



Science handbook...ICT policy

Introduction:

Use of ICT within the Science Department

It is the philosophy of the Science Department that pupils must be encouraged and aided to use I.C.T. Whenever it is possible, for example to develop their own knowledge and understanding, presentation skills, data collection, and ultimately increase awareness of hardware and software packages so they are capable of employing I.C.T. in their work, and to help them to develop and take responsibility for their own learning in order to develop to their full potential.

The National Curriculum requires that pupils should be given opportunities to develop their I.C.T. skills where and when appropriate.

The department is able to make good use of the whole school I.C.T. facilities – including the network rooms and communication systems e.g. the Internet. The department has 9 lap tops of its own and plan to purchase I.C.T. screens and data logging equipment. At present we have one interactive whiteboard and we employ a range of commercially produced software and a selection of CD-ROMS

All labs are fully equipped with an Interactive Whiteboard. The Interactive Whiteboards are linked directly to the Internet, so any and all websites are able to be displayed on the board, to be used by the teacher to display to the class. In addition, the science shared area is now under development as well as other e-learning tools (fully site licensed) now being sought using e-learning credits.

We shall be successful when

- Staff are able to use a variety of ICT media to deliver the National Curriculum
- Pupils are able to collect, retrieve and consider information and data from a variety of sources, e.g. Internet, multimedia, CD-ROM's, videos and T.V.
- Pupils are able to explore and communicate science through I.C.T.

- Pupils are able to enter and store information in a variety of ways using e-tools.
- When I.C.T. use is incorporated within KS3 and KS4 schemes of work.

Access and opportunity:

- Within science, pupils have access to logit and laptops for data retrieval using e-tools. All KS4 & KS3 students have access to the computer rooms during both lunchtime and periodically after school, during which they are able to work on science based websites and their Coursework.
- All teachers have the opportunity to take Year 10 and 11 students to G5, S4 or S5 when a piece of Coursework is scheduled. Visits to the Computer Laboratories are limited though. The greatest obstacle to the use of computers is the very limited availability of S4 and S5. Each room is only available 7 periods within a given week, and not necessarily during a Science.
- Use of ICT to support the following coursework is encouraged.
- Year 10 Electricity – Resistance of a wire or Thermistors
- Year 10 Maintenance of Life – Photosynthesis or Enzyme Action
- Year 11 Patterns of Chemical Change – Rates of Reactions

ICT Resources

- All labs will be fully equipped with Promethean Interactive Technology circa September 2004.
- MMS Multi Media 20 tools are available and will be fully installed on the staff and student shared areas.
- Chemistry SET 2000 is available on the staff and student shared areas.
- Crocodile physics is available on the staff and student shared areas.
- A series of PowerPoint Revision Tools for KS3 and KS4 is installed in the staff shared area.
- Encarta 2002 is fully installed onto the F4 computer, complete with a wide variety of information and video and interactive displays, most recently used in teaching the Electromagnetic Spectrum to Year 11 students.
- RSC Data Book is fully installed onto the F4 computer. This is an excellent teaching resource when studying the Periodic Table and types of Bonds, shown in 3 dimensions (ionic, lattices, etc.).
- BBC Bitesize Revision website: www.bbc.co.uk/revision whilst revising Year 11 units ActiveBoard Flipcharts, directly linked to both the KS3 and KS4 Science Curriculum are regularly used in the teaching of all Science topics, each individually tailored for the teaching of many Science units. Some containing interactive animations; others containing student-oriented activities.
- Letts Science Revision for GCSE guide is fully installed onto the F4 computer. This is primarily used at the end of the year to review topics and show students how to answer particular styles of questions.
- Ultimate Human Body 2.0 is fully installed onto the F4 computer. This is an excellent resource for teaching Human Biology, particularly the Humans as Organisms Unit in Year 10. It makes use of 3 dimensional

modelling to show internal organ systems with audio and visual animation of structures.

