Science–
Whole School Overview

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Ourselves Similarities/ differences Where they live	Floating and sinking	Forces Changing state (cooking based)	Space Looking after planet earth	Growing and life cycles	Under the sea; different environments
1	Seasonal changes	Seasonal changes	Materials and their properties	Animals including humans	Seasonal changes Plants	Animals including humans
2	Materials and their properties	Living things and their habitats	Materials and their properties	Animals including humans	Animals including humans and living things and their habitats	Plants and living things and their habitats
3	Rocks	Forces and Magnets	Animals including humans	Light	Plants	Animals including humans
4	Electric	States of matter	Sound	Animals including humans	Living things and their habitats	Animals including humans
5	Materials and changes in state	Forces	Earth and Space	Materials and their properties	Forces	Animals including humans and living things and their habitats.
6	Electric and light	Animals including humans	Living things and their habitats	None taught due to SATS preparation	Evolution and inheritance	Investigations

EYFS

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can talk about the features of my own immediate environment. I can talk about past and present events in my own life and in the lives of family members. I can talk about similarities and differences between myself and others, and among families, communities and traditions.	I can describe similarities and differences in relation to places, objects, materials and living things. I can talk about why things happen and how they work.	I can comment and ask questions about aspects of my familiar world such as the place where I live and the natural world. I can look closely at similarities, differences, pattern and change.	I can explain how technology is used in school and beyond. I show care and concern for living things and the environment.	I can make observations of plants and explain why things occur, and talk about changes. I have developed an understanding of growth, decay and changes over time.	I can talk about how environments might vary from one another. I can talk about features of my own environment and how environments might vary from one another.
Challenge	• Do they know some reasons why people's lives were different in the past? • Do they understand the importance of treating people's differences with respect?	• Are they familiar with some basic scientific concepts such as floating, sinking and experimentation?	• Do they know the properties of some materials and can suggest some of the purposes they are used for?	• Can they select the appropriate applications that supports an identified need?	• Can they describe some actions which people in their own community do to help maintain the area they live in?	• Do the children know that the environment and living things are influenced by human activity?
Key Vocabulary	Town, village ,road ,path, house, flat, temple, synagogue,	Float, sink, material, weight, heavy, light	Change, solid, liquid, colour, texture, heat, taste,	Busy, quiet, pollution, environment, recycle, reuse, solar system, planet, stars, travel, world, earth,	Declay, growth, observation, environment, flourish, care, nurture	Water, deep, creatures, dive, environment, Aquatic

YEAR 1

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can describe the weather in autumn, winter, spring and summer and that the days get longer and shorter. I can explain changes through autumn, winter, spring and summer.	I can describe the weather in autumn, winter, spring and summer and that the days get longer and shorter. I can explain changes through autumn, winter, spring and summer.	I can tell the difference between an object and the material from which it is made. I can name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. I can describe some everyday materials. I can make groups of materials based on what they are like.	.I can describe and compare the structure of a variety of common animals. I can spot and name a variety of common animals that are carnivores, herbivores and omnivores. I can group animals according to what they eat. I can spot and name a variety of common animals.	I can describe the weather in autumn, winter, spring and summer and that the days get longer and shorter. I can explain changes through autumn, winter, spring and summer. I can name some common wild and garden plants, including deciduous and evergreen trees. I can name and describe the basic structure of a variety of common flowering plants, including trees.	I can name, draw and label the basic parts of the human body and say which part of the body is to do with each sense
Challenge	• Do they know that the sun moves across the sky during the day? • Can they explain why they can't see stars in the day time? • Can they describe how light and temperature are different during the night and day? • Can they describe changes in light that result from action/s?	• Do they know that the sun moves across the sky during the day? • Can they explain why they can't see stars in the day time? • Can they describe how light and temperature are different during the night and day? • Can they describe changes in light that result from action/s?	• Can they describe things that are similar and different between materials? • Can they explain what happens to certain materials when they are heated, eg, bread, ice, chocolate? • Can they explain what happens to certain materials when they are cooled, e.g, jelly, heated chocolate?	• Can they say why certain animals have certain characteristics? • Can they name a range of wild animals? • Can they begin to classify animals according to a number of given criteria? • Can they point out differences between living things and non-living things? • Can they sort some animals on a simple branching diagram with features such as meat eaters and non-meat eaters;	• Can they name the main parts of a flowering plant? • Can they sort some plants by those that can be eaten and those that cannot?	• Can they name some parts of the human body that cannot be seen?

				swim and cannot swim?		
Key Vocabulary	Summer, Winter, Autumn, Spring, day, daytime, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold, Sun, Moon, night, light, dark	Summer, Winter, Autumn, Spring, day, daytime, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold, Sun, Moon, night, light, dark	Wood, plastic, glass, paper, water, metal, rock, hard, soft, bendy, rough, smooth, shiny, dull.	Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Wings, Beak	Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem, trunk, wild, garden	Leg, arm, elbow, head, ear, nose, back, sight, hearing, touch, taste, smell, hand, fingers, thumb, eye, knee, teeth, toes

