

SATIS REVISITED

GCSE Specs

- AQA 1206A
- Edexcel 360Science
- OCR 1206
- AQA 1214

AQA 1206A	
Specific Reference & Topic	Specific Learning Object
Biology 1a: Human Biology 11.1 How do human bodies respond to changes inside them and to their environment?	To evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including IVF.
Biology 1a: Human Biology 11.1 How do human bodies respond to changes inside them and to their environment?	To evaluate the claims of manufacturers about sports drinks.
Biology 1a: Human Biology 11.2 What can we do to keep our bodies healthy?	To evaluate information about effect of food on health.
Biology 1a: Human Biology 11.2 What can we do to keep our bodies healthy?	To evaluate claims made by slimming programmes.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the effect of statins on cardiovascular disease.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the different types of drugs and why some people use illegal drugs for recreation.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate claims made about the effect of cannabis on health and the link between cannabis and addiction to hard drugs.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To explain how the link between smoking tobacco and lung cancer gradually became accepted.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the different ways of trying to stop smoking.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To relate the contribution of Semmelwess in controlling infection to the solving of the modern problem of the spread of infection in hospitals.
Biology 1a: Human Biology	To evaluate the advantages and disadvantages of being

11.4 What causes infectious diseases and how can our bodies defend themselves against them?	vaccinated against a particular disease.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To explain how the treatment of disease has changed as a result of increased understanding of the action of antibodies and immunity.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To evaluate the consequence of mutations of bacteria and viruses in relation to epidemics and pandemics, e.g. bird influenza.
Biology 1b: Evolution and Environment 11.5 What determines where particular species live and how many of them are there?	To suggest how organisms adapt to the conditions in which they live.
Biology 1b: Evolution and Environment 11.5 What determines where particular species live and how many of them are there?	To suggest the factors for which organisms are competing in a given habitat.
Biology 1b: Evolution and Environment 11.5 What determines where particular species live and how many of them are there?	To suggest reasons for the distribution of animals or plants in a particular habitat.
Biology 1b: Evolution and Environment 11.6 Why are individuals of the same species different from each other? What new methods do we have for producing plants and animals with the characteristics we prefer?	To interpret information about cloning techniques and genetic engineering techniques.
Biology 1b: Evolution and Environment 11.6 Why are individuals of the same species different from each other? What new methods do we have for producing plants and animals with the characteristics we prefer?	To make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons why scientists cannot be certain about how life began on Earth.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To interpret evidence relating to evolutionary theory.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons why Darwin's theory of natural selection was only gradually accepted.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants	To identify the differences between Darwin's theory of evolution and conflicting theories.

and animals died out? How do new species of plants and animals develop?	
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons for the different theories.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To analyse and interpret scientific data concerning environmental issues.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To weigh evidence and form balanced judgements about some of the major environmental issues facing society, including the importance of sustainable development.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To evaluate methods used to collect environmental data and consider their ability and reliability as evidence for environmental change.
Chemistry 1a: Products from Rocks 12.1 How do rocks provide building materials?	To consider and evaluate the environmental, social and economic effects of exploiting limestone and producing building materials from it.
Chemistry 1a: Products from Rocks 12.1 How do rocks provide building materials?	To evaluate the developments in using limestone, cement, concrete and glass as building materials, and their advantages and disadvantages over other materials.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To consider and evaluate the social, economic and environmental impacts of exploiting metal ores, of using metals and of recycling metals.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To evaluate the benefits, drawbacks and risks of using metals as structural materials and as smart materials.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To explain how the properties of alloys (but not smart alloys) are related to models of their structures.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To evaluate the impact on the environment of burning hydrocarbon fuels.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To consider and evaluate the social, economic and environmental impacts of the uses of fuels.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To evaluate developments in the production and uses of better fuels, e.g. ethanol, hydrogen.
Chemistry 1b: Oils, Earth and Atmosphere 12.4 How are polymers and ethanol made from oil?	To evaluate the social and economic advantages and disadvantages of using products from crude oil as fuels or as raw materials for plastic and other chemicals.
Chemistry 1b: Oils, Earth and Atmosphere	To evaluate the social, economic and environmental impacts of the uses, disposal and recycling of polymers.

