Subject: Science Biology Trilogy

	Half Term 1 Sept-Oct	Half Term 2 Oct-Dec	Half Term 3 Jan-Feb	Half Term 4 Feb-April	Half Term 5 April-May	Half Term 6 May-July
7	**Laboratory safety** - Covering the basics of lab safety and how to operate within the lab setting. Includes health and safety, lab rules and introduction to equipment and simple practicals. **Solids, Liquids and Gasses – *Why does an ice cube disappear on a hot day?*** Introduction to particles and particle diagrams, melting and freezing, making salts, diffusion and gas pressure. **Chemical Reactions – *How can chemical reactions keep you warm?*** Oxidation, Gas tests for Hydrogen, Oxygen and Carbon Dioxide, reactions of metals and nonmetals and exothermic and endothermic reactions	**Reproduction – *How is new life made?*** Reproductive systems, fertilisation and implantation, sexual reproduction, development of the foetus, menstrual cycle, puberty and growth, flowers and pollination **Cells – *What do cells look like under a microscope?*** Microscopes, animal, plant and specialised cells, cell division, unicellular,	**Light - *Why do we see rainbows?*** How light travels, reflection and refraction, colours, transverse waves, EM Spectrum **Energy – *How many energy stores are present during a PE lesson?*** Energy stores and transfers, power, work done, energy resources, temperature and energy, insulation	**Energy Transfer - *Why is it better to be a prey rather than predator?*** Food chains and webs, energy transfer, Predator prey relationships, pyramids of number, pyramids of biomass, bioaccumulation, investigating abundance and distribution of plants and insects and food security **Classification – *Why did giraffes necks get longer?*** Inherited and environmental variation, continuous and discontinuous variation, predicting inheritance, classification of organisms, adaptations, Natural Selection, extinction and conservation	**Space – *Why would your weight change on different planets?*** Mass, weight and gravity, solar system, exploring space, the universe, meteors, days and months, seasons, light years. **Sound – *How can a drummer avoid disturbing their neighbours?*** Sound as waves, transverse vs longitudinal waves, how sound travels, describing sounds, hearing, reflection and absorption of sounds, sound insulation, speed of sound	**Physical Reactions – *How can you separate pen ink to solve a crime?*** Physical properties, physical reactions and atoms, separating mixtures, crystallisation, chromatography, burning candles, **Earth and its atmosphere – *How is our Earth so resourceful?*** Earth structure, type of rock, rock cycle, limestone analysis, atmosphere, carbon cycle
	Skill development: Science skills focus; Hypothesis and Variables. Each unit will have dedicated investigations with these skills as a focus. Mathematics/Science Links: Balancing symbol equations, line graphs, using data in scientific explanations,	Skill Development: Science skills focus; Method and risk assessment. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Mathematics/Science Links: Calculating magnification, converting metric units, line graph	Skill Development: Science skills focus; Tables and Graphs. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Mathematics/Science Links: Tables and graphs, evaluation,	Skill development: Science skills focus; Describe, Explain and Conclude. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Mathematics/Science Links: Graph skills, predicting inheritance (%'s), calculating percentage,	Skill Development: Science skills focus; Evaluation. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Mathematics/Science Links: Calculating speed of sound, calculating gravity, rearranging equations, calculating mean, graph skills, calculating speed of light,	Skill Development: Students wll plan and carry out full investigations in these units, based on skills developed in previous topics throughout the year. Mathematics/Science Links:Interpretation of a pie chart, calculate mean, calculate Rf value of chromatogram,
	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment: End of topic test (/25). The test consists of both topics covered.	Assessment: End of topic test (/25). The test consists of both topics covered.	Assessment: End of topic test (/25). The test consists of both topics covered.	Assessment: End of topic test (/25). The test consists of both topics covered.	Assessment: End of topic test (/25). The test consists of both topics covered.
