Science

EYFS

Through continuous provision Children in Reception will:

Communication and Language

*Talk about what they see, using a wide vocabulary

*Talk about the differences between materials and changes they notice

*Describe what they see, hear and feel whilst outside

Personal, Social and Emotional Development

*Make healthy choices about food, drink, activity and tooth brushing

Physical Development

*Handle different tools effectively, e.g. magnifying glass

*Handle a pencil with good control when observing and drawing what they can see

Literacy

*Read books about plants and animals

*Write labels, captions and sentences about what they have observed

Understanding the World

*Hands-on exploration of natural materials

*Explore materials with different properties

*Explore how things work - children play and investigate

*Plant seeds and care for growing plants

*Animal life-cycles

*Begin to understand the need to respect and care for the natural environment and all living things

*Explore and talk about different forces

*Explore the natural world

*Recognise some environments that are different from the one in which they live

*Changing seasons

*Climate change

Expressive Arts and Design

*Still life pictures of plants

*Finger painting - Autumn leaves

Continuous provision areas and activities that support learning and skill development that relate to this subject are:

Reading area-

*Children browse through a selection non-fiction books about animals and minibeasts

*Children examine books about forces/weather/seasons/natural world

Writing area-

*Children write about their observations and findings

Exploration area-

*Collection of natural materials to investigate and talk about

*Using a magnifying glass to observe minibeasts

Creative area-

*Children paint and create collages of animals

Snack area-

*Children talk about the importance of healthy eating

Forest School-

*Exploring the natural world

*To be able to talk and describe different minibeasts

*Observe changes in the weather

Autumn 1	Autumn 2	Spring1	Spring2	Summer1	Summer2

	*To use senses to explore the world around them *Seasons and weather *To be able to talk about similarities and differences *To be able to make simple observations *To explore how things work	*To explore different forces they can feel *To talk about the differences between materials and changes they notice *To be able to explore the natural world around them. *To be able to talk about what they can see *To be able to make observations in the wider environment *Begin to understand the need to respect and care for the natural environment and all living things	*To be able to identify a fossil *To be able to name different dinosaurs *To look closely at change *To reflect on how environments may vary *To be able to talk about similarities and differences	*To be able to name parts of the body *To be able to talk about similarities and differences between themselves and others *To be able to identify different types of minibeasts *To explore the life cycle of a butterfly, frog and snake *To be able to name different animals *To be able to identify nocturnal animals *To be able to name and describe wild animals *To be able to make simple observations of plants *To be able to talk about growth *To observe changes	*To make observations and talk about changes *To be able to say the months of the year *To be able to identify different seasons *To explore the local environment *To be able to recognise different constellations	*To be able to explain how environments may vary from one another *To make observations and talk about changes *To be able to identify different materials *To be able to talk about similarities and differences in relation to materials *To be able to name different sea creatures *To know about similarities and differences in relation to living things.

	Autumn 1	Autumn 2	Spring1	Spring2	Summer1	Summer2

Year 1	**Animals including humans- My Body** To identify and name a variety of common animals • To identify parts of the human body. • To draw and label the basic parts of the human body and say which part of the body is associated with each sense. • To be able to identify and name a variety of common animals. • To be able to identify and compare a variety of common UK birds and reptiles.	**Animals including humans- identifying animals** • To be able to identify and compare a variety of common UK fish and amphibians. • To be able to identify and sort carnivores, herbivores and omnivores. • To be able to take care of animals. • To collect data about animals and answer questions.	**Materials and their properties- Everyday Materials** • To be able to identify a variety of common materials. • To be able to distinguish between an object and the materials from which it is made. • To be able to describe materials according to their properties. • To be able to describe why some materials suit certain objects better than others. • To carry out an experiment to find out which materials are waterproof. • To recap what we have learnt about everyday materials.	**Seasonal Changes** To identify changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies. To compare features of the Autumn and Winter seasons. To understand why some seasons are better for growing plants	**Plants-identifying plants** • To find out what a plant is. • To identify and describe garden plants. • To identify and describe wild plants. • To identify and describe a range of trees. • To identify the different parts of a plant. • To make observations of growing plants.	**Seasonal Changes-** • To find out about different seasons and how to describe them. • To find out about the seasons and how they are different. • To find out about how animals are affected by the seasons. • To find out about how humans are affected by the seasons. • To find out how day length is affected by the seasons. • To investigate the weather during the seasons.

