Waverley Primary School – Science Curriculum Overview 2023-2024

KS1	**1**	**Seasonal Changes** - Observe & describe changes across the four seasons. - Observe, describe, measure & record weather across the four seasons. - Observe the sun moving across the sky. Describe changes in day-length across the seasons (see Light & Shadows).	**Plants** - Identify & describe the basic structure of flowering plants. - Identify, name & observe a variety of common plants (garden/wild/veg plants, trees) growing in their habitat. - Identify deciduous & evergreen trees.	**Pushes & Pulls** - Recognise & name a push and a pull force in action. - Know that a force is needed to move an object. - Explore & investigate that a bigger force is needed to move an object further. - A bigger force is needed to move a heavier object. - Force can be bigger/smaller & moves an object in a direction.	**Everyday Materials** - Describe the materials that a range of objects are made from. - Describe simple physical properties of a variety of everyday materials. - Compare & group a variety of everyday materials using their physical properties.	**Animals Including Humans** - Identify, name, describe features of and compare common vertebrates. - Identify & name common carnivores, herbivores & omnivores. - Identify, name, draw & label basic human body part. - Know the five senses and link these to human body parts.	**Light & Shadows** - Identify a range of light sources (natural & man-made). - Observe & describe light coming from a light source. Observe & describe brightness close to and further away from a light source. - Observe how materials behave with light. - Describe how a shadow forms. - Know how to stay safe in the bright sunlight and in the dark.
	2	**Uses of Everyday Materials** - Can describe the properties of a range of everyday materials. - The uses (application) of a variety of everyday materials. - There are three states of matter. Know the properties of solids, liquids and gases. - The shape of solid objects can be changed by squashing, bending, twisting and stretching.	**Animals Including Humans** - Animals (including humans) have offspring which grow into adults. Compare to other animal life cycles. - Animals need water, food and air (oxygen) to survive. - It is important to exercise, eat the right amounts of different types of food and to keep ourselves clean (hygiene).	**Living Things & Habitats** - Know the differences between things that are living, dead and those that have never been alive. - Describe how habitats give a place for animals and plants to live, grow and feed. Living things are suited to their habitat (microhabitat). - Identify & name animals & plants. - Describe food chains. Identify and name sources of food.	**Plants** - Know and describe the stages as seeds (& bulbs) grow into mature plants (life cycle of a flowering plant). - Know that plants need water, light and a suitable temperature to grow and stay healthy.	**Building Circuits** - Know appliances that need electricity (power/energy source) to work (mains, battery, rechargeable, etc). - Can name (with their symbol) and use components correctly/safely in simple circuit. - Can build simple closed series circuits from instructions. - Can identify dangers & know how to use electricity safely in the home/classroom.	