8	Content: **Respiration – *How does exercise affect the body?*** Aerobic respiration, the heart, heart rate, structure of the lungs, Diffusion of gasses, blood and blood vessels,	Content: **Forces and motion – *Why does a see-saw need two people?*** Measuring forces, Moments, Levers, Speed, distance and time graphs, gravity	Content: **Acids and Alkalis - *Will vinegar treat both a wasp and bee sting?*** Hazards of acids and alkali, indicators, universal indicator, Neutralisation, Neutralisation equations, neutralisation of	Content: **Magnets - *Why is the North pole not actually the North pole?*** Magnetic and non-magnetic, magnetic fields, compasses and magnets, making a magnet, electromagnets, electric bells, motors	Content: **Reactivity series – *How could you make the statue of liberty shiny again?*** Metals in air, metals in water and acid, group 1 metals, displacement,	Content: **Microbes and disease – *Is immunity important for survival?*** Types of pathogen, clean hands, antibiotics, body defences, immune response, vaccinations, heart disease, smoking, drug development.

	Food and Digestion – *Why do we need to digest food?* Food groups, food tests, enzymes, digestive system, Case study: Obesity, deficiency diseases,	**Matter and Pressure – *Why doesn't a beach ball sink in the sea?*** States of matter, density of regular objects, density of irregular objects, ship building, gas pressure, atmospheric pressure, pressure in liquids, stress in solids	carbonates, metals in acid, Acid strength **Elements, compounds and mixtures –*What is everything made from?*** Elements, periodic table, compounds, Naming compounds, making compounds, mixtures, salt and boiling water, chemical formulae	**Circuits – *Why do we get static shocks?*** What is electricity?, series circuits, parallel circuits, potential difference, how does potential difference affect current, resistance, equations, static	Copper cycle, obtaining metals using carbon, obtaining results, catalysts **Combustion - *How are OUR chemical reactions affecting the planet?*** Fire triangle, fire extinguishers burning candles, complete and incomplete combustion, climate change, reducing climate change, thermal decomposition, conservation of mass.	**Plant Growth – *What factors affect plant growth?*** Photosynthesis, leaves, growing cress, testing a leaf for starch, factors affecting photosynthesis, moving water, plant hormones, plant diseases.
	Skill development Science skills focus; Hypothesis and Variables. Each unit will have dedicated investigations with these skills as a focus. Maths/Science Links: Extracting data from external articles, calculating mean, line graph skills, using data, drawing pie charts, use data to explain recovery from exercise, evaluation,	Skill development Science skills focus; Method and risk assessment. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Maths/Science Links: Drawing results table, graph skills, calculating moments, calculating speed, drawing distance time graphs, calculating speed from graph, calculating rate, calculating gravity. calculating and rearranging density equations, converting units, calculating pressure	Skill development Science skills focus; Method and risk assessment. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Maths/Science Links: Results table, drawing graph, rearranging balanced symbol equation,	Skill development Science skills focus; Describe, Explain and Conclude. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Maths/Science Links: Results table for current and potential difference, calculating resistance, rearranging equations, describing a relationship between variables,	Skill development Science skills focus; Evaluation. Each unit will have dedicated investigations with these skills as a focus, whilst also continuing the skills developed in previous topics. Maths/Science Links: Balanced symbol equation, calculate conservation of mass, use data to identify errors in an investigation,	Skill development Students will plan and carry out full investigations in these units, based on skills developed in previous topics throughout the year. Maths/Science Links: calculate area of a circle (zone of inhibition), evaluate evidence, plan a drug trial, results table, drawing graphs.
	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment End of topic test (/25). The test consists of both topics covered.	Assessment End of topic test (/25). The test consists of both topics covered.
