Biology - Plants

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Can talk about some of the things they have observed such as plants Shows care and concern for living things and the environment. Looks closely at similarities, differences, patterns and change. Talk about the features of their own immediate environment and how environments might vary from one another. Make observations of plants and explain why some things occur and talk about changes.	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.	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.	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 how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
	Vocabulary: Berry, blossom, bud, bulb, branch, flower, fruit, habitat, identify, leaf/leaves, petal, plant, root, seed, stem, tree, trunk Include names of locally found plants **Adult should also use:** Wild plant, garden plant, flowering plant, deciduous, evergreen	**Vocabulary As year 1+** Earth, fully grown, growth, healthy, light, nutrients, seed, seedling, shoot, soil, water **Adult should also use:** Mature plant, germinate/germination, pollination, seed dispersal, temperature	**Vocabulary as KS1+** Absorb, fertiliser, plant life cycle, pollination, seed dispersal, seed formation, temperature, transported **Adult should also use:** Structure, function, plant tissues, pores, competition for resources			

Mytchett Primary Academy – Science Knowledge Skills Progression

Biology – Animals Including Humans

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Can talk about things they have observed. (animals) Developing an understanding of growth, decay and changes over time. Shows care and concern for living things and the environment. Make observations of animals and explain why some things occur and talk about changes. Know about similarities and differences in relation to living things. Know the importance of good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.	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.	Understand that animals, including humans, have offspring which grow into adults. 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.	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.	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.	Describe the changes as humans develop to old age.	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.
	Vocabulary: Names of common animals, Names of body parts, including animals (wing, claw, tail, beak, fur, feather, fin, scales) Carnivore, habitat, herbivore, omnivore, pets, senses, wild animals Hear/hearing, see/seeing/sight, touch/touching, taste/tasting **Adult should also use:** Amphibians, reptiles, mammals	**Vocabulary (Y1 +)** Adult, baby, basic needs (water, food, air), carbohydrate, child, dairy, exercise, fats, fruit, grow, hygiene, infection, offspring, oils, protein, sugar, survival, vegetables, teenager, toddler, unhealthy **Adult should also use:** Develop, reproduction, life cycle, heart rate, nutrition	**Vocabulary (KS1+)** Backbone, balanced diet, blood vessels, bones, brain, carbohydrate, dietary fibre, heart, invertebrates, joints, movement, minerals, muscles, nutrients, nutrition, protection, ribs, sockets, skeleton, skull, spine, support, tendons, vertebrates, vitamins, **Adult should also use:** Endoskeleton, exoskeleton	**Vocabulary (As prev. +)** Absorb, anus, blood stream, canines, consumer, decay, dentine, digestion, enamel, energy, faeces, gums, incisors, large intestine, molars, nerves, oesophagus, plaque, predator, prey, producer, saliva, small intestines, stomach, swallowing **Adult should also use:** chemical enzymes, gastric juices, reabsorption of water	**Vocabulary (As prev. +)** Adolescence, adolescent, arthritis, gestation period, life expectancy, menstruation, pregnant, puberty	**Vocabulary (As prev. +)** Addiction, aorta, artery, atrium, blood, bronchi, capillaries, carbon dioxide, circulatory system, deoxygenated, diaphragm, lifestyle, lungs, nicotine, oxygen, oxygenated, plasma, pulmonary vein/artery, pulse, red blood cells, respiration, vein, ventricles, white blood cells **Adult should also use:** gaseous exchange, aerobic respiration, trachea, haemoglobin, bronchioles, alveoli

Mytchett Primary Academy – Science Knowledge Skills Progression

Biology – Living Things and Their Habitats

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Shows care and concern for living things and the environment. Looks closely at similarities, differences, patterns and change Know about similarities and differences in relation to living things and places. Can talk about the feature of their own immediate environment and how environments might vary from one another.		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.		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 and have an impact on 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.	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.
		Vocabulary: (Some previously taught in year 1 animals, inc. humans) Adaptation, alive, breathe, carnivore, conditions, characteristics, dead, excrete, feed, food chain, grow, heat, herbivore, living, micro-habitats, move, non-living, omnivore, reproduce, shelter Names of habitats, micro-habitats and describe conditions. **Adult should also use**: life processes, respire, producer, consumer, sources of food, depends on/suited to		**Vocabulary (As KS1+)** Amphibians, classify, classification keys, environment, mammals, human impact, invertebrates, pollution, reptiles, vertebrates Plant groups (trees, grasses, flowering and non-flowering plants) **Adult should also use:** organism, population, deforestation, development, variation characteristics.	**Vocabulary (As previous +)** Anther, asexual reproduction, carpel, external fertilisation, fertilisation, filament, germination, gestation, internal fertilisation, larva, metamorphosis, pollen, pollination, seed dispersal, seed formation, sepal, sexual reproduction, sperm, stamen, style, stigma **Adult should also use:** plantlets, runners	**Vocabulary (As previous +)** Bacteria, fauna, fermentation, flora, fungi/fungus, genus, microbes, micro-organism, organism, species. Name invertebrates: arachnid, mollusc, insect and crustacean.

