BIOLOGY

Pupils working at national standard – typical Year 1 student	Pupils working at national standard- typical Year 2 student	Pupils working at national standard – typical Year 3 student
<u>To understand Plants</u> • Know that plants are living things • Know that there are living things & things that have never been alive • Explore ways that different animals & plants Inhabit local environments • Identify and describe the basic structure of a variety of common flowering plants, including trees. • Know that plants need light & water to grow • Explore how seeds grow in to flowering plants • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. <u>To understand animals & humans</u> • 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 • Recognise the similarities & differences between each other • Know about the need for a healthy diet, including the right types of food & water	<u>To understand plants</u> • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy • Observe and describe how seeds and bulbs grow into mature plants <u>To understand animals & humans</u> • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • Describe the importance of exercise, eating the right amounts of different types of food & hygiene • Notice that animals, including humans, have offspring which grow into adults • Describe main changes as young animal offspring grow in to adults- egg, baby etc <u>To investigate living things</u> • 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,	<u>To understand plants</u> • 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 <u>To understand animals & humans</u> • 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

• Explore how senses enable humans & animals to be aware of the world around them • Know that humans & animals produce offspring which grow into adults	using the idea of a simple food chain, and identify and name different sources of food	
Pupils working at national standard – typical Year 4 student	Pupils working at national standard – typical Year 5 student	Pupils working at national standard – typical Year 6 student
<u>To understand animals & humans</u> • Know that humans {and some animals) have bony skeletons inside their bodies • Know how skeletons grow as humans grow & support & protect the body • Know that animals with skeletons have muscles attached to the bones • Know how a muscle has to contract to make a bone move & muscles act in pairs • Explain the role of drugs as medicines • Construct & interpret a variety of food chains, identifying producers, predators & prey • Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans & their simple functions <u>Living things in the environment</u> • Investigate how different animals are found in different habitats & are suited to the environment in which they are found • Explore and use classification keys to	<u>Living Things and their Habitats</u> • 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 <u>Animals Including Humans</u> • Describe the changes as humans develop to old age	<u>Living Thing and Their Habitats</u> • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • Give reasons for classifying plants and animals based on specific characteristics <u>Animals Including Humans</u> • 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 <u>Evolution and Inheritance</u> • 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

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 eg river pollution or recycling waste.		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

PHYSICS

Pupils working at national standard- typical Year 1 student.	Pupils working at national standard- typical Year 2 student	Pupils working at national standard- typical Year 3 student
Seasonal Changes • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies	The Earth and Beyond • Explore how the sun appears to move during the day & how shadows change • Model how the spin of the earth leads to day & night.	Light & Dark • 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 • Observe & name a variety of sources of light, including electric lights, flames & the Sun, explaining that we see things because light travels from them to our eyes. • Discuss why materials are chosen for specific purposes on the basis of their properties. • Forces and Magnets • Compare how things move on different surfaces

		• Know that pushes and pulls are examples of forces and that they can be measured by force-meter. • Explore how forces can make objects start or stop moving. • Explore how forces, including friction, can make objects move faster or slower or change direction on difference surfaces. • Explore how forces can change the shape of objects. • Notice that some forces need contact between 2 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 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing • Explore how some materials are magnetic but many are not

Pupils working at national standard – typical Year 4 student	Pupils working at national standard- typical Year 5 student	Pupils working at national standard - typical Year 6 student
<u>Sound</u> • Identify many sources of 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 • Investigate how sound travels through different materials to the ear • Investigate how materials are effective In preventing sound from travelling through them • Investigate the way *pitch* describes how high or low a sound is and that high and low sounds can be loud or soft. • Explore how pitch can be changed in musical instruments in a range of ways. • Use the idea that sounds are associated with objects vibrating & and that they require a medium to travel through, to explain how sounds are made & heard. • Describe the patterns in sounds, relate how they are produced, and the distance from the source, to their pitch & volume. • 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 <u>Electricity</u>	<u>Light & Shadows</u> • Recognise 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 • Observe that shadows are formed when light travelling from a source is blocked. • Investigate how the size of a shadow is affected by the position of the object • Observe that shadows change in length & position throughout the day • Know that light intensity can be measured • Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes. • Explore how opaque materials do not let light through & transparent materials let a lot of light through. • Explore why a beam of light changes direction when it is reflected from a surface. <u>Forces</u> • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	<u>Earth and Space</u> • 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 <u>Electricity</u> • 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

• 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	• 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	

CHEMISTRY

Pupils working at national standard –	Pupils working at national standard-	Pupils working at national standard- typical Year 3 student
Material Properties • use senses to explore & talk about different 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	Material Properties & Changes • 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 • know how the shapes of some materials can be changed by squashing, bending, twisting and/or stretching • explore & describe the way some everyday materials change when they are heated or cooled • recognise that some materials can dissolve in water	Rocks • know that every material has specific properties eg hard, soft, shiny • sort materials according to their properties • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter • recognise some types of rocks & the use of different rocks • Know that some materials occur naturally & others are manufactured