9	Content	Content:	Content:	Content:	Content:	Content

	What do cells look like under a microscope? Animal and plant cells Eukaryotic and prokaryotic cells, DNA and the Genome, The Structure of DNA, specialisation in animal cells, the World of Microscopes, Microscope RP ***How does a burger get digested?*** Tissues and organs, the Human Digestive system, the chemistry of food,	***How does a burger get digested?*** Catalysts and enzymes and factors affecting enzyme action How the digestive system works, making digestion efficient, ***How does exercise affect the body?*** The blood, the blood vessels, the heart, helping the heart, breathing and gas exchange, Aerobic respiration	***How does exercise affect the body?*** Response to exercise, anaerobic respiration, metabolism and the liver, ***From seed to tree: How does a plant get bigger?*** Specialisation in plant cells, Photosynthesis, rate of photosynthesis	***From seed to tree: How does a plant get bigger?*** How plants use glucose, making the most of photosynthesis ***How are humans destroying the planet?*** The human population explosion, land and water pollution, air pollution, deforestation and peat destruction, Global warming,	***How are humans destroying the planet?*** The impact of change, materials cycling, the carbon cycle, rates of decomposition ***Why are living things important to their environment?*** The importance of communities, organisms and their environment, distribution and abundance, Competition in animals, competition in plants, Adapt and survive,	***Why are living things important to their environment?*** Adaptations in animals, feeding relationships, predator prey ***How can lifestyle choices cause disease?*** non-communicable disease, Cancer, smoking and the risk of disease Diet, exercise and disease, alcohol and other carcinogens,
	Skill development WS 1.1, 1.2, 2.3, 2.4, 4.4 Maths/Science Links: Decimal Form, Standard Form, Estimates and order of magnitude, solving simple equations, Estimating the result of calculation, mathematical symbol, significant figures, ratios, fractions and percentages,	Skill development: WS 1.3, 1.4, 1.5 Maths/Science Links: Arithmetic Means, collecting data by changing a variable, plotting data, Ratios fractions and percentages, decimal form, Estimating the result of calculation, standard form,	Skill development: W.S 1.4, 1.5, 2.1 Maths/Science Links: Ratios, Fractions and percentages, Collecting data by changing a variable, Frequency tables, bar charts and histograms, Sampling, Scatter diagrams and correlations,	Skill Development: WS 1.4, 1.5, 2.6, 3.1, 3.2 Maths/Science Links: Frequency tables, bar charts and histograms, Sampling, Scatter diagrams and correlations, Collecting data by changing a variable, ratios, fractions and percentages, Shapes and structures, Plotting data	Skill Development: WS 1.2, 2.6 Maths/Science Links: Frequency tables, bar charts and histograms, Collecting data by changing a variable, Arithmetic Means, Averages, Plotting Data, shapes and structure	Skill development: WS 1.2, 1.3, 2.6, Maths/Science Links: Frequency tables, bar charts and histograms, Collecting data by changing a variable, plotting data, Standard form, Shapes and Structures, Ratios, Fractions and Percentages
	Assessment 10 mark assessment covering microscopes and cells	Assessment 25 mark assessment covering Tissue and Organisation	Assessment 25 mark assessment covering blood and the heart	Assessment 10 mark assessment covering Human population	Assessment 10 mark assessment covering biodiversity	Assessment End of year Examination
10	Content ***How is life created?*** Cell Division., Growth and differentiation, Stem cells, stem cell dilemmas, types of reproduction, cell division in sexual reproduction **Where do your characteristics come from?** Inheritance in action, more about genetics, inherited disorders – dominant Inherited disorders - recessive, screening for genetic disorders.	Content: ***Why is Charles Darwin important?*** Variation, evolution by natural selection, examples of evolution. ***Will microbes defeat us?*** Health and disease, pathogens and disease (transmission).	Content: ***Will microbes defeat us?*** Pathogens and disease (bacteria v virus replication), preventing infections, viral diseases, bacterial diseases, diseases caused by fungi and protists, human defence response, vaccination, herd immunity antibiotics and painkillers, discovering drugs, developing drugs	Content: ***Will microbes defeat us?*** Antibiotics and painkillers, discovering drugs, developing drugs ***How does water get to the top of an Oak tree?*** Specialisation in plant cells, tissues and Organs in Plants (linked to diffusion in plants), transport systems in plants Diffusion, osmosis, osmosis in plants, Active transport, exchanging materials	Content: ***How does water get to the top of an Oak tree?*** Osmosis, osmosis in plants, Active transport, exchanging materials Tissues and organs in plants, transport systems in plants, evaporation and transpiration, factors affecting transpiration, adaptations in plants.	Content: ***How can humans save the planet?*** The impact of change, maintaining biodiversity
