and compare the differences between things that are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other	identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Y1/2 Skills Progression	Asking Questions	Measuring and Recording	Concluding	Evaluating
	ask simple questions and recognise that they can be answered in different ways	observe closely, using simple equipment perform simple tests gather and record data to help in answering questions	identify and classify use their observations and ideas to suggest answers to questions	

KS2 (Red NC)	Biology	Chemistry	Physics	Working Scientifically
				asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.

	Term 1		Term 2		Term 3	
Year 3	Plants	Plants	Animals Including Humans	Rocks	Light	Forces and Magnets
	Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.				Sc Scientific vocabulary T Transferable vocabulary S Specific theme vocabulary	
Learning End Points	To identify and describe the functions of different parts of flowing plants, roots, stem, trunk, leaves, and flowers. To know (and explore) what plants need to live and grow and how they vary from plant to plant. To know (having investigated) how water is transported within plants.	To know the plant life cycle, especially the importance of flowers, pollination and seed dispersal. To know (having explored) the part that flowers play in the life cycle of flowering plants, incl pollination, seed formation and dispersal.	To know what is a nutritious, balanced diet and that humans don't produce their own food. To know that animals and humans have skeleton and muscular systems for supports, protection and movement.	To know and compare and group rocks based on their appearance and physical properties, giving reasons To know how fossils are formed. To know that soils are made from rocks and organic matter.	To know that dark is the absence of light Know that light is needed in order to see and is reflected from a surface To know and find patterns in the way that the size of shadows change. To know that a shadow is formed when light is blocked by a solid object. To know about the danger of direct sunlight and describe how to keep protected	To know about and describe how objects move on different surfaces. To know how some forces require contact and some do not, To know about and explain how magnets attract and repel each other and some materials. To know and identify magnetic materials and group those that are and are not. To know magnets have two poles and it affects whether they repel or attract.
SK	Root takes in nutrients and water and anchor the plant to the ground. Stem/trunk transports water to the leaves. Leaves convert sunlight into nutrition for the plant. Flowers attract insects for pollination.	A seed is formed in the flower. Seeds can be dispersed by wind, animals, self Seeds can be moved, spread and transported.	Rib cage protects the lungs and heart. Skull protects the brain Some animals don't have skeletons and some have an exoskeleton. The skeleton allows us to move. Muscles and skeletons work together to provide movement. A balanced diet has protein, carbohydrates, vitamins, minerals	Fossils are formed when living things are trapped. Rocks can look different depending on their properties. Rocks and organic matter are broken down to make soil.	Shadows are formed when an object is blocked by sunlight. It is dangerous to look at the sun. Shadows can change based on placement and light. Dark is the absence of light. Light can be reflected and we cannot see without light.	Objects move differently on different surfaces. A magnetic force does not need contact. Magnets attract and repel Attract means to pull together and repel means to pull apart. Magnets have north and South poles.
Vocab	Sc: air, light, water nutrients needs, vary fertiliser flowering plants roots stem/trunk leaves flowers T: Structure, function, grow S: nutrition support reproduction	Sc: life cycle flowers pollination seed formation seed dispersal T: Water, transportation, movement, transfer S: nutrients from the soil room to grow needs vary fertiliser	Sc: Skeleton, bones Joints, endoskeleton Exoskeleton, hydrostatic Skeleton, vertebrate Invertebrate, contract T: Relax muscles Nutrition. nutrients Carbohydrates, protein Fats, fibre, water Vitamins, Minerals, S: ball joint socket joint hinge joint gliding joint	Sc: rough/smooth absorbent/not absorbent T: appearance physical properties hard/soft shiny/dull buildings gravestones S: fossils sedimentary rock soils organic matter grains crystals	Sc: light see dark reflect surface natural star Sun torch candle sunlight T: dangerous lamp protect eyes S: Moon shadow blocked solid artificial	Sc: force push pull open surface magnet magnetic T: North South S: attract repel magnetic poles
NC	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant	investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	identify animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify humans and some other animals have skeletons and muscles for support, protection, and movement	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.	recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change.	compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing.