YEAR 2

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can explain how objects made from some materials can be changed.	I can name some plants and animals in their habitats including microhabitats. I can explain that most living things live in habitats which suit them and depend on each other.	I can say why I would choose a material for a particular job.	I can explain the importance of exercise, eating healthily and keeping clean.	I can explain how animals get their food from plants and other animals using a simple food chain. I can explain the needs of animals, including humans, for survival. I can explain that animals, including humans, have babies which grow into adults.	I can explain the differences between things that are living, dead and things that have never been alive. I can describe how plants need water, light and a suitable temperature to grow and stay healthy. I can explain how seeds and bulbs grow into plants.
Challenge	• Can they describe the properties of different materials using words like transparent or opaque, flexible, etc.? • Can they explain how materials are changed by heating and cooling? • Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted? • Can they explain how materials are changed by bending, twisting and stretching?	• Can they name some characteristics of an animal that help it to live in a particular habitat? • Can they describe what animals need to survive and link this to their habitats?	• Can they sort materials into groups and say why they have sorted them in that way? • Can they say which materials are natural and which are man made?		• Can they explain that animals reproduce in different ways? • Can they classify living things into groups according to a range of criteria they have been given?	• Can they describe what plants need to survive and link it to where they are found? • Can they explain that plants grow and reproduce in different ways?
Key Vocabulary	Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Squashing, Bending, Twisting, Stretching Elastic,	Living, dead, habitat, energy, food chain, predator, prey, woodland, pond, desert, rainforest, conditions, damp shade, micro-habitats.	Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Foil	Exercise, water, air, hygiene, food	Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy,	Seeds, Bulbs, Water, Light, Temperature, Growth, sunlight, germinate

YEAR 3

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can explain that soils are made from rocks and organic matter. I can simply describe how fossils are formed when things that have lived are trapped within rock. I can examine and do practical experiments on various types of rocks in order to group them on the basis of their appearance and simple physical properties.	I can compare how things move on different surfaces. I can see that some forces need contact between two objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can compare and group some materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. I can describe magnets as having two poles. I can predict whether two magnets will attract or repel each other, depending on which poles are facing.	I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. I can explain why humans and some other animals have skeletons and muscles.	I can explain that I need light in order to see things and that dark is the absence of light. I can show that light is reflected from surfaces. I can explain that light from the sun can be dangerous and that there are ways to protect eyes. I can show how shadows are formed when the light from a light source is blocked by a solid object. I can show that there are patterns are in the way that the size of shadows change.	I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. I can investigate the way in which water is transported within plants. I can explore the requirements of plants for life and growth and how they vary from plant to plant. I can explain what different parts of flowering plants do.	I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.
Challenge	• Can they classify igneous and sedimentary rocks? • Can they begin to relate the properties of rocks with their uses?	• Can they investigate the strengths of different magnets and find fair ways to compare them? • Can they explain why an object will move faster if it is rolling down a hill or a slope?	• Can they explain how the muscular and skeletal systems work together to create movement? • Can they classify living things and non-living things by a number of characteristics that they have thought of? • Can they explain how people, weather and the environment can	• Can they explain why lights need to be bright or dimmer according to need? • Can they make a bulb go on and off? • Can they say what happens to the electricity when more batteries are added? • Can they explain why their shadow changes when the light source is moved closer or	• Can they classify a range of common according to many criteria (environment found, size, climate required, etc.)? • Can they explore the role of flowers in the life cycle of flowering plants: Including pollination, seed formation and speed dispersal?	• Can they explain how people, weather and the environment can affect living things? • Can they explain how certain living things depend on one another to survive?

			affect living things? • Can they explain how certain living things depend on one another to survive?	further from the object?		
Key Vocabulary	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	Skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints, nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water,	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water,

