

<i>Autumn 01</i>	<i>Autumn 02</i>	<i>Spring 01</i>
<p><b>Content:</b> 7CP: Particles This unit of work begins with the particle model and the movement of particles in diffusion and changing state. Separation techniques are then taught, which forms the bases for the first GCSE Chemistry unit. Within separation, pure and impure need to be covered, as well as planning and carrying out a practical based on rock salt purification. Distillation and saturation are also covered towards the end of the unit, followed by the effect of temperature on solubility.</p> <p>7BC: Cells, Tissues and Organs This unit of work begins with how to use a microscope to estimate size, then looks at cell structure in unicellular organisms before moving on to plants and animals as multicellular organisms, linking structures to the 7 life functions. From there, organization of multicellular organisms in terms of cells-tissues-organs-systems and why complex organisms need these systems in order to keep cells alive. Diffusion and transport are the connecting ideas. The digestive system and breathing system are used as two example systems, but the focus really is on the adaptations of these systems in terms of diffusion – introducing ideas such as thin membranes, surface area and blood supply</p> <p><i>Working scientifically skills and oracy opportunity:</i> Required practical distillation Required practical rock salts Required practical diffusion Required practical preparing an onion cell</p>	<p><b>Content:</b> 7PE: energy This unit of work begins with looking at the main energy stores and pathways, forming a foundation for KS4. This follows on to look at conservation of energy and the three methods of heat transfer, conduction, convection and radiation. There is a required practical on the effect of colour on cooling. From there, students will study the relationship between power and energy, introducing SI units, and how to calculate electricity costs. This leads to the second required practical, testing foods for energy, with a linked KPI task. The unit finishes with a study of energy resources, starting with the formation and use of fossil fuels, moving to renewable sources, a lesson evaluating the relative merits of both before finishing with assessments.</p> <p><i>Working scientifically skills and oracy opportunity:</i> Required practical cooling down Required practical energy in foods</p>	<p><b>Content:</b> 7BR: reproduction This unit begins with the structure of the male and female reproductive system and progresses to sexual reproduction, fertilization, embryo development and implantation, development of the fetus, birth and growth. The cycle is completed by coming back to puberty and menstruation. The unit then moves on to look at plant sexual reproduction and seed dispersal methods. Finally, what is meant by a species and examples of variation within a species are covered, with opportunities to collect and display data to develop understanding of types of data. The final lesson uses a simple model for reproduction, which should reinforce the idea of half of the genetic information coming from each parent.</p> <p><i>Working scientifically skills and oracy opportunity:</i> Required practical seed dispersal</p>
<p><b>Assessment objectives:</b> 7CP1 - Describe the arrangement of particles of a solid, liquid and gas, and link this to their properties 7CP2 - Explain changes of state in terms of the particle model</p>	<p><b>Assessment objectives:</b> 7PE1 - Describe examples of energy transfers 7PE1 - Describe how thermal energy transfers from one place to another 7PE3 - Apply the law of conservation of energy to situations involving energy transfers</p>	<p><b>Assessment objectives:</b> 7BR1 - Label the parts of the structure of the male and female reproductive system and describe their function 7BR2 - Describe the processes of menstruation and fertilization and identify the stages of gestation and birth</p>

<p>7CP3 - Classify substances as pure and impure, and describe techniques to separate mixtures</p> <p>7BC1 - Use a microscope to produce an image of a cell in focus</p> <p>7BC2 - Label plant and animal cells; state the function of the organelles; and compare plant and animal cells</p> <p>7BC3 - Describe the relationship between cells, tissues and organs; and describe the functions of the main organ systems</p> <p>End of topic tests in topics studied</p>	<p>7PE4 - Distinguish between power and energy</p> <p>7PE5 - Compare values of energy and power using appropriate SI values</p> <p>7PE6 - Compare different fuels and energy resources</p> <p>End of topic tests in topics studied</p>	<p>7BR3 - Describe the function of each part of the flower and explain how pollination occurs</p> <p>7BR4 - Evaluate different seed dispersal techniques in plants</p> <p>7BR5 - Identify variation between individuals of a species and state the differences between species, describing the difference between continuous and discontinuous variation</p> <p>End of topic tests in topics studied</p> <p>Big test 1: Mid year exam</p>
<i>Spring 02</i>	<i>Summer 01</i>	<i>Summer 02</i>
<p><b>Content:</b></p> <p>7CC: chemical reactions</p> <p>This unit begins by reminding students of the work completed in KS2 on physical and chemical change and a circus of experiments for the students to see how to spot evidence for a chemical reaction - eg colour change, energy transfer, gas given off etc. This work continues into using oxidation as a common example of a reaction and simple word equations are introduced. The link between oxidation and combustion is made. Particle diagrams support the idea of the conservation of mass, which is introduced in lesson 3 and simple calculations show that mass in = mass out. The unit then moves onto acids and alkalis, using simple indicators and neutralization as a further common chemical reaction. More word equation practice and then the planning of a neutralization practical completes the unit.</p> <p><i>Working scientifically skills and oracy opportunity: Required practical titration</i></p>	<p><b>Content:</b></p> <p>7PF: forces</p> <p>This unit begins by naming forces, drawing forces diagrams &amp; measuring forces. This leads into looking at effect of balanced and unbalanced forces on the motion of objects, building on concepts introduced in lesson1. The required practical asks students to find the gravitational field strength on Earth, allowing them to calculate the weight of an object on Earth. With the relevant data provided about gravitational field strength of other planets, they can calculate weight on other planets. The link is made between force and pressure, allowing students to perform pressure calculations and use the idea of pressure to explain everyday situations. Remainder of the unit looks at how forces affect the speed of an object, making speed calculations and interpreting distance-time graphs.</p> <p><i>Working scientifically skills and oracy opportunity: Required practical using a newton meter</i></p>	<p><b>Content:</b></p> <p>8BE: ecology</p> <p>Unit begins by recapping basic KS3 knowledge of food chains, and building on this to look at food webs, what organisms are dependent on each other for and bioaccumulation. Students will then look at factors that affect populations of organisms, impacts of changing populations and undertake the required practical to estimate daisy population. They then move on to classify living organisms, focusing on the features of the main chordate group. This leads into how well adapted organisms are to their environment and how these adaptations may improve over time by mutations and natural selection. The unit finishes by focusing on biodiversity and the importance of taking steps to maintain, and where possible improve, biodiversity.</p> <p><i>Working scientifically skills and oracy opportunity: Required practical quadrats</i></p>
<p><b>Assessment objectives:</b></p> <p>7CC1 - Identify substances as acid, alkali or neutral based on observations with indicators and the pH scale</p> <p>7CC2 - Describe neutralisation in terms of acids and alkalis reacting</p>	<p><b>Assessment objectives:</b></p> <p>7PF1 - Use diagrams with correctly labelled force arrows to display a range of forces in different situations</p> <p>7PF2 - Interpret force diagrams to determine the motion of an object</p>	<p><b>Assessment objectives:</b></p> <p>8BE1 - Describe feeding relationships and food webs, and explain how a changing environment may affect them</p> <p>8BE2 - Explain how variation allows organisms to compete, and the way this drives natural selection</p>

<p>End of topic tests in topics studied</p>	<p>7PF3 - Calculate pressure, weight and average speed using appropriate equations 7PF4 - Relate the description of a journey to a distance-time graph</p> <p>End of topic tests in topics studied</p>	<p>8BE3 - Describe how a species may become extinct 8BE4 - Describe the importance of maintaining biodiversity and how gene banks can be used for preservation</p> <p>End of topic tests in topics studied Big test 2: UL end of year papers</p>
---	--	--