Curriculum overview
Science

Key Stage 3

Year	Autumn Term	Spring Term	Summer Term
7	**Particles, mixtures and separation** Key learning**:** • The properties of the different states of matter (solid, liquid and gas). • Use of the particle model to consider changes of state. • Diffusion. • Simple techniques for separating mixtures such as distillation, filtration, chromatography and evaporation. • The pH scale for measuring acidity/alkalinity. **Electricity** Key learning**:** • Electric current in series and parallel circuits. • Potential difference and resistance. • Static electricity. • Magnetism and electromagnets. **Practical skills** Key learning: • Writing a hypothesis. • Planning an experiment. • Writing a risk assessment. • Preparing a results table. • Collecting data. • Graphs and trends. • Writing a conclusion.	**Cells and reproduction** Key learning: • The structure of plant and animal cells. • Unicellular organisms. • Use of microscopes to observe cells. • The organisation of multicellular organisms. • Reproduction in humans, including the structure and function of the male and female reproductive systems, the menstrual cycle, fertilisation, gestation and birth. **Chemical and physical changes** Key learning: • The particle model. • Heat transfer. • Chemical and physical changes. • Exothermic and endothermic reactions. • Combustion, oxidation and thermal decomposition.	**Energy and space** Key learning: • Energy transfers. • Comparing energy values of different foods. • Comparing power ratings of appliances in watts. • Domestic fuel bills, fuel use and cost. • The solar system. • The seasons and the Earth's tilt. • Day length at different times of year and in different hemispheres. • Gravity. **Plants and ecosystems** Key learning: • Leaf adaptations and photosynthesis. • Reproduction in plants, including flower structure, wind and insect pollination and seed dispersal. • How organisms affect, and are affected by, their environment. • The interdependence of organisms in an ecosystem.

	• Completing an evaluation.		
8	**Motion and forces** Key learning: • Speed & distance time graphs. • Balanced & unbalanced forces. • Non-contact forces. • Pressure in liquids & gases. • Moments. **Respiration and evolution** Key learning: • Variation within species. • Chromosomes, genes and DNA in heredity. • Watson, Crick, Wilkins and Franklin's DNA model. • Natural selection. • Extinction. • Maintaining biodiversity. • Aerobic and anaerobic respiration. • Fermentation. **Practical skills** Key learning: • Writing a hypothesis. • Planning an experiment. • Writing a risk assessment. • Preparing a results table. • Collecting data. • Graphs and trends.	**Compounds, elements and the periodic table** Key learning: • Atoms and elements. • Chemical symbols and formulae. • The periodic table. • Compounds. • Properties of metals. • The reactivity series and displacement reactions. • Extracting metals. • Properties of non-metals and other materials. **Waves** Key learning: • Sound waves. • The human ear and hearing. • Echoes and ultrasound. • Light waves. • Reflection and refraction of light. • Colour.	**Organ systems** Key learning: • Skeletons and muscles. • Gas exchange system and breathing. • Asthma. • Smoking and drugs. • Digestive system. • Balanced diet. • Malnutrition. **The Earth and atmosphere** Key learning: • Structure of the earth. • Types of rock. • Weathering and the rock cycle. • Composition of the atmosphere. • Earth's resources. • Recycling.