

	Year 7	Year 8	Year 9
Autumn half term 1 Sequential knowledge and skills	<p>Think Like a Scientist: Develop understanding of the nature, processes, and methods of science through different types of scientific enquiry that help to answer questions about the world.</p> <p>Particle model: solids, liquids & gases; properties; chocolate and changing state; modelling states; changing state; salol; diffusion.</p>	<p>Movement: the skeleton; joints; muscle and wing dissection; muscle fatigue investigation; the stomach; getting stronger; injuries and recovery.</p> <p>Light: transparent, translucent & opaque materials; reflection; uses of reflection; the pinhole camera; refraction; uses of refraction; colour; lenses; the eye.</p>	<p>Inheritance: variation; DNA; genetic crosses; sex determination; DNA fingerprinting; blood groups; selective breeding; GM; dragon genetics investigation.</p> <p>Elements: symbols for elements; elements; identifying & naming compounds; magnesium & oxygen; information from formulae; polymers; making potato polymers investigation; elements, molecules & compounds.</p>
Assessment Content and methods used to judge learning	<p>Autumn Summative Assessment Think Like a Scientist + The Particle Model</p> <p>Formative Assessment Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Autumn Summative Assessment Light + Movement</p> <p>Formative Assessment Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Autumn Summative Assessment Inheritance + Elements</p> <p>Formative Assessment Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>
Autumn half term 2 Sequential knowledge and skills	<p>Cells: plant & animal cells; cell theory; how to use a microscope; making a microscope slide; biological drawing; specialised cells; unicellular organisms; multicellular organisms & differentiation; systems in the human body.</p> <p>Voltage and Current: drawing circuits; problems with circuits; fruit batteries; battery timeline; series circuits; parallel circuits; modelling electricity; static electricity.</p> <p>Sound: how sound travels; modelling frequency; structure of the ear; hearing ranges; sound-proofing investigation.</p>	<p>Periodic table: What are elements; introducing the periodic table; patterns in the periodic table; development of the periodic table; properties of Group I; properties of Group VII; properties of Group 0.</p> <p>Energy transfer: energy transfers; energy transfers in electrical appliances; electrical power; efficiency; Sankey diagrams; kinetic energy; gravitational potential energy; stopping distances & kinetic energy.</p> <p>Digestion: healthy diet; food tests; effects of a poor diet; the digestive system; enzymes; dietary requirements.</p>	<p>Evolution: fossils; Darwin; theory of evolution; speciation; extinction; classification.</p> <p>Pressure: pressure in solids; pressure calculations; stress; pressure in liquids; hydraulics; upthrust; pressure in gases; atmospheric pressure.</p> <p>Chemical Energy: exothermic and endothermic reactions; energy diagrams; bond energies; exothermic / endothermic investigation; effect of surface area; effect of concentration; effect of temperature; effect of catalysts.</p>

Assessment Content and methods used to judge learning	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>
Spring half term 3 Sequential knowledge and skills	<p>Metals and non-metals: atoms, elements & compounds; properties of metals and non-metals; flame tests; the reactivity series; reactivity investigation; ceramics, polymers & composites.</p> <p>Plant biology: parts of a flower - biological drawings; spinners investigation – seed dispersal; pollination; microscopes – pollen tubes; adaptation and pollination; life cycle of a flowering plant.</p>	<p>Earth's Surface: structure of the Earth; the rock cycle; igneous rocks, sedimentary rocks, metamorphic rocks; weathering; erosion & transportation; volcanoes.</p> <p>Resistance: drawing circuits; series circuits; parallel circuits; modelling electricity; resistance; length of wire investigation; IV graphs; thermistors and LEDs.</p>	<p>Wave effects & properties: ultrasound; uses of ultrasound; microphones & loudspeakers; properties of transvers and longitudinal waves; comparing waves; superposition.</p> <p>Work: work done; power; kinetic energy & gravitational potential energy; levers; moments.</p>
Assessment Content and methods used to judge learning	<p>Spring Summative Assessment</p> <p>Think Like a Scientist + The Particle Model - Retrieval</p> <p>Cells, Voltage and Current, Metals and non-metals, Plant Biology, Sound</p> <p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Spring Summative Assessment</p> <p>Light + Movement – Retrieval</p> <p>The Periodic Table, Energy transfer, Digestion, Earth's surface, Resistance</p> <p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Spring Summative Assessment</p> <p>Inheritance + Elements – Retrieval</p> <p>Wave Effects and Properties, Evolution, Pressure, Chemical Energy, Work</p> <p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>
Spring half term 4 Sequential knowledge and skills	<p>Variation: what is variation; graphs to represent variation; continuous & discontinuous variation; genetic vs environmental variation; classification; adaptation; Darwin; endangered animals.</p> <p>Climate: what is climate change; evidence around climate change; fossil fuel formation; burning fossil fuels; the carbon cycle; "two degrees" activity.</p>	<p>Separating Mixtures: particle model recap; melting and boiling point; dissolving; separation techniques; separation investigation; distillation; chromatography.</p> <p>Universe + Gravity: the solar system; sizes & distances; day and night; seasons, phases of the moon; space travel, weight & freefall; gravitational fields; gravity on other planets; rocket science.</p>	<p>Types of Reaction: chemical reactions; conservation of mass; chemical vs physical change; combustion; jam jar investigation; thermal decomposition; displacement reactions; word equations; symbol equations; death to diesel debate.</p> <p>Earth Resources: chemical & physical change; thermal decomposition; combustion; reactivity series; displacement reactions; oxidation; extracting metals; recycling; fracking research & debate.</p>