	Skill development: WS 1.1, 1.2, 1.4, 2.2	Skill development: WS 1.4, 1.6, 2.3, 2.4	Skill development: WS 1.4, 2.3, 2.6	Skill development: WS 1.2, 1.5, 2.4, 2.6, 2.7	Skill development: WS 1.1, 1.2, 1.4, 1.5	Skill development: WS 1.1,1.2, 1.3, 1.6, 2.1, 4.1

	Maths/Science Links: Maths/Science Links: Frequency tables, bar charts and histograms, Sampling, Scatter Diagrams and correlations, Collecting data by changing a variable, Estimates and order of magnitude	Maths/Science Links: Arithmetic Means	Maths/Science Links: Decimal form, Ratios, fractions and percentages, Frequency tables, bar charts and histograms, Mathematical symbols, Solving simple equations, Collecting data by changing a variable, plotting data	Maths/Science Links: Ratios, Fractions and percentages, Shapes and structure	Maths/Science Links: Significant figures, Sampling, Shapes and structures, Arithmetic means, Decimal form, Ratios, fractions and percentages, collecting data by changing a variable, plotting data, Probability, Estimates and order of magnitude,, Frequency tables, bar charts and histograms, mathematical symbols,	Maths/Science Links: Collecting data by changing a variable, scatter diagrams,
	Assessment 10 mark assessment covering Health and disease	Assessment 25 mark assessment covering Infection and Response	Assessment 25 mark assessment covering Photosynthesis and Aerobic respiration	Assessment 10 mark assessment covering homeostasis	Assessment 25 mark assessment covering homeostasis	Assessment End of year examination
11	Theoretical Content: **How are gene technologies useful?** Selective breeding, Genetic Engineering, Ethics of gene technologies, **How could Darwin have proved his theory?** Evidence for evolution, Fossils and extinction, More about extinction, Antibiotic resistant bacteria, Classification, New systems of classification, **Can we speed up reaction time?** Principles of homeostasis, Structure and function of nervous system,	Theoretical Content: **Can we speed up reaction time?** Reflex Actions **How do chemicals control us?** Principles of hormonal control, Control of blood glucose levels, Treating diabetes, The role of negative feedback (H), Human Reproductive, Hormones and the menstrual cycle (H), The artificial control of fertility, Infertility treatments (H)	Theoretical Content: **How do chemicals control us?** The role of negative feedback (H) Human Reproductive Hormones and the menstrual cycle (H)	Theoretical Content:	Theoretical Content:	Theoretical Content:
	Skill development WS 1.1, 1.2, 2.3, 2.4, 1.3 Maths/Science Links: Standard form, Estimating the result of calculation, Collecting data by changing a variable, significant figures, Arithmetic Means, Frequency tables, bar charts and histograms	Skill development WS 1.3, 1.4, 3.1, 3.3, 3.5 Maths/Science Links: Estimating the results of calculation, Frequency tables, bar charts and histograms, Determining the gradient of a graph	Skill development Maths/Science Links:	Skill development Maths/Science Links:	Skill development Maths/Science Links:	Skill development Maths/Science Links:
	Assessment: 10 mark assessment	Assessment: November PPE	Assessment: 10 mark assessment Feb PPE	Assessment:	Assessment:	Assessment:

12	Theoretical Content **Teacher A - Biological Molecules** Monomers and polymers, Carbohydrates, lipids, proteins, enzymes **Teacher B - Cells** Structure of eukaryotic cells, Structure of prokaryotic cells and viruses, methods of studying cells	Theoretical content: **Teacher A - Biological Molecules** Structure of DNA and RNA, DNA Replication, ATP, Water, Inorganic Ions, **Teacher B - Cells** All cells arise from other cells, Transport across cell membranes, cell recognition and the immune system	Theoretical Content: **Teacher A - Genetic information, variation and relationships between organisms** DNA, genes and chromosomes, DNA and protein synthesis, Genetic diversity can arise as a result of mutation or during meiosis, genetic diversity and adaptation **Teacher B - Organisms exchange substances with their environment** Surface area to volume ratio, gas exchange, Digestion and absorption	Theoretical content: **Teacher A - Genetic information, variation and relationships between organisms** Species and taxonomy, biodiversity within a community, investigating diversity **Teacher B - Organisms exchange substances with their environment** Mass transport in animals, mass transport in plants,	Theoretical content: **Teacher A - Energy transfers in and between organisms (A Level)** Energy and ecosystems, nutrient cycles **Teacher B - Organisms exchange substances with their environment (A Level)** Mass transport in animals, mass transport in plants,	Theoretical content: **Teacher A - Fieldwork** Preparation for field work **Teacher B - Revision from content of teacher A and B**