Key vocabulary	Amphibians, birds, fish, mammals, reptiles, carnivores, herbivores, omnivores.	sight, hearing, touch, taste, smell, head, neck, ear, mouth, shoulder, hand, fingers, leg, foot, thumb, eye, nose, knee, toes, teeth, elbow.	Materials, wood, plastic, glass, metal, water and rock	Seasons, spring, summer, autumn, winter, windy, sunny, overcast, snow, rain, temperature	Leaves, blossom, petals, roots, buds, bulb, trunk, branches, stem, evergreen, garden plants, deciduous, wild plants, seeds, wild plants, garden plants.	Autumn, winter, spring. summer

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Year 2	**Exploring everyday materials** To identify everyday materials To compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper. To know particular uses of some everyday materials.. To find out how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.	**Scientists and inventions** To identify and describe the basic structure of common flowering plants by observing and sketching a range of common plants. To identify different parts of plants. To observe closely using simple equipment by using a magnifying glass to sketch details of different plants. To use a magnifying glass to help draw different parts of plants. To learn about Jane Colden- first woman botanist in America.	**Living things and their habitats** To explore and compare the differences between things that are living, dead, and things that have never been alive. To 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. To identify and name a variety of plants and animals in their habitats, including micro-habitats To 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.	**Animals including humans- Growth and survival** To notice that animals, including humans, have offspring which grow into adults. To find out about and describe the basic needs of animals, including humans, for survival (water, food and air) To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	**Plants -Growing Plants** **To understand that different seeds grow into different plants.** **To understand that plants can grow from bulbs.** To observe and describe how seeds and bulbs grow into mature plants. To be able to explain how seeds are dispersed. To know that plants need water, light and a suitable temperature to grow and stay healthy. To be able to identify the main parts of a plant.	**Plants - Growing Plants** To know the names of commonly grown plants. To compare plant growth. To record changes in plants. To know the conditions that will impact germination. To observe and describe how a plant changes as it matures. To describe the life cycle of a flowering plant. To explore the inner core of a bean.

Key Vocabulary	Materials – plastic, metal, wood, glass, fabric, rock, Properties – strong, weak, bendy, stretchy, flexible, stiff, transparent, opaque, waterproof, permeable, Measure – length, depth, strength, Changes–twist, stretch, pull, push, scrunch, cut, break, scratch.		Living, alive, dead, survival, needs, diet, protection, safety, warmth, food. Food chain – prey, predator, eat, hunt, track, forage, find Producer, consumer.	Living, dead, never alive, habitats, micro-habitats, food, food chain, leaf litter, shelter, sea shore, woodland, ocean, rainforest, conditions, desert, damp, shade,	Observation, growth, compare, record, seeds, bulbs, temperature, roots, stem, predict, leaf, flower, measure, diagram, measure, comparative tests, germinate, grain.	seed, bulb, root, stem, shoot, leaf, leaves, flower, petal, Conditions – light, soil, water, warmth, sun, rain, Healthy, dying, growing, flowering, life cycle, life process,

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Year 3	**Rocks - Fossils and soils** To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties . To describe in simple terms how fossils are formed when things that have lived are trapped within rock To recognise that soils are made from rocks and organic matter.	**Light and Shadow** To understand that dark is the absence of light. To set up an investigation and make predictions. Understand how surfaces reflect light. To recognise that a mirror appears to reverse an image. To identify some parts of the eye. Understand how the Sun can damage parts of the eye. To identify opaque, translucent and transparent objects. To know how shadows change size.	**Animals including humans - Health and movement.** To identify that animal, 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 To know that humans and some other animals have skeletons and muscles for support, protection and movement.	**Animals including humans - Health and movement.** To explain the different ways that plants and animals including humans obtain food. To explain the difference between food groups and nutrient groups. To explain what the right type and amounts of nutrition are for human beings as well as some of the consequences related to eating the wrong type of diet. To use the scientific names for the main bones in the human body and explain how the skeleton protects, supports and helps the body to move. To set up a simple practical enquiry and write an explanation for their findings.	**Plants - How Plants Grow** To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. To 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 To investigate the way in which water is transported within plants To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	**Forces and Magnets** To compare how things move on different surfaces To notice that some forces need contact between two objects, but magnetic forces can act at a distance To observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles To predict whether two magnets will attract or repel each other, depending on which poles are facing. To compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. To identify some magnetic materials.