- **Alchemy 1 and Alchemy 2 CD-ROMs** have been used in the past. These are primarily used to display videos of chemical processes such as Aluminium and Iron extraction; and also the electrolysis of Brine.
- **ICT Activities for Science CD-ROM** is a useful resource containing information for students on how to use important programmes such as Access, Excel, Word and PowerPoint.
- It also has useful videos and archive footage of Scientific phenomena and events, such as the moon landing and Planetary images. It is fully loaded with many PowerPoint displays and Excel Spreadsheets on various topics.
- **Riverside Explorer CD-ROM** is to be used as a resource when Year 10 students later this year do their limnological survey of local riverine systems. It has vital information on all rivers around England and Wales, and gives the students a proforma from which they can develop ideas of how to survey a river system. Potentially very useful.
- **Science shared area** Included within this is a rapidly expanding list of resources including some of the CD-ROM software available on the market as well as PowerPoint revision lessons for all years and coursework writing frames for year 10 & 11 pupils.
- **GCSE Biology, Chemistry and Physics CD-ROMs** are available, providing resources and quiz and recap questions, designed specifically for each course, available for both Higher and Foundation Tier.
- **KS2 and KS3 Science Test Base CD-ROM** is available providing similar resourcing at this level of study.
- **Laptops (9)** have recently been purchased, stored in a lockable cupboard in F5. These will be used in conjunction with 'interfacers' and data loggers (to be purchased) for field sampling exercises and analysis. They will also be used by students during laboratory investigations. They will also be available for ALL Science Dept. staff to develop data analysis skills of both staff and pupils.
- The use of ICT is very much encouraged within the Science Department, whenever possible.
- In the near future with EAZ funding there will be access with pull-down screens and projector use within F5, F7 and F8 to enable all Science staff to access ICT resources more readily during their delivery of Science lessons.
- Internet resources have been included as exemplars of what sort of teaching resources are available on the Internet (Energy, Electricity and Earth Materials).

KS 3 programme of study:

YEAR	UNIT	TOPICS	ICT (Inclusion and reference)
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*Key stage 3
pacing and
timings*

YEAR 7		INTRODUCTION (SAFETY)
	7A	CELLS
	7B	REPRODUCTION
	7C	ENVIRONMENT & FEEDING
	7D	VARIATION & CLASSIFICATION
	7E	ACIDS & ALKALIS
	7F	SIMPLE CHEMICAL REACTIONS
	7G	PARTICLE MODEL S.L & G
	7H	SOLUTIONS
	7I	ENERGY RESOURCES
	7J	ELECTICAL CIRCUITS
	7K	FORCES AND THEIR EFFECTS
	7L	SOLAR SYSTEM

Termination examination

YEAR 8		
	8A	FOOD AND DIGESTION
	8B	RESPIRATION
	8C	MICROBES AND DISEASE
	8D	ECOLOGICAL RELATIONSHIPS
	8E	ATOMS AND ELEMENTS
	8F	COMPOUNDS AND MIXTURES
	8G	ROCKS AND WEATHERING
	8H	THE ROCK CYCLE
	8I	HEATING AND COOLING
	8J	MAGNETS AND ELECTROMAGNETS
	8K	LIGHT
	8L	SOUND AND HEARING

Termination examination

YEAR 9		
	9A	INHERITANCE AND SELECTION
	9B	FIT AND HEALTHY
	9C	PLANTS AND PHOTOSYNTHESIS
	9D	PLANTS FOR FOOD
	9E	REACTIONS OF METALS
	9F	PATTERNS OF REACTIVITY
	9G	ENVIRONMENTAL CHEMISTRY
	9H	USING CHEMISTRY
	9I	ENERGY AND ELECTRICITY
	9J	GRAVITY AND SPACE
	9K	SPEEDING UP
	9L	PRESUURES AND MOMENTS
		BIOLOGY KS3 REVISION

Notes: There are on average 12 lessons for each module in years 7 & 8 and 10 lessons for year 9. An 'end of module' test should be given and recorded in the science monitoring folder (KS3); located within the staff shared area.