	Skill development: AT f, g, c, d, e Maths/Science Links: Use calculators to find and use power, exponential and logarithmic functions, Make order of magnitude calculations	Skill development AT d,e Maths/Science Links: Use ratios, fractions and percentages, Make order of magnitude calculations, Plot two variables from experimental or other data, Determine the intercept of a graph	Skill development AT j, d, b, d, i Maths/Science Links: Calculate the circumferences, surface areas and volumes of regular shapes, Change the subject of an equation, Use calculators to find and use power, exponential and logarithmic functions, Use logarithms in relation to quantities that range over several orders of magnitude	Skill development AT h, j, b, k Maths/Science Links: Substitute numerical values into algebraic equations using appropriate units for physical quantities Change the subject of an equation, Find arithmetic means, Understand measures of dispersion, including standard deviation and range	Skill development AT a Maths/Science Links: Recognise and make use of appropriate units in calculations, Solve algebraic equations, Use ratios, fractions and percentages	Skill development Maths/Science Links:
	Assessment Required Practical 1 - Investigation into the effect of a named variable on the rate of an enzyme-controlled reaction. Suitability test Teacher B assessment	Assessment Required practical 2: Preparation of stained squashes of cells from plant root tips; set-up and use of an optical microscope to identify the stages of mitosis in these stained squashes and calculation of a mitotic index Required practical 3: Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue. Required practical 4: Investigation into the effect of a named variable on the permeability of cell-surface membranes. 2 x Teacher A assessments 2 x teacher B assessments	Assessment: Required practical 6: Use of aseptic techniques to investigate the effect of antimicrobial substances on microbial growth. Jan PPE 1 x Teacher A assessments 1 x teacher B assessments	Assessment: Required practical 5: Dissection of animal or plant gas exchange system or mass transport system or of organ within such a system. 2 x Teacher A assessments 2 x teacher B assessments	Assessment: 2 x Teacher A assessments 2 x teacher B assessments	Assessment Required practical 12: Investigation into the effect of a named environmental factor on the distribution of a given species. End of year 12 PPE
13	Theoretical Content	Theoretical Content:	Theoretical Content:	Theoretical Content:	Theoretical Content:	

	Teacher A - Energy transfers in and between organisms Photosynthesis, respiration **Teacher B - Organisms respond to changes in their internal and external environment** Survival and response, control of heart rate, nerve impulses, synaptic transmission,	**Teacher A - Energy transfers in and between organisms** Photosynthesis, respiration **Teacher B - Organisms respond to changes in their internal and external environment** Receptors, Skeletal muscles are stimulated to contract by nerves and act as effectors, principles of homeostasis and negative feedback, control of blood glucose concentration, control of blood water potential	**Teacher A - The Control of gene expression** Alteration of the sequence of bases in DNA can alter the structure of proteins, Most of a cell's DNA is not translated, regulation of transcription and translation, gene expression and cancer, Using genome projects **Teacher B - Genetics, populations, evolution and ecosystems** Inheritance, populations	**Teacher A - The Control of gene expression** Recombinant DNA technology, differences in DNA between individuals of the same species can be exploited for identification and diagnosis or heritable conditions, genetic fingerprinting **Teacher B - Genetics, populations, evolution and ecosystems** Evolution may lead to speciation, populations in ecosystems	**Teacher A - Revision** **Teacher B - Revision**	
	Skill development AT a, g, b, i, h Maths/Science Links: Change the subject of an equation, Recognise and use expressions in decimal and standard form	Skill development AT b, c, h, d Maths/Science Links: Change the subject of an equation, Recognise and use expressions in decimal and standard form	Skill development AT h, k, i, Maths/Science Links: Use ratios, fractions and percentages, Understand simple probability, Select and use a statistical test, Solve algebraic equations	Skill development AT l, k , h, i, g Maths/Science Links: Understand the principles of sampling as applied to scientific data, Use logarithms in relation to quantities that range over several orders of magnitude	Skill development Maths/Science Links:	