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Summer half term 5 Sequential knowledge and skills	<p>Heating and Cooling: conduction; convection; evaporation and condensation; evaporative cooling; infrared radiation; insulation investigation; energy transfers by design.</p> <p>Acids and Alkalis: making an indicator; testing everyday items; hazard symbols; the neutralisation reaction; useful neutralisation; making and naming salts; salts and their uses; stomach acid investigation.</p>	<p>Breathing: diffusion; lung structure; model lung; investigating lung volume; smoking; lung diseases; surviving underwater research task; asthma & animal testing.</p> <p>Speed: converting units; speed; velocity; distance/time graphs; relative motion; acceleration.</p>	<p>Respiration: food as fuel; bomb calorimeter; food labelling; energy in food; components of the blood; measuring pulse rate investigation; mitochondria and aerobic respiration; anaerobic respiration and oxygen debt.</p> <p>Magnetism: magnetic materials; electromagnets; magnetic fields; DC motors; Fleming's left-hand rule.</p>
Assessment Content and methods used to judge learning	<p>End of Year Summative Assessment</p> <p>Think Like a Scientist + The Particle Model Cells, Voltage and Current, Metals and non-metals, Plant Biology, Sound, Variation, Climate, Heating and Cooling, Acids and Alkalis</p>	<p>End of Year Summative Assessment</p> <p>Light + Movement The Periodic Table, Energy transfer, Digestion, Earth's surface, Resistance, Separating mixtures, Universe and gravity, Breathing, Speed</p>	<p>End of Year Summative Assessment</p> <p>Inheritance + Elements Wave Effects and Properties, Evolution, Pressure, Chemical Energy, Work, Types of Reaction, Earth's Resources, Respiration, Magnetism</p>
Summer half term 6 Sequential knowledge and skills	<p>Human reproduction: male reproductive system; female reproductive system; eggs and sperm; fertilisation; meiosis; pregnancy; body changes; menstrual cycle; development.</p> <p>Contact forces: types of force; measuring forces; balanced and unbalanced forces; friction investigation; forces on a spring; mass & weight.</p>	<p>Interdependence: predators & prey; adaptations; food chains; food webs; pyramids of numbers; pyramids of biomass; using a key; adaptation challenge.</p> <p>Energy costs: fossil fuel power stations; nuclear power; energy from wind and water; energy from Earth & Sun; energy choices; supply & demand; the National Grid; electrical power; electrical costs.</p>	<p>Photosynthesis: plant structure; photosynthesis; starch investigation; limiting factors; light intensity investigation; mineral deficiencies; glucose; maximising photosynthesis.</p> <p>QUEST: student-led project work in the STEM subjects (science, technology, engineering and maths). Teams of students design their own investigation and record their findings, giving them a taste of what it is like to be a scientist or engineer in the real-world.</p>
Assessment Content and methods used to judge learning Assessment	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>	<p>Formative Assessment</p> <p>Key Homework tasks, teacher feedback, online diagnostic assessments, student and peer marking, Learn It Link It.</p>