Y3/4 Skills Progression	Asking Questions	Measuring and Recording	Concluding	Evaluating
	ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests	make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables gather, record, classify and present data in a variety of ways to help in answering questions	identify differences, similarities or changes related to simple scientific ideas and processes report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions use straightforward scientific evidence to answer questions or to support their findings	use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

KS2 (Red NC)

Biology

Chemistry

Physics

Working Scientifically

asking relevant questions and using different types of scientific enquiries to answer them
setting up simple practical enquiries, comparative and fair tests
making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
identifying differences, similarities or changes related to simple scientific ideas and processes
using straightforward scientific evidence to answer questions or to support their findings.

Year 4

Term 1

Living things and their habitats

Animals including Humans

Term 2

States of matter (Solids, Liquids, Gases)

States of matter (Water cycle)

Term 3

Sound

Electricity (Conductors & Circuits)

Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.

Sc Scientific vocabulary | T Transferable vocabulary | S Specific theme vocabulary

Learning End Points

Living things and their habitats
Know how to use classification keys to group, identify and name living things
Know how changes to an environment could endanger living things

Animals including Humans
Know and identify the parts of the human digestive system
Know the functions of the basic parts in the human digestive system
Identify and know the different types of human teeth
To be able to construct food chains to identify producers, predators and prey

States of matter (Solids, Liquids, Gases)
Know about and explore how some materials can change state and what temperature they will change
Know how to group materials based on their state of matter (solid, liquid, gas.

States of matter (Water cycle)
Know the part played by evaporation and condensation in the water cycle

Sound
Know how sound is made, associating some of them with vibrating
Know how sound travels from a source to our ears
Know the correlation between pitch and the object producing a sound
Know the correlation between the volume of a sound and the strength of the vibrations that produced it
Know what happens to a sound as it travels further away

Electricity (Conductors & Circuits)
Know and identify appliances that require electricity to function
Know how to construct a series circuit
Know how to identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)
Know and predict and test whether a lamp will light within a circuit
Know the function of a switch
Know the difference between a conductor and an insulator; giving examples of each

SK

Living things and their habitats
Classification keys are used to organise and group living things
Living things can be endangered if their environment changes.

Animals including Humans
The teeth and mouth break up the food, the enzymes in the stomach break up the food further and the intestines absorb nutrients from the food.
Teeth are shaped differently according to the type of foods that will be eaten.
A food chain is made up of producers, predators and prey.

States of matter (Solids, Liquids, Gases)
Wax/chocolate/ice will turn to liquid when heated and this changing of state will be different temperatures.

Egg will turn to a solid when heated.
Water will turn to gas when heated.
The state of matter (gas, liquid, solid) depends on how close the particles are

States of matter (Water cycle)
The water cycle happens due to changes in temperature and water changing state.

Sound
Vibrations cause sounds
Sound waves travel to our ear from the source.
The bigger the object the lower the pitch it produces.
Stronger vibrations produce a louder sound.
Sounds get fainter as the ear moves further from the sound source.

Electricity (Conductors & Circuits)
Microwaves/computers and hoovers require a main electricity source to work.
Parts within a series circuit won't work if it is not a complete loop.
Know what cells, wires, bulbs, switches and buzzers are
A switch is used to break or complete a circuit.
Copper is a conductor, plastic is an insulator

Vocab

	Living things and their habitats	Animals including Humans	States of matter (Solids, Liquids, Gases)	States of matter (Water cycle)	Sound	Electricity (Conductors & Circuits)
Sc	animals vertebrate fish amphibians reptiles birds mammals invertebrate snails slugs worms spiders insects plants)	Digestive system, nutrient, chew, squeeze, gullet, oesophagus, stomach, Gums, Molar, incisor, wisdom, canine, premolar, cut, tear, crush, calcium, dairy, , diet, carnivore, omnivore, herbivore, decay , prey, food chain, hunt, food web, supply, relationship, population, decline, increase, energy	iron, ice, melt, freeze evaporate, condense,heated, heat, cool, cooled, boil, steam,	change of state, evaporation, condensation, temperature, melting, warm, cool, water, water vapour, , change, state	vibrate vibration vibrating air medium ear hear loud louder	switch, trial, crocodile clip, brighter, gap, battery, cell wire bulb buzzer wood rubber plastic glass metal water
T	Environment flowering non-flowering plants environment dangers!	Eco-system, sun, organism, living, producers mouth, tongue, swallow, saliva, gland, teeth,	Celsius C, thermometer degrees, container, changing state	temperature, measure, record, effect	sound volume pitch faint fainter	appliances electricity electrical circuit danger electrical safety sign light, fail,
S	flowering plants (including grasses non-flowering (including mosses and ferns)	small and large intestine, bowel, rectum function, contract, muscle biomass, cells, oxygen, respire, Consumers (secondary, primary, tertiary	Solid, solidify, liquid, gas,	Solid, liquid, gas Water cycle	string percussion woodwind brass insulate	switches open closed motor, bulb, conductors conduct, circuit, break, series, wire insulators