Additional ICT inclusion for Key stage 3:

UNIT 7A	CELLS
Practical	DEMO Intel Interactive Microscope to view plant & animal cells through interactive whiteboard
School Software	Use Encyclopedia Of Science & New Media Software
PowerPoint	Unit 7A School Server
Websites	For good quality images of plant and animal cells visit: www.google.co.uk : Search animal and plant cells. http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	Intel Microscope, Plant and animal slides, bioviewers
UNIT 7B	REPRODUCTION
Practical	DEMO Framework PowerPoint interact demos unit 7C
School Software	Use Encyclopaedia Of Science
PowerPoint	Unit 7B School Server
Websites	www.google.co.uk : Search animal and plant reproduction http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	PowerPoint files school server
UNIT 7C	ENVIROMENT & FEEDING
Practical	DEMO Use light probes to measure light levels during the day/evening. Use Temperature probes to measure change in temp during day/night Best performed in winter where days are short (Year 8 4c RF)
School Software	Use Encyclopedia Of Science & New Media Software Food Webs
PowerPoint	Unit 7C School Server
Websites	www.google.co.uk : Search Living Things, predator, prey, , food webs, food chains http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	Light and temperature probes. PowerPoint files school server

UNIT 7D	VARIATION /CLASSIFICATION
Practical	
School Software	Use Encyclopaedia Of Science Encarta 2002
PowerPoint	Unit 7D School Server
Websites	www.google.co.uk : Search Variation, Classification, Caterpillar, Kestrel, Nightingale http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	PowerPoint files school server
UNIT 7E	ACIDS & ALKALIS
Practical	DEMO 1 Use pH meter connected to data logger to measure acidity / alkalinity of various weak and strong solutions DEMO 2 Use pH meter connected to data logger to determine how pH changes during neutralization The readings can be taken manually at intervals of equal volume or the meter can be set up to record continuously while alkali is titrated in at a steady rate. Use of a magnetic stirrer is recommended for second option
School Software	Use Encyclopedia Of Science Chemistry Set 2000
PowerPoint	Unit 7E School Server
Websites	www.google.co.uk : Search Acids, Alkalis http://www.bbc.co.uk/schools/ks3bitesize/science/chemistry/
Resources	pH probe , cd roms, PowerPoint files school server
UNIT 7F	SIMPLE CHEMICAL REACTIONS
Practical	Use temperature probe to show heat rise using Zinc & Copper sulphate Use Light probe to measure change in light output when burning magnesium, or Pressure sensor linked to Test tube with marble chip and hydrochloric acid
School Software	Use Encyclopedia Of Science Chemistry Set 2000
PowerPoint	Unit 7F School Server
Websites	www.google.co.uk : Search chemical reaction, reactants, products
Resources	Temperature probes, Light probe , pressure probe, CD rom
UNIT 7G	PARTICLE MODEL S,L& G
Practical	DEMO Use pressure sensor to show difference in gas pressure of a 20ml syringe set at 5ml in hot water bath , ice tray and room temperature
School Software	Use Encyclopaedia Of Science New Media Software / Biology / Diffusion & Osmosis

