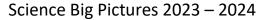


Year 7

Autumn 01	Autumn 02	Spring 01
Content: 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. 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 Working scientifically skills and oracy opportunity: Required practical distillation Required practical diffusion Required practical diffusion Required practical preparing an onion cell	Content: 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. Working scientifically skills and oracy opportunity: Required practical cooling down Required practical energy in foods	Content: 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. Working scientifically skills and oracy opportunity: Required practical seed dispersal
Assessment objectives: 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	Assessment objectives: 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	Assessment objectives: 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





7CP3 - Classify substances as pure and impure, and describe techniques to separate mixtures

7BC1 - Use a microscope to produce an image of a cell in focus

7BC2 - Label plant and animal cells; state the function of the organelles; and compare plant and animal cells 7BC3 - Describe the relationship between cells, tissues and organs: and describe the functions of the main organ systems

End of topic tests in topics studied

7PE4 - Distinguish between power and energy

7PE5 - Compare values of energy and power using appropriate SI values

7PE6 - Compare different fuels and energy resources

End of topic tests in topics studied

7BR3 - Describe the function of each part of the flower and explain how pollination occurs

7BR4 - Evaluate different seed dispersal techniques in plants

7BR5 - Identify variation between individuals of a species and state the differences between species, describing the difference between continuous and discontinuous variation

End of topic tests in topics studied Big test 1: Mid year exam

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Spring 02	Summer 01	Summer 02
Content:	Content:	Content:
7CC: chemical reactions	7PF: forces	8BE: ecology
This unit begins by reminding students of the work	This unit begins by naming forces, drawing forces diagrams &	Unit begins by recapping basic KS3 knowledge of food chains, and
completed in KS2 on physical and chemical change and a	measuring forces. This leads into looking at effect of	building on this to look at food webs, what organisms are
circus of experiments for the students to see how to spot	balanced and unbalanced forces on the motion of objects,	dependent on each other for and bioaccumulation. Students will
evidence for a chemical reaction - eg colour change, energy	building on concepts introduced in lesson1. The required	then look at factors that affect populations of organisms, impacts
transfer, gas given off etc. This work continues into using	practical asks students to find the gravitational field strength	of changing populations and undertake the required practical to
oxidation as a common example of a reaction and simple	on Earth, allowing them to calculate the weight of an object	estimate daisy population. They then move on to classify living
word equations are introduced. The link between oxidation	on Earth. With the relevant data provided about	organisms, focusing on the features of the main chordate group.
and combustion is made. Particle diagrams support the idea	gravitational field strength of other planets, they can	This leads into how well adapted organisms are to their
of the conservation of mass, which is introduced in lesson 3	calculate weight on other planets. The link is made between	environment and how these adaptations may improve over time
and simple calculations show that mass in = mass out. The	force and pressure, allowing students to perform pressure	by mutations and natural selection. The unit finishes by focusing
unit then moves onto acids and alkalis, using simple	calculations and use the idea of pressure to explain everyday	on biodiversity and the importance of taking steps to maintain,
indicators and neutralization as a further common chemical	situations. Remainder of the unit looks at how forces affect	and where possible improve, biodiversity.
reaction. More word equation practice and then the	the speed of an object, making speed calculations and	
planning of a neutralization practical completes the unit.	interpreting distance-time graphs.	Working scientifically skills and oracy opportunity:
		Required practical quadrats
Working scientifically skills and oracy opportunity:	Working scientifically skills and oracy opportunity:	
Required practical titration	Required practical using a newton meter	

Assessment objectives:

reacting

7CC1 - Identify substances as acid, alkali or neutral based on observations with indicators and the pH scale 7CC2 - Describe neutralisation in terms of acids and alkalis

Assessment objectives:

7PF1 - Use diagrams with correctly labelled force arrows to display a range of forces in different situations
7PF2 - Interpret force diagrams to determine the motion of an object

Assessment objectives:

8BE1 - Describe feeding relationships and food webs, and explain how a changing environment may affect them 8BE2 - Explain how variation allows organisms to compete, and

the way this drives natural selection



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