Long-term planning

Science - Year 7

Year 7 Themes	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
	Introduction to Science	Matter	Forces	Organisms	Energy	Earth
Introduction to safe working in science Fundamental concepts of forces and their interactions Organisms and basic processes of living things. Energy Earth and Universe	An introduction to the laboratory, safe working and the use of specific equipment and approaches used to answer scientific questions.	5.1 Particle model 5.2 Mixtures 5.3 Elements 5.4 Periodic Table	1.1 Speed 1.2 Gravity 1.3 Contact forces 1.4 Pressure	8.2 Cells 8.1 Movement 8.3 Breathing 8.4 Digestion	3.1 Energy costs 3.2 Energy transfer 3.3 Work 3.4 Heating and cooling	7.1 Earth Structure 7.2 Universe 7.3 Climate 7.4 Earth resources
	Students will learn about					
	Science safety rules Laboratory apparatus Measuring equipment Bunsen burners Planning investigations Collecting and recording data	The particulate nature of matter -the properties of the different states of matter (solid, liquid and gas) in terms of the particle model. Changes of state in terms of the particle model. The differences between atoms, elements and compounds.	Speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) Distance-time graphs. Forces as pushes or pulls, arising from the interaction between two objects. Moments as the turning effect of a force.	Observing cells using a light microscope. Cell structure and function in animals and plants. The skeletal and muscular systems. The content of a healthy human diet. The tissues and organs of the human digestive system.	Energy Calculation of fuel uses and costs in the domestic context. Comparing energy values of different foods (from labels) (kJ). Comparing power ratings of appliances in watts (W, kW). Comparing amounts of energy transferred (J, kJ, kW hour).	Gravity force, weight = mass x gravitational field strength (g), Gravity is different on other planets and stars. Gravity as a contact force. The seasons and the Earth's tilt, day length at different times of year, in different hemispheres.

		The chemical symbols and formulae for elements and compounds. The concept of a pure substance. Mixtures, including dissolving. Simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography.	Forces: associated with deforming objects; stretching and squashing. Forces measured in newtons. Work done and energy changes. non-contact and contact forces. Pressure in Solids and fluids- pressure measured by ratio of force over area. Balanced forces - opposing forces and equilibrium. Forces and motion - forces causing objects to stop, start moving, or to change their speed or direction of motion.	The structure and functions of the gas exchange system in humans.	Fuels and energy resources. Energy changes and transfers. Simple machines as force multipliers. Transfers of thermal energy via: Conduction, convection, radiation and evaporation.	The composition and structure of the Earth. The rock cycle. Earth as a source of limited resources. The carbon cycle and the composition of the atmosphere. Climate change and the greenhouse effect.
	Vocabulary and the concepts they link to					
	Beaker, Boiling tube, Retort stand, Apparatus, Tripod,	Particle, Model, Diffusion, Gas pressure, Density, Evaporate, Boil,	Acceleration, air resistance, average speed, balanced (forces), contact	Joints, Bone marrow, Ligaments, Tendons, Cartilage,	Power, Energy resource, Non-renewable, Renewable, Fossil	artificial satellite, asteroid, axis, ceramic, constellation, core,

	Gauze, Heat-proof mat, Thermometer, Measuring cylinder, Conical flask, Bunsen burner, Electronic balance, Independent variable, Dependent variable, Control variable, Accurate, Precise, Conclusion, Hypothesis, Evaluation.	Condense, Melt, Sublime, Solvent, Solute, Dissolve, Solution, Soluble, Solubility, Pure substance, Mixture, Filtration, Distillation, Evaporation, Chromatography, Elements, Atom, Molecules, Compound, Chemical formula, Polymer, Periodic table, Physical properties, Chemical properties, Groups, Periods	force, distance–time graph, driving force, equilibrium, field, friction, gravitational field strength, gravity/gravitational force, interaction pair, Kilogram, mass, metres per second, newton Newton meter, non-contact force, pull, push relative motion, resistive force, resultant force, speed, unbalanced (forces), weight	Antagonistic muscle pair Cell, Uni-cellular, Multi-cellular, Tissue, Organ, Diffusion, Structural adaptations, Cell membrane, Nucleus, Vacuole, Mitochondria, Cell wall, Chloroplast, Cytoplasm, Immune system, Reproductive system, Digestive system, Circulatory system, Respiratory system, Muscular skeletal system, Breathing Trachea (windpipe), Bronchi, Bronchioles, Alveoli, Ribs, Diaphragm, Lung volume, Enzymes, Dietary fibre, Carbohydrates, Lipids, Protein, Stomach, Small intestine, large intestine, Gut bacteria	fuels, Thermal energy store, Chemical energy store, Kinetic energy store Gravitational potential energy store, Elastic energy store, Dissipated, Work, Lever, Input force, Output force, Displacement, Deformation, Thermal conductor, Thermal insulator, Temperature, Thermal energy, Conduction, Convection, Radiation	crust, day, deposition, durable, dwarf planet, Earth, erosion, exoplanet, galaxy, geocentric model, heliocentric model, igneous rock, lava, light year, magma, mantle, metamorphic rock, Milky Way, mineral, Moon, natural satellite, night, obsidian , orbit, phases of the Moon, planet, porous, rock cycle, season, sediment, sedimentary rock, Solar System, star, strata, Sun, transport, Universe, uplift, weathering, year, atmosphere, carbon cycle, carbon sink, climate change, combustion, electrolysis, extraction, fossil fuel, global warming, greenhouse effect, greenhouse gas, mineral (chemistry), natural resources, ore, photosynthesis, recycling, respiration

	Assessment					
	Mini quiz Checklist Bunsen burner passport.	2 Key pieces Diagnostic quiz 1 keyword spelling test 1 end of unit test	2 Key pieces Diagnostic quiz 1 keyword spelling test 1 end of unit test	2 Key pieces Diagnostic quiz 1 keyword spelling test 1 end of unit test	2 Key pieces Diagnostic quiz 1 keyword spelling test 1 end of unit test	
	Diversity & development of cultural capital					
		Discuss the historical development of the periodic table. Explore how artists use materials. Understanding of forces in sports. Discuss the impact of human activities on air resistance and pollution.		Explore the discovery of cells and microscopes Study the effects of light and sound in art and theatre Discuss how technology uses waves Investigate the importance of nutrition across different cultures		Study natural disasters' impact on societies Discuss the scientific contribution to understanding Earth's processes. Explore cultural practices related to natural phenomena Connect wave applications in medical technology to global health access
	Cross-curricular opportunities and enrichment					
		History, Art, PE, Geography		History, Art, IT, Food Tech		Geography, History, RE, PHSE