	New Media Software / Physics / Conducting Heat New Media Software / Physics / States Of Matter
PowerPoint	Unit 7G School Server
Websites	www.google.co.uk : Search diffusion, Brownian motion
Resources	New Media Software , PowerPoint files school server
UNIT 7H	SOLUTIONS
Practical	Use a temperature probe instead of a thermometer when distilling alcohol/ water mixture or a salt/ water mixture. Get students to label key points on the graph / explain what is happening with the composition of the vapour / liquid
School Software	Use Encyclopaedia Of Science
PowerPoint	Unit 7H School Server
Websites	www.google.co.uk : Search
Resources	PowerPoint files school server
UNIT 7I	ENERGY RESOURCES
Practical	Class practical Use Temperature probes to measure increase in energy / temperature when burning foods eg peanut Demo Transferring electrical energy to mechanical energy. Use a current sensor and a light gate to see how the number of rotations in a motor makes in 1 second changes as the current changes (Ict activities for science p30)
School Software	Use Encyclopaedia Of Science Encarta 2002
PowerPoint	Unit 7I School Server
Websites	www.google.co.uk : Search Energy, fossil fuels, renewable energy resources, conserving energy, energy transfer
Resources	Encarta, PowerPoint files school server
UNIT 7J	ELECTRICAL CIRCUITS
Practical	Use Voltage & Current probes to calculate resistance. Use Current probe and light meter to show how number of batteries (voltage) affects brightness (current)
School Software	Use Encyclopaedia Of Science Crocodile Physics
PowerPoint	Unit 7J School Server
Websites	www.google.co.uk : Search Voltage, current, circuits http://www.bbc.co.uk/schools/ks3bitesize/science/physics/
Resources	Voltage , Current Sensors, Crocodile Physics, PowerPoint files school server
UNIT 7K	FORCES & THEIR EFFECTS
Practical	Demo Use light gates to measure gravity
School Software	Use Encyclopaedia Of Science Crocodile Physics

PowerPoint	Unit 7K School Server
Websites	www.google.co.uk : Search force, density, displacement, weight, gravity
Resources	Light gate, PowerPoint files school server
UNIT 7L	THE SOLAR SYSTEM
Practical	
School Software	Use Encyclopedia Of Science Encarta 2002 New Media Software /Physics/ Planet analyser
PowerPoint	Unit 7L School Server
Websites	www.google.co.uk : Search solar system, seasonal changes, eclipse
Resources	New Media Software, PowerPoint files school server
UNIT 8A	FOOD & DIGESTION
Practical	Use Light Sensor to show rate of enzyme action Use amylase on starch iodine solution. Colour changes from blue black to clear. (See rogerfrost.com)
School Software	Use Encyclopedia Of Science New Media / Biology / Diet Analyzer
PowerPoint	Unit 8A School Server
Websites	www.google.co.uk : Search Vitamins & Minerals, Carbohydrates, Proteins , fats , energy, digestion, enzymes http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	New Media Software, PowerPoint files school server
UNIT 8B	RESPIRATION
Practical	Demo 1 Oxygen probe attached to conical flask containing living organisms e.g. snails / woodlice Demo 2 Breathing rate belt attached to pressure sensor Demo 3 Temperature probes in live respiring peas and killed (boiled) peas
School Software	Use Encyclopedia Of Science New Media / Biology / Breathing & respiration New Media / Biology / Alveoli
PowerPoint	Unit 8B School Server
Websites	www.google.co.uk : Search Breathing, respiration, Gas Exchange, lungs, circulatory system, Transport system, smoking http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	Oxygen Probe, Pressure sensor. PowerPoint files on

	school server, New Media Software
UNIT 8C	MICROBES & DISEASE
Practical	Demo 1 Making yoghurt with milk and bio yoghurt Using pH probe measure changes overnight (p8 ICT activities for science) Demo 2 Use Light sensor to monitor growth of microbes (yeast)
School Software	Use Encyclopedia Of Science
PowerPoint	Unit 8C School Server
Websites	www.google.co.uk : Search Bacteria, Viruses, fungi, microbes, micro organisms, immunization, antibodies, antibiotics,
Resources	Light sensor, pH probe, PowerPoint files school server
UNIT 8D	ECOLOGICAL RELATIONSHIPS
Practical	
School Software	Use Encyclopedia Of Science New Media / Biology / Food webs
PowerPoint	Unit 8D School Server
Websites	www.google.co.uk : Search adaptation, classification, animals, plants, monocotyledons, dicotyledons, environment, fieldwork http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	New Media software, PowerPoint files school server
UNIT 8E	ATOMS & ELEMENTS
Practical	
School Software	Use Encyclopedia Of Science Chemistry Set 2000 New Media / Chemistry / Atom Viewer New Media / Chemistry / Periodic Table New Media / Chemistry / Element Analyzer http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
PowerPoint	Unit 8E School Server
Websites	www.google.co.uk : Search atoms, elements, molecules
Resources	CD Roms, New Media Software, PowerPoint files school server
UNIT 8F	COMPOUNDS & MIXTURES
Practical	Temperature Probe measuring boiling point as salt is added to water Framework science 8 p73
School Software	Use Encyclopedia Of Science Chemistry Set 2000 New Media / Chemistry / Elements, Compounds & Mixtures