Pupils working at national standard- typical Year 4	Pupils working at national standard- typical Year 5	Pupils working at national standard - typical Year 6 pupil
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 in degrees Celsius. • . Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	States of Matter • Know that every material has specific properties and why. • Sort materials according to their properties. • Explore thermal conductivity • Explore electrical conductivity • Understand solubility • Explore the strength and elasticity of various materials.	States of Matter • 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 • Know that evaporation occurs when a liquid turns into a gas • Know that condensation occurs when a gas turns into a liquid and that is the reverse of evaporation • Know that air contains water vapour & when this meets a cold surface, it may condense. • Know that the boiling point of water is 100°C • Know that when a liquid evaporates from a solution the solid is left behind. Material Changes • Identify & recognise everyday phenomena where dissolving

		occurs. • Explore how solids can be mixed & how it is often possible to separate them again. • Explore how, when solids do not dissolve or react with water, they can be separated by filtering, which is similar to sieving. • Explore how some solids dissolve in water to form solutions and, although the solid cannot be seen, the substance Is still present. • Identify when changes of materials are reversible or non-reversible and explain how they know.

Science Curriculum Key Vocabulary Y1-Y6

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Carnivore, Omnivore Head, ear, eye, mouth, nose, leg, knee, arm, elbow, back Wings, beak	**Animals including humans** Survival, water, air,(oxygen) food, adult, baby, offspring, kitten, calf, puppy, foal Exercise, hygiene	**Animals including humans** Bones, muscles, skull, ribs, skeleton, support, protection, movement, herbivore, carnivore, omnivore, diet, nutrition	**Animals including humans** Mouth, tongue, teeth, canine, incisor, molar, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, omnivore	**Animals including humans** Foetus, embryo, womb, gestation, baby, toddler, teenager, puberty, adolescent, adult, elderly, development, growth	**Animals including humans** Heart, Blood ,Circulatory system, blood vessels, veins, arteries, valves, oxygenated, deoxygenated, exercise, pulse, respiration
Plants Evergreen & deciduous trees, branches, trunk, leaves, flowers (blossom) petals, fruit, roots, bulb, seed, stem,	**Plants** Seeds, bulb, water, light, temperature, growth Revise roots, stem, leaves, petals from Y1	**Plants** Air, light, water, soil, nutrients, reproduction, seed formation, dispersal, germination, pollination, transportation, species, location (photosynthesis), filament, anther, stamen	**Living things and their habitats** Fish, Reptiles, Mammals, Birds, Amphibians, snails, slugs, worms, spiders, insects, environment, habitat, vertebrate, invertebrate, exo skeleton, adaptation	**Living things and their habitats** Reproduction of mammal, bird, insect and amphibian , offspring, complete / incomplete metamorphosis, hatch	**Living things and their habitats** Classification, mammals, birds, amphibians, fish, reptiles, insects vertebrates, invertebrates, micro-organisms, bacteria, fungi
Everyday Materials Material, wood, plastic, glass, paper, fabric, metal, rock, hard, soft, smooth, shiny, rough, bendy (flexible)	**Living things and their habitats** Living, dead, habitat, micro-habitat energy, food chain, prey, predator woodland, pond, desert,	**Rocks & soils** Sandstone, limestone, granite, marble, pumice, slate, crystals, properties, permeable / impermeable, hardness, sedimentary, igneous, metamorphic, fossils, soil, organic matter	**States of matter** Solid, liquid, gas, temperature, heating, freezing point, boiling point, particles, evaporation, condensation, Thermometer, thermal insulation	**Properties & changes of materials** Hardness, solubility, mixing, dissolving, melting, Solution, solute, transparency, conductivity, magnetic, filter, filtration, evaporation, condensation, Reacting / reactants	**Evolution & Inheritance** Fossils, adaptation, evolution, characteristics, reproduction, genetics **States of matter** Solid, liquid, gas, freezing point, boiling point, particles, evaporation, condensation, Thermometer, thermal insulation, separation, equation

Seasonal changes Summer, Spring, Autumn, Winter, Season, Sun, day, Moon, Night, light, dark	**Materials & their uses** As for Y1 + stiff, shiny, dull, rough, smooth, waterproof, absorbent, transparent, opaque, brick, fabric, foil, squashing, bending, twisting, stretching, elastic, translucent, rigid	**Light** Light, dark, shadows, blocking, mirror, reflect, reflective, reflection	**Sound** Volume, vibration, sound wave, loud, soft, high pitch, low pitch, tone, speaker, (amplitude, frequency)	**Light** Reflection, refraction, lens, light spectrum, colour ,prism, rainbow	**Earth & Space** Earth, sea, sun, moon, axis, planets, solar system, star, constellation, Phases of the moon, waxing, waning, gibbous moon, full moon
		Forces & Magnets Force, push, pull, contact, magnetic, attract, repel, poles (north / south) Friction, resistance	**Electricity** Cells (batteries) wires, switches, circuit, series (parallel, buzzers, bulbs, Mains electricity insulators, conductors	**Forces** Force, friction, Newton, gravity, newtonmeters, air resistance, water resistance, Gears, pulleys, levers	**Electricity** Cells, batteries, wires, bulbs, switches, buzzers, circuit, series/ parallel, conductors, insulators, amps, volts
Working scientifically Investigation, enquiry, what to change, what we used, what we did, what we found out		**Working scientifically** Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion			