Science Knowledge and Skills Overview
Class 4
Year A

	Autumn 1 Respecting our Environment	Autumn 2 States of Matter	Spring 1 Electricity	Spring 2 Life Cycles	Summer 1 Mixtures and Reactions	Summer 2 Human Development
Knowledge	• Identify where humans have had an impact on an environment • Identify ways that humans can damage an environment • Identify ways in which humans can protect and improve environments	• Compare and group materials together, according to whether they are solids, liquids or gases • Recognise that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius • Identify the part played by evaporation	• 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 • Recognise that a switch opens and closes a circuit • Recognise some common conductors and insulators, and associate metals with	• Describe the differences in the life-cycles of a mammal, amphibian, an insect and a bird • Describe the life processes of reproduction in some plants and animals	• 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	• Describe human life cycle • Compare the human life cycle to the life cycle of other animals • Describe the physical changes that take place in the human body during puberty

		and condensation in the water cycle and associate the rate of evaporation with temperature	being good conductors		• 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	

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					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.	
Skills	• Ask simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Identifying and classifying	• Ask relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries,	• Ask relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests	• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and

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	• Using their observations and ideas to suggest answers to questions • Gathering and recording data to help in answering questions	comparative and fair tests • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • Report on findings from enquiries, including oral and written explanations, displays or presentation of results and conclusions • Using results to draw simple conclusions, make predictions for new	• Make systematic and careful observations and, where appropriate, taking accurate measurement using standard units, a range of equipment • Gather, record, classify and present data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • Report on findings from enquiries, including oral and written	• Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Identifying scientific evidence that has been used to support or refute ideas or arguments	• using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments	degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments

		values and suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes	explanations, displays or presentation of results and conclusions • Using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings			

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Vocabulary	Environment, Urban, Structure, Impact, Human, Damage, Positive, Negative, Effect, Pollution, Litter, Enhance, Survey, Wildlife, Plant Life, Habitat	State, Solid, Shape, Volume, Compressed, Squashed, Freeze, Evaporate, Liquid, Gas, Fixed, Spread, Change of state, Melt, Condense, Pour, Evidence, Bubbles, Mass, Weight, Expand Melting, Freezing, Evaporating, Condensing, Water, Ice, Water vapour, Steam, Temperature, Thermometer, Factor, Increase, Predict, Energy, Precipitation, Clouds, Ocean	Mains electricity, Battery, Electricity, Appliance, Electric shock, Electrocution, Wire, Plug, Socket, Adapter, Current, Power, Power station, Electricity substation, RCD/circuit breaker, Pylon, Bulb, Complete, Flow, Crocodile clip, Circuit, Conductor, Break, Insulator, Material, Metal, Graphite, Conclusion, Buzzer, Motor, Switch, Brightness, Dimmer	Evidence, Life Cycle, Metamorphosis, Structure, Observation, Stage, Growth, Habitat, Measurement, Offspring, Germination, Plant, Flower, Leaf, Stem, Seed, Root, Photosynthesis, Dispersal, Petal, Stamen, Carpel, Anther, Filament, Stigma, Ovary, Wind, Ovules, Sepals, Nectary, Pollination, Fertilisation, Insect, Asexual, Maturity,	Property, material, glass, ceramic, rubber, wood, steel, aluminium, metal, non-metal, cotton, wool, characteristic, hardness, magnetic attraction, opacity, thermal conductivity, electrical conductivity, flexibility, dissolve, solvent, solution, solute, soluble, insoluble, recover, evaporation, stir, water, table, results, saturated solution, crystals, crystallisation, sewer, filtration, settling, solid, waste, liquid, particle, mesh, sewage, disease, bacteria, pollution, sieving, particle, safety Precautions, oxygen, Fuel, carbon dioxide, chemical change, reversible, irreversible	life cycle, baby, toddler, child, teenager, adult, man, woman, adolescence, maturity, grow develop, birth, pregnancy, old age die, puberty, physical changes, emotional changes, genitals, vagina breasts, menstruation, period, penis testicles, voice, pubic hair, growth hormones, gestation, embryo, foetus, womb,

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