	New Media / Chemistry / States Of Matter
PowerPoint	Unit 8F School Server
Websites	www.google.co.uk : Search compound, mixture, melting / boiling point, chemical reaction, product, reactants, formula http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	Temperature probes, New Media Software PowerPoint files school server
UNIT 8G	ROCKS & WEATHERING
Practical	
School Software	Use Encyclopedia Of Science
PowerPoint	Unit 8G School Server
Websites	www.google.co.uk : Search rocks, porous, weathering, transportation, deposition, erosion, sediment, cemented, sedimentary rock, igneous, metamorphic
Resources	PowerPoint files school server
UNIT 8H	THE ROCK CYCLE
Practical	Demo Use Intel Interactive Microscope to view the growth of salol crystals in real-time. The size of crystals can be compared for different temperatures during growth by using a cold and pre-heated slide. View is clearer if a smooth black background is used instead of plain glass
School Software	Use Encyclopedia Of Science
PowerPoint	Unit 8H School Server
Websites	www.google.co.uk : Search sedimentary rock, igneous, metamorphic, rock cycle, limestone, calcium carbonate
Resources	Intel Interactive Microscope, PowerPoint files school server
UNIT 8I	HEATING & COOLING
Practical	<p>Radiation Demo 1 Use Light sensors to investigate the amount of energy reflected from different materials. This can be usefully related to energy transferred</p> <p>Radiation Demo 2 Use temperature probes to investigate a variety of different heat transfer situations. Useful when monitoring the absorption of radiation by different colored surfaces since temperature rise is likely to be small. Use a Leslie Cube (ICT activities for science p39)</p> <p>Demo 3 Cooling Coffee Use two temperature probes dipped in 2 cups of hot water No Stirring! In one cup add an eggcup of milk immediately; add the same amount of milk to the second cup after 5 minutes. Discuss which method keeps the coffee warmest longer</p>

	<p>Insulation Demo 1 Three temperature probes in cups of polystyrene, plastic and plastic with feathers all contain boiling water</p> <p>Insulation Demo 2 Use Temperature probe to see temperature change in a beaker of water, beaker of water wrapped in a wet paper towel, a water beaker wrapped in an alcohol soaked paper towel. Use results to explain endothermic nature of evaporation.</p> <p>Cooling Curve Class experiment Use temperature probes to construct a cooling curve for ice / salol. The quick nature of these experiments allows you to take readings from several materials and compare graphs</p>
School Software	Use Encyclopedia Of Science New Media / Physics / Conducting Heat New Media / Physics / States Of Matter (use model to explain heat transfer in solids, liquids & gases)
PowerPoint	Unit 8I School Server
Websites	www.google.co.uk : Search Temperature, Conduction, convection, radiation, evaporation, infra red radiation, insulation
Resources	Light Sensors, Temperature probes, New Media Software, PowerPoint files school server
UNIT 8J	MAGNETS & ELECTROMAGNETS
Practical	Demo Practical of Electromagnetic Induction Using Voltage sensor, 1200 turn Electromagnet and magnet (See data logging_expr.pdf)
School Software	Use Encyclopedia Of Science
PowerPoint	Unit 8J School Server
Websites	www.google.co.uk : Search Magnets, Electromagnets, shielding, magnetic field, electric bell, relay, solenoid, demagnetize
Resources	Voltage sensor, PowerPoint files school server
UNIT 8K	LIGHT
Practical	Use a light sensor to measure amount of light transmitted when passed through Glass, translucent glass and opaque objects
School Software	Use Encyclopedia Of Science Crocodile Physics New Media Science / Physics / Electromagnetic Spectrum New Media Science / Physics / Mixing Colors
PowerPoint	Unit 8K School Server
Websites	www.google.co.uk : Search reflection, refraction, dispersion, prism, speed of light, rainbow, continuous spectrum,