12.4 How are polymers and ethanol made from oil?	
Chemistry 1b: Oils, Earth and Atmosphere 12.4 How are polymers and ethanol made from oil?	To evaluate the advantages and disadvantages of making ethanol from renewable and non-renewable sources.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the effects of using vegetable oils in foods and the impacts on diet and health.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the benefits, drawbacks and risks of using vegetable oils to produce fuels.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the use, benefits, drawbacks and risks of ingredients and additives in foods.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain why the theory of crustal movement (continental drift) was not generally accepted for many years after it was proposed.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain why scientists cannot accurately predict when earthquakes and volcanic eruptions will occur.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain and evaluate theories of the changes that have occurred and are occurring in the Earth's atmosphere.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain and evaluate the effects of human activities on the atmosphere.
Physics 1a: Energy and Electricity 13.1 How is heat (thermal energy) transferred and what factors affect the rate at which heat is transferred?	To evaluate ways in which heat is transferred in and out of bodies and ways in which the rates of these transfers can be reduced.
Physics 1a: Energy and Electricity 13.2 What is meant by the efficient use of energy?	To describe the intended energy transfers/transformations and the main energy wastages that occur with a range of devices.
Physics 1a: Energy and Electricity 13.2 What is meant by the efficient use of energy?	To evaluate the effectiveness and cost-effectiveness of methods used to reduce energy consumption.
Physics 1a: Energy and Electricity 13.3 Why are electrical devices so useful?	To compare and contrast the particular advantages and disadvantages of using different electrical devices for a particular application.
Physics 1a: Energy and Electricity 13.4 How should we generate the electricity we need?	To compare and contrast the particular advantages and disadvantages of using different energy sources to generate electricity.

Physics 1b: Radiation and the Universe 13.6 What are the uses and dangers of emissions from radioactive substances?	To evaluate the appropriateness of radioactive sources for particular uses, including as tracers, in terms of the type(s) of radiation emitted and their half-lives.
Physics 1b: Radiation and the Universe 13.7 What do we know about the origins of the Universe and how it continues to change?	To compare and contrast the particular advantages and disadvantages of using different types of telescope on Earth and in space to make observations on, and deductions about, the universe.

Edexcel 360Science	
Specific Reference & Topic	Specific Learning Object
B1 a: Topic 1 – Environment	Use secondary data to explain how human activity can affect the environment, especially changes in population size and in economic and industrial conditions.
B1 a: Topic 1 – Environment	Demonstrate an understanding of how computer models can be used to study populations, and show an awareness of the advantages and disadvantages of these models compared with real data.
B1 a: Topic 1 – Environment	Compare natural selection, select breeding and genetic engineering in terms of changing the characteristics of a species.
B1 a: Topic 1 – Environment	Discuss why Charles Darwin experienced difficulty in getting his theory of evolution through natural selection accepted by the scientific community in the 19 th century.
B1 a: Topic 1 – Environment	Discuss the ethics and principles of organic farming and explain why organic products are more expensive than non-organic produce.
B1 a: Topic 1 – Environment	Understand that crop plants can be genetically modified and the reasons for doing so.
B1 a: Topic 2 – Genes	Describe some of the implications of the outcome of the Human Genome Project to include the use of DNA evidence in forensic science and medicine.
B1 a: Topic 2 – Genes	Discuss how the lives of two people, one suffering from cystic fibrosis and the other from breast cancer, would change if these diseases could be treated genetically.
B1 a: Topic 2 – Genes	Evaluate the potential for using transgenic animals, including the production of 'designer milk', e.g. milk containing human antibodies, low cholesterol milk.
B1 a: Topic 2 – Genes	Describe the social and ethical concerns of cloning mammals, including the possibility of the cloning of human body parts for transplant surgery.
B1 a: Topic 2 – Genes	Consider the contemporary scientific theory of 'designer babies' and explain why today's scientists are finding so much opposition to this being publicly accepted.
B1 b: Topic 3 – Electrical and Chemical	Explain how manufactured sex hormones can be used

