Science Curriculum

Stourfield Junior School

	Autumn Term	Spring Term	Summer Term
Year Three	Light Skeleton and Muscles	States of Matter Rocks	Plants Magnetic Forces
Year Four	Sound Electricity	Changes of State Water Cycle	Living things and their Habitats Animal Classification
Year Five	Earth and Space Forces	Light Lifecycles and Reproduction	Properties of Materials – Separating Mixtures Humans and Ageing
Year Six	Evolution and Inheritance Properties of Materials – Chemical Change	Living things and their Habitats - Classification Electricity	Human Lifestyle – Exercise and Diet Circulatory System

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, and classify materials as opaque, translucent and transparent. • 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 a solid object. • Find patterns in the way that the sizes of shadows change. **Human Skeletal System** • Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	**States of Matter** • Compare and group materials together, according to whether they are solids, liquids or gases. **Rocks** • Compare and group together different kinds of rocks based on their appearance. • Record data from simple tests, investigating their physical properties (EG hardness, porosity) • 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	**Plants** • Observe using magnifiers and microscopes to identify the different parts of a flowering plant, recording their findings and describing the functions in a labelled diagram. • Set up simple experiments to investigate the requirements of plant growth. • Investigate the way in which water is transported, using celery or carnations as a model. • Research the role of the flower in the life cycle of flowering plants, recording their findings in a labelled life cycle. **Magnets** • Set up a comparative test to group materials as magnetic or non-magnetic, recording their findings in a table • Set up a fair test to investigate which magnetic is the strongest • Measure accurately using a ruler, recording data in their own table and bar chart (axis not given this time – scale going up in ones) • Explore how magnets are used within technology.

Year 4		
Sound • Understand how sound is made associating some of them with vibrating, and identify what happens to a sound as it travels from its source to our ears. • Measure volume using decibels and record information into a table. • Investigate the pattern between pitch and the size of object producing a sound. **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. • Recognise that a switch opens and closes the circuit and associate this with whether a lamp lights in a simple series circuit. • Classify materials as electrical conductors and insulators, recording results into a table. • Show an understanding of electrical dangers and how to act safely.	**States of Matter** • Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. • Make accurate measurements using a thermometer. **Water Cycle** • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. • Present scientific findings using verbal presentations and posters.	**Living Things and their Habitats** • Recognise that living things can be classified 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 danger to living things. • Construct and interpret a variety of food chains, identifying producers, predators, prey and decomposers. • Observe living things in their natural habitats, showing respect and care whilst investigating. **Human Digestive System** • 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.

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 and the impact of gravity on our lives. • Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys, and gears, allow a smaller force to have a greater effect **Earth, Moon and Sun** • 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, using scientific evidence as proof. • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	**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. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. **Reproductive Cycles** • Know the life cycle of different living things, including mammals, amphibians, birds and insects. • Know the process of sexual and asexual reproduction in plants, and explore models of each (EG lily plants, potato plants, spider plants) • Know the process of reproduction in animals.	**Ageing Humans** • Identify how humans change over the lifespan, using timelines to present information. • Identify key changes which occur during puberty. •Research the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows. **Separating Mixtures** • 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. • Use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • Demonstrate that dissolving, mixing and changes of state are reversible changes • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Year 6		
Evolution and Inheritance • Research the adaptations of animals living in different environments (EG desert and polar climates) • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Understand the process of 'survival of the fittest' within evolutionary theories, and explore Darwin's research on finches. • Use evidence from fossils to support theories of evolution, and identify limitations. **Chemical Change** • 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. • 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.	**Living Things and their Habitats- Classification** • Classify living things into broad groups (kingdoms); plants, fungi, animals and micro-organisms. • Classify animals according to observable characteristics and based on similarities and differences; mammals, birds, reptiles, amphibians, insects, molluscs, crustaceans, spiders. • Present data using classifications keys. • Research pioneering scientists, who developed our understanding of living things and how to classify them. **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.	**Human Circulatory System** • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Plan and set up experiments, investigating the impact of exercise on pulse rates. • Use stethoscopes to measure heart rate and pulse rates. **Diet and Lifestyle** • 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. • Present scientific data using presentations and posters.