	primary / secondary colours
Resources	Light sensor, New Media Software PowerPoint files school server
UNIT 8L	SOUND & HEARING
Practical	
School Software	Use Encyclopedia Of Science Crocodile Physics
PowerPoint	Unit 8L School Server
Websites	www.google.co.uk : Search Sound, Oscilloscope, amplitude, frequency, pitch, loudness , speed of sound, eardrum, deafness
Resources	PowerPoint files school server
UNIT 9A	INHERITANCE & SELECTION
Practical	
School Software	Use Encyclopedia Of Science New Media/ Biology/ Inheritance
PowerPoint	Unit 9A School Server
Websites	www.google.co.uk : Search genes, inheritance, variation, natural selection, pollination, asexual reproduction
Resources	New Media Software, PowerPoint files school server
UNIT 9B	FIT & HEALTHY
Practical	Use heart (pulse) probe to monitor how the heart rate changes before, during and after exercise. Graphs can be compared for fit person and an unfit person
School Software	Use Encyclopedia Of Science Ultimate Human Body 2.0 Encarta 2002
PowerPoint	Unit 9B School Server
Websites	www.google.co.uk : Search fitness, pulse rate, respiratory rate, recovery rate, inhalation, exhalation, vital capacity, gas exchange, asthma, smoking, vitamin C, balanced diet, deficiency disease, obesity, anorexia, alcohol, drugs http://www.bbc.co.uk/schools/ks3bitesize/science/biology/index.shtml
Resources	Pulse Sensor, CD roms, PowerPoint files school server
UNIT 9C	PLANTS & PHOTOSYNTHESIS
Practical	Demo 1 Use Light sensor and Oxygen probe in elodea pond weed to measure how oxygen concentration is affected by light intensity. Perform experiment in Dark / Partial Shade and bright light. Calibrate Oxygen probe each time, compare results. Demo 2 Set oxgen probe and light probe to run overnight.

	See how change in light levels effect oxygen production. Link data to eutrophication for more able students
School Software	Use Encyclopedia Of Science New Media/ Biology/ Photosynthesis Encarta 2002
PowerPoint	Unit 9C School Server
Websites	www.google.co.uk : Search Photosynthesis, Leaves, roots, root hairs, leaf structure, chlorophyll, stomata, phloem, xylem, mineral salts
Resources	New Media Software, PowerPoint files school server
UNIT 9D	PLANTS FOR FOOD
Practical	
School Software	Use Encyclopedia Of Science New Media Software/ Biology/ Food webs
PowerPoint	Unit 9D School Server
Websites	www.google.co.uk : Search biomass, pyramids of biomass, food chains / webs, consumers, producers, crop yields, fertilizers, herbicides, insecticides, pesticides, predators, DDT, malaria, toxins
Resources	New Media Software / PowerPoint files school server
UNIT 9E	REACTIONS OF METALS
Practical	DEMO 1 Use pH meter connected to data logger to determine how pH changes during neutralization The readings can be taken manually at intervals of equal volume or the meter can be set up to record continuously while alkali is titrated in at a steady rate. Use of a magnetic stirrer is recommended for second option
School Software	Use Encyclopedia Of Science New Media Software/ Chemistry/ Group 1 New Media Software/ Chemistry/ Periodic Table Chemistry Set 2000
PowerPoint	Unit 9E School Server
Websites	www.google.co.uk : Search Metals, electrolysis, displacement, smelting, reactivity series, metal oxides, metal carbonates, metal salts, pH , neutralization, universal indicator
Resources	New Media Software , cd rom, PowerPoint files school server
UNIT 9F	PATTERNS OF REACTIVITY
Practical	
School Software	Use Encyclopedia Of Science Chemistry Set 2000 New Media Software/ Chemistry/ Group 1 New Media Software/ Chemistry/ Periodic Table
PowerPoint	Unit 9F School Server

Websites	www.google.co.uk : Search reactivity, reactivity series, displacement, corrosion, tarnished, unreactive, metal hydroxide, acidic, alkaline, oxide
Resources	New Media Software , cd rom, PowerPoint files school server
UNIT 9G/H	USING CHEMISTRY
Practical	Class Practical Using Temperature probes measure exothermic reactions with zinc and copper sulphate and endothermic reactions with ammonium chloride and water Class practical Electrical energy Voltage probes in 2 beakers both contain copper sulphate one beaker has Zinc and copper foil the other has Magnesium and copper. Discuss which metal is more reactive
School Software	Use Encyclopaedia Of Science Chemistry Set 2000 Encarta 2002
PowerPoint	Unit 9H School Server
Websites	www.google.co.uk : Search burning, oxides, complete / incomplete combustion, oxidation, electrical energy, endothermic, exothermic reactions, displacement reactions, fractional distillation, polymers, pharmaceuticals, changing state, conservation of mass
Resources	Temperature probes, Voltage probes PowerPoint files school server
UNIT 9I	ENERGY & ELECTRICITY
Practical	Demo Transferring electrical energy to mechanical energy. Use a current sensor and a light gate to see how the number of rotations in a motor makes in 1 second changes as the current changes (Ict activities for science p30) Class Practical Use Voltage & Current sensors to calculate resistance of a bulb (Rogerfrost.com)
School Software	Use Encyclopedia Of Science Crocodile Physics New Media/ Physics/ Electric Generator
PowerPoint	Unit 9I New Media School Server
Websites	www.google.co.uk : Search electricity, ammeter, potential difference, voltage, voltmeter, power station, national grid, kilowatt, generator, wind turbine, energy efficiency http://www.bbc.co.uk/schools/ks3bitesize/science/physics/
Resources	New Media software, Crocodile clips, PowerPoint files school server
UNIT 9J	GRAVITY & SPACE
Practical	Demo Gravity Using two light gates and a card + mass determine whether heavy objects fall faster than light

	objects (lct activities for science p40)se light gates to calculate g
School Software	Use Encyclopedia Of Science Encarta 2002 New Media/ Physics/ Planet Analyser
PowerPoint	Unit 9J School Server
Websites	www.google.co.uk : Search gravity, gravitational field strength. Gravitational force, weight , kilogram, mass, Newton, solar system, Aristotle, , Copernicus, Galileo, satellite, geostationary orbit, Hubble telescope http://www.bbc.co.uk/schools/ks3bitesize/science/physics/
Resources	Light gates, New Media Software, Cd rom, PowerPoint files school server
UNIT 9K	SPEEDING UP
Practical	Demo Use two light gates a trolley with a card and a ramp to measure acceleration. Adjust the ramp to get different readings (lct activities for science p24)
School Software	Use Encyclopedia Of Science New Media Software / Physics/ Terminal Velocity Crocodile Physics
PowerPoint	Unit 9K School Server
Websites	www.google.co.uk : Search acceleration, air resistance, speed, velocity, velocity-time graph http://www.bbc.co.uk/schools/ks3bitesize/science/physics/
Resources	Light gates, Crocodile Physics, PowerPoint files school server
UNIT 9L	PRESSURES & MOMENTS
Practical	Demo Use Pressure Sensor & Temperature probe to examine the effect of temperature rise on pressure. A round bottom flask attached to a pressure sensor can be placed in a beaker of water in which the temperature sensor is placed. The water is heated and both readings are taken. (See lct activities p33 & rogerfrost.com)
School Software	Use Encyclopedia Of Science Crocodile Physics
PowerPoint	Unit 9L School Server
Websites	www.google.co.uk : Search Pressure, atmospheric pressure, Pascal, aerosol, compressed gas, pneumatics, hydraulics, gas / water pressure http://www.bbc.co.uk/schools/ks3bitesize/science/physics/
Resources	Pressure sensor, temperature sensor, PowerPoint files school server