NC

Living things and their habitats
recognise that living things can be grouped in a variety of ways
explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
recognise that environments can change and that this can sometimes pose dangers to living things

Animals including Humans
describe the simple functions of the basic parts of the digestive system in humans
identify the different types of teeth in humans and their simple functions
construct and interpret a variety of food chains, identifying producers, predators and prey

States of matter (Solids, Liquids, Gases)
compare and group materials together, according to whether they are solids, liquids or gases
observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

States of matter (Water cycle)
Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound
identify how sounds are made, associating some of them with something vibrating
recognise that vibrations from sounds travel through a medium to the ear
find patterns between the pitch of a sound and features of the object that produced it
find patterns between the volume of a sound and the strength of the vibrations that produced it
recognise that sounds get fainter as the distance from the sound source increases.

Electricity (Conductors & Circuits)
identify common appliances that run on electricity
construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
Recognise some common conductors and insulators, and associate metals with being good conductors.

Y3/4 Skills Progression

Asking Questions

ask relevant questions and use different types of scientific enquiries to answer them
set up simple practical enquiries, comparative and fair tests

Measuring and Recording

make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
gather, record, classify and present data in a variety of ways to help in answering questions

Concluding

identify differences, similarities or changes related to simple scientific ideas and processes
report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
use straightforward scientific evidence to answer questions or to support their findings

Evaluating

use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

KS2 (Red NC)	Biology	Chemistry	Physics	Working Scientifically
				planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