	Assessment Required practical 7: Use of chromatography to investigate the pigments isolated from leaves of different plants, eg, leaves from shade-tolerant and shade-intolerant plants or leaves of different colours. Required practical 8: Investigation into the effect of a named factor on the rate of dehydrogenase activity in extracts of chloroplasts. Required practical 10: Investigation into the effect of an environmental variable on the movement of an animal using either a choice chamber or a maze. Entry exam 1 x Teacher A assessments 1 x teacher B assessments	Assessment: Required practical 11: Production of a dilution series of a glucose solution and use of colorimetric techniques to produce a calibration curve with which to identify the concentration of glucose in an unknown 'urine' sample. Required practical 9: Investigation into the effect of a named variable on the rate of respiration of cultures of single-celled organisms. 2 x Teacher A assessments 2 x teacher B assessments	Assessment Jan PPE 1 x Teacher A assessments 1 x teacher B assessments	Assessment 2 x Teacher A assessments 2 x teacher B assessments	Assessment Summer external exams	

KS4 - Scientific Skills - Working Scientifically

1 Development of scientific thinking		2 Experimental skills and strategies		3 Analysis and evaluation		4 Scientific vocabulary, quantities, units, symbols and nomenclature	
WS 1.1	Understand how scientific methods and theories develop over time.	WS 2.1	Use scientific theories and explanations to develop hypotheses.	WS 3.1	Presenting observations and other data using appropriate methods.	WS 4.1	Use scientific vocabulary, terminology and definitions.
WS1.2	Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts.	WS 2.2	Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena.	WS 3.2	Translating data from one form to another.	WS 4.2	Recognise the importance of scientific quantities and understand how they are determined.
WS 1.3	Appreciate the power and limitations of science and consider any ethical issues which may arise.	WS 2.3	Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment.	WS 3.3	Carrying out and represent mathematical and statistical analysis.	WS 4.3	Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate.
WS 1.4	Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.	WS 2.4	Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations.	WS 3.4	Representing distributions of results and making estimations of uncertainty.	WS 4.4	Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano).
WS 1.5	Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.	WS 2.5	Recognise when to apply a knowledge of sampling techniques to ensure any samples collected are representative.	WS 3.5	Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions.		
WS 1.6	Recognise the importance of peer review of results and of communicating results to a range of audiences.	WS 2.6	Make and record observations and measurements using a range of apparatus and methods.	WS 3.6	Presenting reasoned explanations including relating data to hypotheses.		
		WS 2.7	Evaluate methods and suggest possible improvements and further investigations.	WS 3.7	Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error.		
				WS 3.8	Communicating the scientific rationale for investigations, methods used, findings and reasoned conclusions through paper-based and electronic reports and presentations using verbal, diagrammatic, graphical, numerical and symbolic forms.		

KS5 - Scientific Skills

Code	Apparatus and Techniques
AT a	use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH)
AT b	use appropriate instrumentation to record quantitative measurements, such as a colorimeter or potometer
AT c	use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions
AT d	use of light microscope at high power and low power, including use of a graticule
AT e	produce scientific drawing from observation with annotations
AT f	use qualitative reagents to identify biological molecules
AT g	separate biological compounds using thin layer/paper chromatography or electrophoresis
AT h	safely and ethically use organisms to measure: plant or animal responses and physiological functions
AT i	use microbiological aseptic techniques, including the use of agar plates and broth
AT j	safely use instruments for dissection of an animal organ, or plant organ
AT k	use sampling techniques in fieldwork
AT l	use ICT such as computer modelling, or data logger to collect data, or use software to process data