

Year 7 Science Overview

Unit	Learning Objectives/Outcomes
Cells	<ul style="list-style-type: none">• Explain the functions of each part of a cell e.g. nucleus• Explain how a specialised cell is adapted for its function• Use a microscope to observe and record accurate features of a cell
Particle model	<ul style="list-style-type: none">• Explain the properties of solids / liquids / gases based on the particle arrangement• Explain diffusion in terms of particles in terms of particles and Brownian motion• Explain the effect of increase or decrease in gas pressure
Systems	<ul style="list-style-type: none">• Apply the different levels of organisation to multicellular organisms• Explain how unicellular organisms are adapted to carry out functions that in multicellular organisms are done by different types of cells• Explain why substances move by diffusion and give examples
Changes of state	<ul style="list-style-type: none">• Explain how changes of state occur in terms of particle motion• Explain the shape of a change of state graph• Use particle diagrams to explain the mass during a change of state
Energy transfers	<ul style="list-style-type: none">• Identify energy transfers as energy in/energy out• Describe the energy transfer between KE and GPE• Describe the energy transfer between KE and EPE• Identify renewable and non-renewable energy resources
Human reproduction	<ul style="list-style-type: none">• Compare the changes that happen during puberty in males and females• Describe the roles of the male and female parts of the reproductive system• Sequence images of the developing foetus
Elements and compounds	<ul style="list-style-type: none">• Explain the differences between elements, compounds and mixtures• Use particle diagrams to show substances as elements, compounds and mixtures• Use observations to determine if a substance is an element, compound or mixture• Name compounds formed from a ranger of elements• Write chemical formulas to show compounds
Forces	<ul style="list-style-type: none">• Describe how multiple forces react on an object

	<ul style="list-style-type: none"> • Calculating resultant forces • Explain the effect of forces (stretching/squashing) • Explain why forces are useful or not (friction)
Interdependence	<ul style="list-style-type: none"> • Describe how organisms within an ecosystem are linked • Construct food webs • Explain the effects of changes on a food web and population
Separation	<ul style="list-style-type: none"> • Explain how substances dissolve using particle models • Use the particle model to explain how filtration and evaporation works • Explain how chromatography works • Explain how distillation works • Produce a solubility curve
Astronomy	<ul style="list-style-type: none"> • Explain the difference in length of day • Explain how the Earth's tilt leads to the different seasons • Explain why planets have different length of day and years • Explain how the position of the moon in relation to us causes the phases • Explain the different theories of the structure of the universe (e.g. geocentric, heliocentric) • Explain how artificial satellites can be used • Explain the difference between stars and planets
Plant reproduction	<ul style="list-style-type: none"> • Explain how plants reproduce using sexual reproduction
Representing reactions	<ul style="list-style-type: none"> • Explain why the properties of composites change • Analyse results on polymer strength • Explain the difference between natural and synthetic polymers • Explain the properties of materials (ceramics, composites, polymers)
Electricity	<ul style="list-style-type: none"> • Explain how current flows in terms of electrons • Compare how current flows differently in series and parallel circuit • Use a model to explain voltage • Use given data to determine the resistance and explain the differences in resistance between conducting and insulating components