LKS2	3	**Rocks** - Identify & describe different kinds of rocks using appearance and physical properties. Rocks have lots of uses. - Fossils are formed when things that have lived are trapped within rock over millions of years. - Soils are made from rocks and organic matter.	**Animals Including Humans** - Animals (including humans) need the right types and amounts of food (nutrition). Unlike plants, animals can't make their own food – they need to transfer energy in through food. - Humans (and some other animals) have skeletons and muscles for support, protection and movement.	**Light** - We need light to see things. Dark is the absence of light. - Light from the sun can be dangerous. We protect our eyes. - Light can be reflected from surfaces. - Shadows are formed when light energy is blocked by an opaque object. - Know how to change the size of a shadow.	**Forces and Magnets** - Some forces need contact (contact forces) between two objects and some forces act at a distance (non-contact forces). - Magnets attract or repel each other. Magnets have two poles. - Materials can be grouped together based upon whether they are attracted to a magnet (magnetic) or not.	**Plants** - Identify/describe the functions of parts of flowering plants (flower in detail). - Plants need air, light, water, nutrients from soil, and room to grow. - Water is moved within plants from the roots to the leaves. - Flowers support reproduction through pollination, seed formation & seed dispersal.
	4	**States of Matter** Groups materials as solids, liquids or gases. Know the features (criteria) that make them different. - Can describe, using the particle model, how substances change from a gas, into a liquid, then into a solid (and back again) as they are heated or cooled. - Temperature (^{o}C) affects the speed (rate) of evaporation. - Describe the water cycle (evaporation and condensation).	**Living Things & Habitats** - Living things can be grouped in a variety of ways. - Use classification keys to group, identify and name living things in local habitats. - Know how to randomly sample a habitat for species diversity (biodiversity). Measure species richness & abundance. - Environments can change and this can pose dangers to living things. Conservation acts to save species and restore habitats. - Learn how to change a habitat to encourage biodiversity.	**Animals Including Humans** - Know the basic functions of parts of the digestive system in humans. - Identify different types of teeth and describe their functions. - Construct and interpret food chains. - Identify producers (of energy), consumers (of energy), predators & prey.	Sound - Identify how sounds are made (sound energy, vibrations) - Sound energy/vibrations travel from a source, through a medium (solid, liquid or gas), to your ear. - The volume of a sound is linked to the strength of vibrations (sound energy) that produces it. - The distance away from the source affects the volume of sound. - The pitch of a sound is linked to the frequency of vibrations (sound energy) that produces it.	**Electricity** - Recognise common appliances that run on electricity. - Construct a range of simple closed series circuits. Draw these circuits with correct component symbols (named). - Recognise and solve 'errors' in circuits to make them work. - A switch opens and closes a circuit. - Conductors allow electrical (energy) to pass through them. Insulators do not allow electrical (energy) to pass through.
UKS2	5	**All Living Things** - Describe similarity/differences in the life cycles of mammals, amphibians, birds and insects. Compare & contrast. - Research life cycles of plants, invertebrates & vertebrates within local habitats. Be able to identify & describe changes over time. - Describe the life process of reproduction in plants & animals. Sexual & asexual.	**Animals Including Humans** - Order and compare the stages in the human life cycle. - Understand and describe the changes as humans develop to old age. - Describe the changes experienced in puberty. Understand why puberty happens. - Compare gestation time in animals.	**Forces** - Opposing forces can be in balance or unbalanced. - Unsupported objects fall towards earth because of gravity force acting between earth and the falling object. - Air resistance force (gas), water resistance force (liquid) and friction force (solid) act between moving surfaces. - Levers, pulleys and gears allow a smaller force to have a greater effect (force multipliers).	**Earth & Space** - The sun, planets and moon(s) are spherical bodies. Can describe the development of a heliocentric model of the solar system. - Know the order of planets in our solar system. Can describe how planets rotate and orbit the sun. - The Earth and other planets orbit the sun in the Solar System. Day and night are caused by the Earth's rotation (sun appears to move across the sky). - The moon orbits the Earth. Know the phases of the moon	**Properties & Changes of Materials** - Compare and Group materials based on their properties. Give reasons (from evidence) for uses of these materials. - A mixture is made up of 2 or more substances (particles mix). A solute (solid) dissolves in a solvent (liquid) to form a solution. - A solution and other mixtures can be separated through evaporating, filtering, sieving and chromatography. - Dissolving, mixing and changes in state are reversible changes. - Some changes form new materials (compounds) through chemical reactions. These are irreversible reactions.

	6	**Electricity** - Confidently draw a range of series circuits using symbols. - Link the brightness of a bulb / volume of a buzzer to the number & voltage of cells used in the battery. Measure voltage. - Explain changes in brightness / volume using the Energy Transfer Model (link to voltage). Explain the action of a switch. - Begin to explain component 'failure' by resistance to electrical flow (energy transfer out of the circuit as heat energy). Begin to describe electrical flow as current.	**Animals Including Humans** - Name the main parts of the human circulatory system. Describe the functions of the heart (structure), blood vessels (artery, vein & capillaries) & blood (components) - Understand & describe the double circulatory system of humans to describe the way water, nutrients & oxygen are transported in animals. - Know the impact of diet, exercise, drugs & lifestyle on the way our bodies function.	**Light** - Light travels in straight lines from a light source (Energy Transfer Model) directly, reflects, goes through a material or is absorbed. - Light travels in straight lines from a light source directly into the eye (represent this using a light ray diagram) - Know the angle of incidence is equal to the angle of reflection. - Explain the size and shape of a shadow knowing that light travels in straight lines (represent using a light ray diagram)	**Evolution and Inheritance** - Living things can produce identical offspring (asexual) but sexual reproduction results in offspring that, although share inherited features, may vary (not identical) from their parents. Know some inherited features. - This variation means that some individuals will have features better suited to a changing environment. These better features will be selected for by nature, and so, individuals that have them are more likely to survive. - Natural selection is the process where species adapt to their environment. It is the engine that drives evolution. Know how some species are adapted. - Fossil evidence shows how living things have changed over time.	**Living Things & Habitats** - Living things are classified into broad groups according to observable features (binomial naming system). Reasons for classifying. - There are five kingdoms of living things. Know the binomial naming system. Can use & construct classification Keys. - Know how to sample a habitat for species diversity (biodiversity). Measure species richness, abundance & evenness. Measure abiotic factors over time. Manage/plan change to encourage biodiversity. - Micro-organisms include bacteria and fungi.