YEAR 4

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can talk about common appliances that run on electricity. I can construct and draw with labels a simple series electrical circuit which includes cells, wires, bulbs, switches and buzzers. I can predict if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. I can explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can show that some materials are conductors and some are insulators, and can explain that metals are good conductors.	I can correctly talk about the part played by evaporation and condensation in the water cycle and can show a link between the rate of evaporation and temperature. I can demonstrate and explain 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). I can group materials together, according to whether they are solids, liquids or gases including tricky ones like gels, foams, mists and pastes.	I can show that sounds get fainter as the distance from the sound source increases. I can show that there is a pattern between the volume of a sound and the strength of the vibrations that produced it. I can find patterns between the pitch of a sound and features of the object that produced it. I can explain that vibrations from sounds travel through a medium to the ear. I can explain how sounds are made, and show that some of them are linked to vibrations.	I can describe and explain a variety of food chains, naming producers, predators and prey. I can explain some parts of the digestive system in humans.	I can show that living things can be grouped together in various ways. I can explore and use classification keys to help group, identify and name a variety of living things. I can explain that environments can change and that this sometimes means that living things are put in danger.	I can explain the different types of teeth in humans and what they do.
Challenge	• Can they explain how a bulb might get dimmer? • Can they recognise if all metals are conductors of electricity? • Can they work out which metals can be used to connect across a gap in a circuit?	• Can they group and classify a variety of materials according to the impact of temperature on them? • Can they explain what happens over time to materials such as puddles on the playground or washing hanging on a line? • Can they relate temperature to	• Can they explain why sound gets fainter or louder according to the distance? • Can they explain how pitch and volume can be changed in a variety of ways? • Can they work out which materials give the best insulation for sound?	• Can they explain how people, weather and the environment can affect living things? • Can they explain how certain living things depend on one another to survive?	• Can they classify living things and non-living things by a number of characteristics that they have thought of? • Can they give reasons for how they have classified animals and plants, using their characteristics and how they are suited to their environment?	• Can they explain how people, weather and the environment can affect living things? • Can they explain how certain living things depend on one another to survive?

		change of state of materials?			• Can they explore the work of pioneers in classification? (e.g. Carl Linnaeus)	
Key Vocabulary	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative,	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	Digestive system, digestion, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, herbivore, carnivore, omnivore, producer, predator, prey, food chain	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	Mouth, teeth, saliva, teeth, incisor, canine, molar, premolars.

YEAR 5

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can 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. I can explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I can demonstrate that dissolving, mixing and changes of state are reversible changes	I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can demonstrate the effects of air resistance, water resistance and friction, that act between moving surfaces. I can show that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. I can describe the Sun, Earth and Moon as approximately spherical bodies. I can explain day and night and the apparent movement of the sun across the sky using the idea of the Earth's rotation.	I can 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. I can 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.	Working scientifically- link to forces	I can describe the changes as humans develop to old age. I can describe how some animals and plants reproduce. I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe how some animals and plants reproduce. I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
Challenge	• Can they work out which materials are most effective for keeping us warm or for keeping something cold? • Can they describe methods for separating mixtures? (filtration, distillation)	• Can they describe and explain how motion is affected by forces? (including gravitational attractions, magnetic attraction and friction) • Can they design very effective parachutes?	• Can they compare the time of day at different places on the earth? • Can they create shadow clocks? • Can they begin to understand how older civilizations used the sun to create astronomical clocks?	• Can they work out how magnets are useful in an everyday context? • Can they work out the link between magnets and the North and South poles?		• Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies? • Can they observe their local environment and draw conclusions about life-cycles? (for example, the vegetable garden

		• Can they work out how water can cause resistance to floating objects?	• Can they explore the work of some space pioneers? (Galileo, Copernicus, Neil Armstrong)			• or plants in a shrubbery) • Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, e.g. rainforests?
Key Vocabulary	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets			Life cycle, reproduce, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings.

YEAR 6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Can do statements	I can show that the brightness of a lamp or the volume of a buzzer depends on the number and voltage of cells used in the circuit. I can 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. I can draw a diagram using recognised symbols to represent a simple circuit. I can show that light appears to travel in straight lines. I can explain that light travels in straight lines and that objects are seen because they give out or reflect light into the eye. I can demonstrate and 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. I can demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.	I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can describe the ways in which nutrients and water are transported within animals, including humans.	I can describe how plants, animals and micro-organisms are classified into broad groups according to common observable characteristics and based on similarities and differences. I can give reasons for classifying plants and animals based on specific characteristics.	SATS!	I can explain that the kinds of living things that live on the earth now are different from those that inhabited the Earth millions of years ago and that fossils provide this information. I can explain that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I can give examples of how animals and plants are adapted to suit their environment in different ways and can explain that adaptation may lead to evolution.	Working scientifically
Challenge	• Can they use the ray model to explain the size of shadows?	• Can they explore the work of medical pioneers, for example, William Harvey	• Can they explain why classification is important? • Can they readily group animals into	SATS!	• Can they explain how some living things adapt to survive in extreme conditions?	

	• Can they make their own traffic light system or something similar? • Can they explain the danger of short circuits? • Can they explain what a fuse is?	and Galen and recognise how much we have learned about our bodies? • Can they compare the organ systems of humans to other animals? • Can they make a diagram of the human body and explain how different parts work and depend on one another?	reptiles, fish, amphibians, birds and mammals?		• Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet? • Can they begin to understand what is meant by DNA?	
Key Vocabulary	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably. Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, straight lines, light rays.	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering		Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, genetics, variation, mutation.	