Biology – Evolution and inheritance						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
		Animals inc humans: Understand that animals, including humans, have offspring which grow into adults. **Living things and their habitat**: Understand that living things are suited to their habitat.	**Rocks:** Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	**Animals inc humans:** Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things.		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.
						Vocabulary: Adaptation, chromosomes, competition, DNA, evolution, evolutionary change features, environmental conditions, environmental variations, fossil records, genes, natural selection, reproduction, survival of the fittest, variation **Adult should also use:** Dominance, recessive

Chemistry – Materials and States of Matter

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Can safely use and explore a variety of materials in art and design (children are encouraged to notice changes in properties). Know about similarities and differences in relation to objects and materials. Can talk about changes over time e.g. melting ice.	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 compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		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.	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. Recognise 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.	
	Vocabulary Absorbent, bendy, dull, hard, gas, glass, liquid, material, metal, object, plastic, rock, rough, shiny, smooth, soft, solid, stiff, transparent, water, waterproof, wood. **Adult should also use:** properties, reflection	**Vocabulary (As Y1 +)** Changes, concrete, elastic, fabric, flexible, man-made, material, natural, opaque, properties, reflective, rigid, rubber, shape, squash, stretch, strong, suitable, translucent, transparent, twist, use/useful, weak. **Adult should also use:** characteristics, suitability, purpose		**Vocabulary (As previous +)** Air, boiling point, boiling, condensation/condensing, degree Celsius, energy transfer, evaporation/evaporating, freezing, freezing point, gaseous, grain, matter, melting, melting point, oxygen, particles, powder, water cycle, water vapour. **Adult should also use:** solidify, precipitation, transpiration, forces of attraction.	**Vocabulary (As previous +)** Burning, dissolve, electrical conductor, filter, insoluble, irreversible change, mixture, reversible change, rust, sieving, soluble, solute, solution, solvent, thermal conductor, thermal insulator. **Adult should also use:** combustion, oxidisation, chemical reaction, residue, filtrate.	

Chemistry – Rocks

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			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. **Vocabulary** Absorb, extinct, crystals, fossils, granite, grains, humus, igneous, impermeable, layers, magma, metamorphic, mineral, molten, palaeontology/palaeontologists, permeable, rock, sediment, sedimentary, soil Name of rocks: granite, marble, sand, clay, limestone, chalk **Adult should also use**: Erosion, particles, physical properties, porous.			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Physics - Electricity

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children recognise that a range of technology is used in places such as homes and schools. Talks about why things happen and how things work.	Know that electricity is needed to make something work.	Know that some appliances need batteries and some use mains electricity to work.		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 conductor.		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.
				Vocabulary (As previous +) Battery, bulb, buzzer, cell, circuit, closed circuit, components, complete circuit, conductor, connection, crocodile clip, electricity, electrical device/ appliance, insulator, mains, motor, negative, open circuit, plug, positive, rechargeable, simple circuit, symbol, switch, terminals, wires. **Adult should also use:** series circuit, terminal		**Vocabulary (As previous +)** Current, electrons, filament, fuse, resistance series circuit, terminal, voltage volume **Adult should also use:** Parallel circuit

Physics – Forces and Magnets

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Explore floating and sinking, pushes and pulls. Sort objects using a magnet.	Explore cars moving quicker on different surfaces.	Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. 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.		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.	
			Vocabulary Air resistance, attract, bar magnet, button magnet, compass, contact, float, force, force-meter, friction, gravity, horse shoe magnet, iron, magnet, magnetic, magnetic North, non-contact, non-magnetic, North pole, poles, repel, ring magnet, sink, South pole, strength. **Adult should also use:** Constant force, Newton meter, Newton.		**Vocabulary (As previous +)** Drag forces, gears, levers, mechanisms, Newton, non-contact force, pulleys, reliable, springs, transference of force and motion, water resistance, weight.	

Physics - Light						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Talks about why things happen and how things work.	Light used as a context for working scientifically.		Recognise that he/she needs 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 eyes. Recognise that light from the sun can be dangerous and that there are ways to protect eyes. Find patterns in the way that the size of shadows change.			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.
	Vocabulary: illuminate, light source, opaque, reflect, translucent, transparent, shadow		**Vocabulary** Absorb, beam, block, direction of light, bright, dim, dull, light source, mirror, opaque, reflect, reflective, shadow, shiny, sun light, translucent, transparent Names of light sources. **Adult should also use:** Speed of light, emit, light spectrum.			**Vocabulary (As prev. +)** Absorption, cornea, lenses, iris, light ray, optics, pupil, prism, rainbow, refraction, symmetry, spectrum, transmission.

Physics - Sound

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Listening and attention skills developed. Opportunities given to listening to environmental sounds and discussion about different types of sounds e.g. long, short, high and low	Sound used as a context for working scientifically Vocabulary Sound, source of sound, vibration		Exploring how to change the volume and pitch of a sound during music lessons.	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.		
	Vocabulary: Sound, source of sound, vibration.			**Vocabulary** Brass, echo, insulation, instrument, percussion, pitch, sound source, sound wave, string, travel, tune, tuning fork, vibration, volume, woodwind **Adult should also use:** Strength of vibrations, reflection of sound		

Physics – Earth and Space

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Know the Earth orbits the sun. Know that the Moon orbits the Earth.	Know that the Sun is a star. Name the planets.			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.	
					Vocabulary Asteroids, axes/axis, celestial body, comets, galaxy, light years, meteors, orbit, phases of the moon, planet, revolve, rotation, shadow clocks, spherical, spin, solar system, star, sun, sundials, time zone, names of planets. **Adult should also use:** Geocentric model, Heliocentric model, elliptical orbit.	

All areas – Seasonal Changes						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Outdoor learning throughout the year allows them to experience the changes in the environment across the four seasons. They answer how and why questions about their experiences.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.					
	Vocabulary Autumn, dark, light, moon movement, season, shadow, spring, summer, winter. Names common types of weather and features. **Adult should also use:** Day length					