Signals	for contraception and to treat infertility in women.
B1 b: Topic 3 – Electrical and Chemical Signals	Discuss the social and ethical implications of IVF treatment, including its use in mature clients.
B1 b: Topic 3 – Electrical and Chemical Signals	Explain the advantages to people with diabetes of the use of human insulin produced by genetically modified bacteria.
B1 b: Topic 4 – Use, Misuse and Abuse	Explain the effects on nerve transmission or reaction times of: <ul style="list-style-type: none"> • stimulants, including caffeine • sedatives, including barbiturates • painkillers, including paracetamol.
B1 b: Topic 4 – Use, Misuse and Abuse	Discuss the use of opiates and cannabinoids in pain relief for terminally ill patients, and the dangers of addiction.
B1 b: Topic 4 – Use, Misuse and Abuse	Describe the uses of paracetamol and the dangers of overdose.
B1 b: Topic 4 – Use, Misuse and Abuse	Discuss why medical opinion on the use of cannabis for pain relief has fluctuated over the years.
B1 b: Topic 4 – Use, Misuse and Abuse	Describe, using secondary data, the prevention and control (drug therapy) of TB including the emergence of drug-resistant TB, financing, supply of drugs and treatment regimes. Interpret data on the number of cases of TB in the UK over a period of time.
B1 b: Topic 4 – Use, Misuse and Abuse	Explore secondary sources of data about the main physical and mental effects of the misuse of drugs and present the data in different ways to different audiences using ICT.
B1 b: Topic 4 – Use, Misuse and Abuse	Use secondary data to explore the costs of developing new drugs.
C1 a: Topic 5 – Patterns in Properties	Understand that the periodic table is an example of how a scientific theory can predict the discovery of new elements.
C1 a: Topic 5 – Patterns in Properties	Use secondary data to explore how the periodic table was devised, with reference to atomic number.
C1 a: Topic 6 – Making Changes	Discuss the differences between 'natural' and 'artificial' substances, including whether they can be distinguished or are chemically different, and any impacts on health.
C1 a: Topic 6 – Making Changes	Interpret data linking a chemical in food with a health impact, recognising that a correlation does not imply a cause.
C1 b: Topic 7 – There's One Earth	Discuss how the idea of global warming went from a single scientist's idea to a widely accepted theory.
C1 b: Topic 7 – There's One Earth	Recognise that predictions about the amount of warming of the Earth are based on computer models, which carry uncertainties.
C1 b: Topic 7 – There's One Earth	Propose an argument, based on the precautionary

	principle, for how to combat global warming.
C1 b: Topic 7 – There's One Earth	Explain the importance of recycling waste products such as glass, metal and papers.
C1 b: Topic 7 – There's One Earth	Evaluate a range of economic, environmental considerations, of recycling and natural materials, such as glass, metal, or the desalinisation of water in hot countries.
C1 b: Topic 7 – There's One Earth	Explore how sustainable development involves balancing the need for economic development, standards of living, and respect for the environment.
C1 b: Topic 7 – There's One Earth	Explain why biofuels are sometimes an attractive alternative to fossil fuels.
C1 b: Topic 7 – There's One Earth	Discuss the benefits and drawbacks of switching cars from petrol to hydrogen fuel.
C1 b: Topic 7 – There's One Earth	Interpret and evaluate given data relating respiratory diseases such as asthma to atmospheric pollutants.
C1 b: Topic 8 – Designer Products	Explore how scientists sometimes create new materials with novel properties, such as Teflon™ and the adhesives on 'Post-it' notes, where the applications only emerge afterwards.
C1 b: Topic 8 – Designer Products	Explore the risks and uncertainties of nano-technologies, and how they are presented in the media.
C1 b: Topic 8 – Designer Products	Discuss the social issues and possible harmful effects of ethanol in alcoholic drinks.
C1 b: Topic 8 – Designer Products	Design a list of properties for a product, based on its end use.
P1 a: Topic 9 – Producing and Measuring Electricity	Investigate practically or otherwise the voltage and current output, and advantages/disadvantages of battery technology (dry cell or rechargeable), including considerations of their cost/performance and impact on the environment.
P1 a: Topic 9 – Producing and Measuring Electricity	Discuss the impact the electric telephone and electricity has had on making the modern world.
P1 a: Topic 9 – Producing and Measuring Electricity	Explore how a new technology, such as Maglev trains, develops as a result of scientific advances, such as the discovery of superconductivity.
P1 a: Topic 9 – Producing and Measuring Electricity	Use data relating the size of electric circuits to the processing speed of computers and suggest future applications.
P1 a: Topic 9 – Producing and Measuring Electricity	Demonstrate an understanding of how ICT can be used to collect and display data from electric circuits for analysis, and compare this with traditional methods in terms of reliability and validity of data.
P1 a: Topic 10 – You're in Charge	Evaluate whether renewable energies such as solar power and wind power can meet the UK's future electricity needs, and evaluate their economic, environmental and social impact.
P1 a: Topic 10 – You're in Charge	Consider the benefits and drawbacks when deciding