Key vocabulary	Compare, group together, different, kinds appearance, physical properties, hardness, permeability, fossils, rock, soil, organic matter, metamorphic, sedimentary, igneous	Light source, dark, reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent.	Nutrients, nutrition, carbohydrates, protein, fats, vitamins, minerals, water, fibre, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrates, invertebrates, muscles, contract, relax,	Animals, humans, nutrition, food, diet, consumer, producer, diet, carbohydrates, proteins, vitamins, sugars and fats, dairy. Herbivore, carnivore, vegetarian.	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower. Photosynthesis Energy Growth Carbon dioxide Oxygen Sugar material	forces- attract, repel, objects, magnetic force, Surfaces contact magnets – poles materials - metal, wood, plastic, glass, fabric

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	**States of matter** To compare and group materials together, according to whether they are solids, liquids or gases To 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) To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Changing Sound** To identify how sounds are made, associating some of them with something vibrating To recognise that vibrations from sounds travel through a medium to the ear To find patterns between the pitch of a sound and features of the object that produced it To find patterns between the volume of a sound and the strength of the vibrations that produced it To recognise that sounds get fainter as the distance from the sound source increases. To learn facts about Alexander Graham Bell's life and work;	**Animals Including Humans - Eating and Digestion** To describe the simple functions of the basic parts of the digestive system in humans To identify the different types of teeth in humans and their simple functions To construct and interpret a variety of food chains, identifying producers, predators and prey.	**Living Things and their Habitat- Living in Environments.** To recognise that living things can be grouped in a variety of ways. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. To recognise that environments can change and that this can sometimes pose dangers to living things.	**Living Things and their Habitat- Living in Environments.** To explain in more detail how changes to the environment have affected endangered species. To use and create classification keys . To identify and name living things from the local habitat and beyond.	**Electricity-Circuits and Conductors.** To identify common appliances that run on electricity To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers To 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 To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit To recognise some common conductors and insulators, and associate metals with being good conductors.

Key vocabulary		Amplitude,volume, quiet, loud, ear, pitch, high, low, particles, instruments, wave.	Herbivore, Carnivore, Digestive system, tongue, mouth, teeth, oesophagus, stomach, gall bladder, small intestine, pancreas, large intestine, liver, tooth, canine, incisor, molar, premolar, producer, consumer.	environment, changes, impact, dangers, human, positive, negative, nature reserve, ecology, population, pollution, deforestation,		Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, conductor.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Year 5	**Properties and changes of materials.** To recognise the stages of growth and development in humans. To know the stages in the gestation period of humans and compare them to other animals. To recognise the stages of development during childhood and understand the needs of children at those stages. To understand the initial changes inside and outside of the body during puberty. To know the changes that occur during puberty and how they differ for boys and girls. To understand how the body changes during adulthood and old age.	**Properties and changes of materials.** To know that some materials will dissolve in liquid to form a solution. To use knowledge of solids, liquids and gases to decide how mixtures and solutions might be separated. Explain that some changes form new materials, and that these changes are not usually reversible. To identify when a change caused by heating or cooling is reversible or irreversible. To investigate the materials needed for something to burn and the new materials formed by burning. To compare and group together everyday materials on the basis of their properties. To give reasons for the particular uses of everyday materials in relation to their properties.	**Animals Including Humans-Life cycles** Explain the changes that occur during stages of human development. Demonstrate understanding of how babies grow in height and weight. Analyse the similarities and differences between how boys and girls experience puberty.	**Living things and their habitat-Changes and Reproduction.** To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird To describe the life process of reproduction in some plants and animals. Explain how a plant's features are adapted to pollination by insect or wind To explore the life and work of: Jane Goodall. Explain how the threats faced by chimpanzees could lead to the extinction of the species	**Earth Space** To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. To describe the movement of the Moon relative to the Earth To describe the Sun, Earth and Moon as approximately spherical bodies To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	**Forces in Action** To understand how the force of gravity operates. To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To know the effects of friction acting between moving surfaces. To identify and explain the effects of air resistanc to identify and explain the effects of water resista To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

	absorption, bond, condensation, conductor, evaporation, matter, melting, particle, property, reversible,freezing,wood, plastic, glass, metal, water, rock, suitability, surface, waterproof, flexible, rigid, boiling point, melting point, solid, liquid, gas, sublimation, magnetic	Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty	decay, plant, structure, reproduction, nutrients, reproduction, fish, bird, amphibian, reptile, mammal, fruit, nectar, anther, ovary, ovule, petal, pollen, stigma, style, stamen, function, exchange, dispersal, fertilization, insect, vertebrates	absorption, energy, freezing, melting, orbit, reflection, wave,Sun, spring, summer, autumn, winter	energy, matter, particle,surface, friction, force, stretch, squash, rotation, rough, smooth, sliding friction, static friction
Key Vocabulary	**New vocabulary:** irreversible,dissolve, soluble, insoluble, solvent, solute, solution, filter, sieve, saturation, crystallization, thermal, chemistry	**New vocabulary:** life cycle, life span, embryo, womb, weaned, adolescence, metamorphosis, pupa, larva, chrysalis, caterpillar, tadpole, hatchling, fledgling, insect	**New vocabulary:** life cycle, life span, embryo, womb, weaned, adolescence, metamorphosis, pupa, larva, chrysalis, caterpillar, tadpole, hatchling, fledgling, insect	**New vocabulary:** planet, satellite, sphere, solar system, eclipse, star, universe, constellation, axis, celestial body, Moon, rotating, lunar, solar, telescope, rotation	**New vocabulary:** acceleration, air resistance, buoyancy, effort, force meter, fulcrum, gravity, load, mass, mesh, Newton, pivot, rigid, streamlined, terminal velocity, unsupported, water resistance, weight