	Term 1		Term 2		Term 3	
Year 5	Living things and their habitats	Animals Including Humans	Properties and Change of Materials	Properties and Change of Materials	Earth and Space	Forces Powerful Pulleys - Lesson - TeachEngineeringhttps://www.teachengineering.org › lessons › view › cub_simple_lesson05
Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.					Sc Scientific vocabulary	T Transferable vocabulary / S Specific theme vocabulary
Learning End Points	Know the life cycle of different living things e.g. mammal, amphibian, insect and bird Know the differences between different life cycles Know the process of reproduction in plants Know the process of reproduction in animals	Know how to create a timeline to indicate stages of growth in humans Know the changes that happen to a human as a human gets older	Know how to compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets Know and explain how a material dissolves to form a solution some are not	Know and show how to recover a substance from a solution Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) Know and demonstrate that some changes are reversible and Know how some changes result in the formation of a new material and that this is usually irreversible	Know about and explain the movement of the Earth and other planets relative to the Sun Know about and explain the movement of the Moon relative to the Earth Know and demonstrate how night and day are created Know how to describe the Sun, Earth and Moon (using the term spherical)	Know that gravity is a force acting between earth and a falling object Identify and know the effect of air and water resistance Know how to identify and know the effect of friction Know and explain how levers, pulleys and gears allow a smaller force to have a greater effect
SK	Mammals give birth to live babies Birds, reptiles, amphibians and insects lay eggs Plant reproduction is the creation of new plants by one or more parent plants. In flowering and non-flowering plants, pollination occurs when pollen is passed on to another flower or through self-pollination. Reproduction in animals occurs when the female eggs are fertilised by a male	Humans develop in stages: baby, toddler, child, teenager, adult, and pensioner. Social, emotional and psychological changes take place as humans grow.	Electrical conductivity tells us how well a material will allow electricity to travel through it Solubility is the nature of the material to completely dissolve in water and therefore termed as soluble material Magnetic materials are those that are attracted to a magnet The maximum amount of light to passing through the material are deemed as transparent materials	Salt can be recovered from water through evaporation Sand can be recovered from water through filtering Gravel can be separated from water through sieving Sieving, filtering and evaporation are used depending on the size of the particles that are needed to separate and whether they are soluble or not. A baked cake is an irreversible change whereas ice turning to water is reversible	The moon orbits the earth The earth rotates on its axis and orbits the sun As the Earth orbits the Sun, the Moon orbits the Earth. It takes the Earth one year, or 365 1/4 days, to completely orbit the Sun Night-time is when the sun is on the other side of the Earth from you, and its light and heat don't get to you. We get day and night because the Earth spins (or rotates) on an imaginary line called its axis and different parts of the planet are facing towards the Sun or away from it. The order and names of the planets in our solar system. A solar system is a group of planets that rotate around a solar body. Scientists believe the solar system was created by the big bang.	Unsupported objects fall toward earth because of the force of gravity. Air resistance is the frictional force air exerts against a moving object. As an object moves, air resistance slows it down. The faster the object's motion, the greater the air resistance exerted against it Water resistance is a type of force that uses friction to slow things down that are moving through water. It is often called drag. A pulley is a collection of one or more wheels over which you loop a rope to make it easier to lift things. Pulleys are examples simple machines which means they help us multiply forces. A lever works by reducing the amount of force needed to move an object or lift a load. A lever does this by increasing the distance through which the force acts
Vocab	Sc: life cycles mammal amphibian insect bird life process of reproduction plants animals vegetable garden flower boarder T: sexual, asexual animals: sexual lifecycles around the world rainforest oceans desert prehistoric similarities differences S: animal naturalists David Attenborough animal behaviourist Jane Goodall reproduction plants:	Sc: Gestation, changes, development, puberty life cycle gestation growth reproduce foetus baby fertilisation T: toddler child teenager adult old age life expectancy S: adolescence adulthood early adulthood middle adulthood late adulthood childhood	Sc: properties hardness solubility transparency electrical conductor thermal conductor response to magnets dissolve solution separate separating solids new material burning rusting magnetism electricity chemists T: liquids gases evaporating reversible changes dissolving mixing evaporation filtering sieving melting irreversible S: Spencer Silver Ruth Benerito quantitative measurements conductivity insulation chemical	Sc: properties hardness solubility transparency electrical conductor thermal conductor response to magnets dissolve solution separate separating solids new material burning rusting magnetism electricity chemists T: liquids gases evaporating reversible changes dissolving mixing evaporation filtering sieving melting irreversible S: Spencer Silver Ruth Benerito quantitative measurements conductivity insulation chemical	Sc: Earth Sun Moon moons planets stars solar system Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto T: rotate day night hemisphere season S: Aristotle Ptolemy Galileo Copernicus Brahe Alhazen orbit axis spherical heliocentric geocentric tilt	Sc: gravity air resistance water resistance friction surface force effect move spring T: accelerate decelerate stop change direction brake mechanism design pulley gear S: theory of gravitation Galilei Isaac Newton
NC	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	Describe the changes as humans develop to old age.	compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
I - S P	Asking Questions	Measuring and Recording	Concluding	Evaluating		

	plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	identify scientific evidence that has been used to support or refute ideas or arguments report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	use test results to make predictions to set up further comparative and fair tests	

KS2 (Red NC)	Biology	Chemistry	Physics	Working Scientifically
				planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

