Progression in the Curriculum:

Science

Bold and underlined statements are Science milestones

Year Group	Key Vocabulary
KS3	
6	Animals including humans circulatory system, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle Electricity electrical circuit, complete circuit, circuit, diagram, circuit, symbol, components, cell, battery, positive/ negative, terminal, connection, loose connection, short circuit, wire, crocodile clip, brightness, switch, buzzer, volume, motor, insulator, voltage, current, resistance, danger, series Light travels, straight, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters Plants and Animals Organism, micro-organism, fungus, mushrooms, classification, keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates Evolution and Inheritance evolution, suited/ suitable, adapted/ adaptation, offspring, characteristics, vary/ variation, inherit/ inheritance, fossils
5	Animals, including humans Age, Aging, Birth, Baby, Toddler, Child, Adolescent, Adult, Old age, Pensioner, Similarities, Differences, Puberty, Growth, Height, Weight, Changes, Development, Timeline, Female, Male, Life expectancy, Hygiene, Skin, Wrinkles, Muscles, Organs, Senses Forces Fall, pull, push, gravity, Newton, force, air resistance, water resistance, friction, force, pairs, greater force, lesser force, equal, moving, surfaces, mechanisms, levers, pulleys, gears, weight, distribution, magnetic force, magnet, attract, repel, positive, negative, effect, accelerate, decelerate, upthrust, aerodynamic, momentum, drag, streamlined, motion, buoyancy, mass Changing Materials soluble, insoluble, reversible, irreversible, dissolve, filter, separate, sieve, filtration, mixture, permanent, molecule, solution Earth, Sun and Moon Earth, planets, Sun, solar, system, Moon, celestial body, sphere/spherical, rotate/ rotation, night and day, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, 'dwarf' planet, orbit, revolve, geocentric model, heliocentric model, shadow, clocks, sundials, astronomical clocks, equator, astronomy, stars, universe, galaxy, crescent, waxing, waning, full moon, new moon, eclipse, orbit Living things/Habitats Environment, Classification, Species, flowering, non-flowering, plants, animals, life cycle, reproduction, asexual, oceans, desert, prehistoric, similarities, differences, germination, pollination, stamen, stigma, fertilisation
4	Living things/Habitats Environment ,Classification, Species, flowering, non-flowering, plants, animals, vertebrate, invertebrates, plants, population, development, deforestation, extinct, endangered, hunters, pollution, litter, food, shelter, humans, water, poaching, genetics, evolution, nature reserves, protected Electricity Appliances, circuit, cell, wire, bulb, buzzer, danger, safety sign, insulators, wood, rubber, plastic, glass, conductors, metal, water, switch, open circuit, closed circuit, components, plug, motor, mains, current, energy, charge, watt, voltage, solar power, renewable, negative charge, positive charge, wind power, fossil fuel, sustainable, electric shock, electrocute, appliances, battery powered States of Matter particles, air, oxygen, powder, grain/granular, crystals, ice, water, steam, water vapour, heated/heating, cooled/cooling, temperature, degrees, Celsius/ Fahrenheit, melt, freeze, solidify, melting point, molten, boil, boiling point, condensation, heat, change of state, evaporate, condense, thermometer, water cycle Sound Sound, sound source, noise, vibrate, travel, solid, liquid, gas, pitch, tune, high, low, volume, loud, quiet, fainter, muffle, vibrations, insulation, instrument, percussion, strings, brass, woodwind, tuned instrument, medium, soundproof, pluck, strum, play, shake, soundwaves, speed of sound, ear, eardrum, hear/ hearing, tempo, listen, echo, distance Animals, including humans Digestion, chemical, mouth, Gums, lips, Tongue, Moistens, saliva, Teeth, Incisors, Cutting, slicing, Canines, ripping, tearing, Molars, Chewing, grinding, Wisdom, teeth, swallow, oesophagus, transports, stomach acid, Enzymes, small intestine, large intestine, carnivore, herbivore, omnivore, brush, floss, Internal organs, food chain, sun, producers, prey, predators, Consumer, Primary, Secondary, Tertiary
3	Animals including humans Nutrition, vitamins, minerals, fat, protein, carbohydrates, fibre, water, diet, nutrition, skeletons support, protection, skull, brain, ribs, heart, lungs, muscles, movement, pull, contract, relax, Forces Force, push, pull, open, surface, attract, repel, magnetic poles, north, south, metal, iron, steel Rocks and soils Pebble, boulder, soil, fossil, grains, crystals, texture, marble, chalk, granite, sandstone, slate, sandy, soil, clay ,soil ,chalky ,soil , pumice, absorbent , sedimentary, organic matter, buildings, appearance, physical, Light Light, see, dark, reflect, reflective, surface, natural, star, sun, moon, artificial, torch, candle, lamp, transparent, translucent, protecting eyes Plants structure – flowering plants, function – nutrition, support, makes own food requirements for life and growth – nutrients , room to grow, fertiliser life cycle - flowers pollination, seed formation, seed dispersal
2	Use of materials Squash, bend, stretch, elasticity, Wood, metal, plastic, natural, twist, glass, fabric, rough, smooth, tough, fragile, manipulate, manufactured, properties, group, change , solid, liquid, gas Growing and Staying Healthy Growth, health, unhealthy, variety, grow, small, bigger, exercise, living, process, animals, plants, humans, germs, medicine, move, life cycle, most, more, diet Habitats Habitat, living, survival, damp, dark, light, dependent, micro-habitat, food chain, diet, logs, leaf litter, stony, path, under bushes, shelter, seashore, woodland, ocean, rainforest, conditions, climate, hot, cold, dry, wet, bright Growing Plants light, suitable, temperature, grow, germination, reproduction, healthy
1	Uses of everyday materials Wood, plastic, glass, metal, water, rock, brick, paper, fabric, foil , rubber, wool, elastic, sand hard/soft, stretchy,/stiff, shiny/dull, rough/smooth, bendy/ridged, waterproof, magnetic , strong Seasonal Changes Spring, summer, autumn, winter, sun, wind, rainbow, cloud, rain, storm, lightening, snow, fog , hail, daylight, darkness, morning, night time, day time. Animals including Humans Mammals, amphibians, reptiles, birds, fish, insects, pets, carnivores. Herbivores, omnivores , leg, arm, elbow, head, ear, nose, back, wings, beak Plants Wild plant, garden plant, deciduous, evergreen, leaves, flowers, blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem , bud, water.