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Year 6

Living Things and their habitats-Classifying Organisms	**Animals Including Humans-** Healthy Bodies	**Evolution and Inheritance**	**Electricity - Changing Circuits**	**Light -Seeing Light**	**Light -Seeing Light**
To recap ways of grouping organisms according to their characteristics. To explore ways of distinguishing between organisms that have similar characteristics. To be able to classify plants according to their characteristics. To find out about Carl Linnaeus and his classification system. To explore what micro-organisms are and how they can be grouped. To be able to identify and classify organisms in the local area. Skills: · To use test results to make predictions to set up further comparative and fair test · To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To interpret observations and use them to develop explanations and conclusions	To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood To find out how scientific ideas about food and diet were tested in the past. To investigate some different food groups and find out why a variety of foods is important for a healthy diet. To find out how nutrients and water are transported in the human body. To investigate what happens to the heart when we exercise and why. To investigate how muscles move the skeleton and how muscle activity requires increased blood flow. To investigate the effects of tobacco, alcohol and other drugs. To evaluate what we can do to keep our bodies healthy. Skills · To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To decide on the best way to present evidence.	To recognise that living things have changed over time. To know that fossils provide information about living things that inhabited the Earth millions of years ago. To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways. To understand that adaptation of plants and animals to suit their environment may lead to evolution. To find out about how the work of scientists has helped develop our understanding of the process of evolution. To understand how humans have evolved over time, and how human behaviour can affect change in species over time. Skills: To interpret observations and use them to develop explanations and conclusions.	To recap what electricity is and investigate static electricity. To recap our knowledge and understanding of circuits. To be able to recognise and use conventional symbols for circuits. To investigate ways in which the brightness of a bulb or speed of a motor is changed. To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb. To create a simple device using a circuit. Skills: To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. · To use test results to make predictions to set up further comparative and fair test	To understand how our eyes allow us to see. To 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. To know the parts of the eye and their function. To 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 To recall facts about how shadows are formed. Skills: · To use test results to make predictions to set up further comparative and fair test	To investigate how we can change shadows. Explain why shadows have the same shape as the objects that cast them. To investigate reflection. To learn about refraction. To investigate the colours in white light. To learn about Isaac Newton's Theory of Light and Colour. Skills: ·Touse results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

Key Vocabulary	component, habitat, plant, structure, fish, bird, amphibian, reptile, mammal,kingdom, classification key, species, fungi, bacteria, characteristics, offspring, vertebrate, invertebrate, insect,micro-organism, virus, thorax, arthropod, abdomen, arachnid, antenna, jointed limbs	component, energy, growth, survival,nutrients, consumption, skeleton, ribcage, protein, carbohydrate, fat, digestion, skeleton, organ,digestion, excretion, peristalsis, anus, duodenum, small intestine, large intestine, stomach, rectum, oesophagus, tongue, saliva, acid, bile, enzymes, incisors, canines, molars, artery, aorta, atrium, blood vessels capillary, circulatory system, vein, pulse, ventricle, replenished, resting heart rate, body, cranium, mandible, sternum, vertebrae, femur, tibia, fibula, patella, humerus, radius, ulna	birth, decay, energy, habitat, irreversible, extinction, microhabitat, dead, life cycle, food chain, source, nutrients, reproduction, consumption, environment, extinction, species, characteristic, adaptation, evolution, natural selection, variation, advantageous	circuit, component, conductor, energy, insulator, particle, property, material, appliance, charge, electron, battery, cell, bulb, buzzer, switch, wire, current electricity, static electricity, negative terminal, positive terminal, voltage, chemical reaction, emit	absorption, energy, particle, property, reflection, wave, mirror, incident ray, image, beam, photons, solid, opaque, transparent, object, source, vibration, percussion instrument, wind instrument, string instrument, frequency, volume, pitch, transverse wave, longitudinal wave, medium, vacuum	angle of incidence, angle of reflection, refraction, spectrum, translucent, medium, periscope	