	Term 1		Term 2		Term 3	
Year 6	Animals Including Humans	Living Things and Their Habitats	Evolution and Inheritance	Evolution and Inheritance	Light	Electricity
	Scientific Vocabulary: Control, variable, accurate, precise, repeat, classification key, scatter graph, line graph, bar graph, evidence, causal relationship, explain, enquiry, conclusion, prediction, fair, control, results, comparative, measurement, observation, record, prediction, prove/disprove, conclude, confirm.				Sc Scientific vocabulary T Transferable vocabulary S Specific theme vocabulary	
Learning End Points	Know how to identify and name the main parts of the human circulatory system Know the function of the heart, blood vessels and blood Know the impact of diet, exercise, drugs and lifestyle on health Know the ways in which nutrients and water are transported in animals, including humans	Know and classify living things into broad groups according to observable characteristics and based on similarities and differences Know how living things have been classified Know and give reasons for classifying plants and animals in a specific way	Know how the Earth and living things have changed over time Know how fossils can be used to find out about the past Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Know and explain what it is	Know how animals and plants are adapted to suit their environment Know and link adaptation over time to evolution Know about evolution and can explain what it is	Know how light travels Know and demonstrate how we see objects Know why shadows have the same shape as the object that casts them Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.	Know and compare and give reasons for why components work and do not work in a circuit Know how to draw circuit diagrams using correct symbols Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer
SK	The circulatory system consists of three independent systems that work together: the heart (cardiovascular), lungs (pulmonary), and arteries, veins, coronary and portal vessels (systemic). The system is responsible for the flow of blood, nutrients, oxygen and other gases, and as well as hormones to and from cells. The heart's role is to pump oxygen-rich blood to every cell in the body. The blood vessels provide the pathway in which blood travels. Blood has three main functions: transport, protection and regulation Nutrients are transported throughout your body through your blood In order to keep your heart healthy you need to eat well and exercise. There are illegal drugs that can harm our body. Drugs are a substance that have an effect on the body.	The reason scientists classify living things is to understand the relationships between different organisms. Carl Linnaeus - taxonomic systems. There is a Binominal classification system of which there are 7 main categories. (*Domain, kingdom, phylum, class, family, genus, species*) Classify animals based on similar characteristics and differences so that when new species are discover that can be identified.	Evolution is a change in the characteristics of living things over time. Fossils can be used to tell how long life has existed on Earth, and how different plants and animals are related to each other. Fossils are used to work out how and where plants or animals lived Reproduction is the biological process by which new individual organisms (offspring) are produced from their parents Reproduction is a fundamental feature of all known life; each individual organism exists as the result of reproduction.	As described by Darwin, evolution occurs by a process called natural selection. As living things evolve, they generally become better suited for their environment. This is because they evolve adaptations. Survival of the fittest means animals adapt to their environment to eat reproduce and survive. Charles Darwin is a naturalist who travelled to the Galapagos islands and is well known for the Origin of Species.	Light travels in straight lines. We are able to see because light from an object can move through space and reach our eyes. Once light reaches our eyes, signals are sent to our brain, and our brain deciphers the information in order to detect the appearance, location and movement of the objects Shadows have the same shape as their objects because light only travels in straight lines and cannot travel through solid objects.	To produce an electric current, three things are needed: a supply of electric charges (electrons) which are free to flow, some form of push to move the charges through the circuit and a pathway to carry the charges. The pathway to carry the charges is usually a copper wire. Increasing the voltage increases the brightness of the bulb Increasing the number of bulbs in a series circuit decreases the brightness of the bulbs.
Vocab	Sc: internal organs heart lungs liver kidney brain skeletal skeleton muscle muscular T: exercise drugs lifestyle nutrients water damage drugs alcohol substances impact diet S: digest digestion digestive circulatory system heart blood vessels blood	Sc: classify compare phylum class order family genus species T: classification domain characteristics, order, compare S: vertebrates invertebrates microorganisms organism flowering non-flowering Linnaean Carl Linnaeus kingdom	Sc: evolution adaption inherited traits adaptive traits natural selection inheritance T: variation parent offspring fossil environment plants animals living things S: Charles Darwin Alfred Wallace DNA genes habitat fossilisation	Sc: evolution adaption inherited traits adaptive traits natural selection inheritance T: variation parent offspring fossil environment plants animals living things S: Charles Darwin Alfred Wallace DNA genes habitat fossilisation	Sc: reflect reflection light source object shadows mirrors periscope T: light travels straight S: rainbow filters	Sc: voltage brightness volume switches danger series circuit working safely with T: recognised symbols electricity electrical safety sign S: circuit diagram switch bulb buzzer motor
Focus /NC	identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans.	describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.	recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram.
I S P	Asking Questions	Measuring and Recording	Concluding		Evaluating	

	plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	identify scientific evidence that has been used to support or refute ideas or arguments report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	use test results to make predictions to set up further comparative and fair tests