Science Strands

Science Strand: Animals, including humans

Science Strand: Electricity / Forces

Science Strand: Materials and their Properties (Changing materials, states of matter, Rocks and Soils)

Science Strand: Seasonal Changes/ Earth, Sun and Moon

Science Strand: Light/ Sound

Science Strand: Living things (including Plants and habitats)

Science Strand: Evolution and Inheritance

Year 6

Year 6 (Animals, including humans)
- **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.

Year 6 (Electricity)
- **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.

Year 6

Light
- **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**

Year 6

Plants and animals
- **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.

Year 6 (Evolution and Inheritance)
- **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.**

Year 5

Year 5 (Animals, including humans)
- **Describe the changes as humans develop to old age**
- **Learn about the changes experienced in puberty**
- Research the gestation periods of animals and compare them to humans

Year 5

Forces
- 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.

Year 5

Changing materials
- **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.**

Year 5

Earth, Sun and Moon
- 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.**

Year 5 (Living things)
- 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.**

Year 4

Year 4 (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

Year 4

Electricity
- 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.**

Year 4

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

Year 4

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.

Year 4

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.

Year 3

Year 3 (Animals, including humans)
- **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.**
- **Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**

Year 3

Forces
- Compare how magnets 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.

Year 3

Rocks and Soils
- **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.

Year 3

Light
- 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.**

Year 3

Plants
- **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.

Year 2

Year 2 (Animals, including humans)
- 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.**

Year 2

Uses of materials
- **Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.**
- **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**

Year 2

Growing Plants
- **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.**

Habitats
- **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.**

Year 1

Year 1 (Animals, including humans)
- **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**

Year 1

Uses of everyday materials
- **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.**

Year 1

Seasonal Changes
- **Observe changes across the four seasons.**
- **Observe and describe weather associated with the seasons and how day length varies.**

Year 1

Plants
- **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.

EYFS

EYFS Reception
- Explore the natural world around them, making observations and drawing pictures of animals

EYFS Nursery
- Understand the key features of the life cycle of an animal
- Begin to understand the need to respect and care for the natural environment and all living things.
- Make connections between the features of their family and other families.
- Notice differences between people.

EYFS Nursery
- Explore and talk about different forces they can feel

EYFS Reception
- Understand some important processes and changes in the natural world around them, including changing states of matter.

EYFS Nursery
- Explore materials with different properties
- Explore natural materials, indoors and outside.
- Talk about the differences between materials and changes they notice.

EYFS Reception
- Understand some important processes and changes in the natural world around them, including the seasons

EYFS Reception
- Explore the natural world around them, making observations and drawing pictures of plants
- 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

EYFS Nursery
- Understand the key features of the life cycle of a plant
- Plant seeds and care for growing plants.

Year Group	Wider Opportunities and Experiences
6	Science Week Residential PGL trip Sports day Animal/ owls visit
5	Science Week Royal Observatory Secondary Science visit Animal/ owls visit
4	Science Week Epping Forest trip Local area– litter pick Animal/ owls visit
3	Science Week Eastbury Manor and Gardens Animal/ owls visit Trip to a local beach?
2	Science Week Maritime Museum Animal/ owls visit Trip to local National Trust park Bug hotel and growing plants within school
1	Science Week Barley Lands Farm Animal/ owls visit Trip to the chase Growing plants within school
EYFS	