	about implementing technology, such as a new national grid for distribution of electricity.
P1 a: Topic 10 – You're in Charge	Explore how scientific ideas change over time in the context of the medical uses of electricity, real and imagined.
P1 a: Topic 10 – You're in Charge	Interpret data about the efficiency of solar cells and suggest why they are not yet in widespread use.
P1 a: Topic 10 – You're in Charge	Plan a way to test whether an energy efficiency measure, such as insulating a home, is cost-effective.
P1 b: Topic 11 – Now You See it, Now You Don't	Discuss the evidence that microwave radiation from mobile phones or masts poses health risks, and how this has been reported in the media.
P1 b: Topic 11 – Now You See it, Now You Don't	Discuss the benefits and drawbacks to society of a technology that is based on the properties of waves.
P1 b: Topic 11 – Now You See it, Now You Don't	Suggest reasons why scientists find it difficult to predict earthquakes and tsunami waves, given appropriate data.
P1 b: Topic 11 – Now You See it, Now You Don't	Use data about seismic waves passing through the Earth to draw conclusions about the types of materials that are found in the planet's interior.
P1 b: Topic 12 – Space and its Mysteries	Discuss the possible social and economic benefits of knowledge about the universe and the technological advances that might accrue from its exploration.
P1 b: Topic 12 – Space and its Mysteries	Discuss the risks of a global catastrophe such as a comet hitting the Earth, taking into account the consequences, the chance of it occurring and any uncertainties.
P1 b: Topic 12 – Space and its Mysteries	Show an understanding of how data-logging and remote sensing can provide information about the universe without us travelling there.
P1 b: Topic 12 – Space and its Mysteries	Discuss and develop arguments for and against the idea that intelligent life exists elsewhere in the galaxy, using scientific evidence, and propose ways to find such life.
P1 b: Topic 12 – Space and its Mysteries	Be able to recognise that there are scientific questions that remain unanswered, such as the existence of extraterrestrial life and the nature of 'dark matter' that makes up much of the universe's mass.
P1 b: Topic 12 – Space and its Mysteries	Describe the origin, current state and fate of the universe using the main theories (Big Bang, oscillating and steady state), and explain the supporting evidence for these theories, including microwaves and red shift.
B2: Topic 1 – Inside Living Cells	Explain that micro-organisms use an external food source to obtain energy, changing some substances in the medium, and recall that this process is fermentation.
B2: Topic 1 – Inside Living Cells	Explain the advantages of using micro-organisms for food production.
B2: Topic 1 – Inside Living Cells	Discuss why official advice on diet and exercise change over time and consider the scientific basis of current

	fashionable diets and advice.
B2: Topic 2 – Divide and Develop	Explore the scientific evidence for the potential of stem cell research.
B2: Topic 2 – Divide and Develop	Explore the scientific evidence that contributes to the decision regarding the legality and age of termination of a foetus.
B2: Topic 2 – Divide and Develop	Interpret data on how environmental factors affect the distribution of plants.
B2: Topic 2 – Divide and Develop	Discuss fruit initiation in plants and how it can be manipulated with artificial hormones.
B2: Topic 2 – Divide and Develop	Explore the evidence that selective breeding (artificial selection) can be used to: <ul style="list-style-type: none"> • improve the quality of milk from cattle • increase the number of offspring in sheep • increase the yield from dwarf wheat.
B2: Topic 2 – Divide and Develop	Describe the stages in the production of cloned mammals, including Dolly the sheep: the introduction of a diploid nucleus from a mature cell into an egg cell and stimulation of the diploid nucleus to divide. Discuss the risks associated with later embryonic development.
B2: Topic 2 – Divide and Develop	Discuss the potential benefits and ethical dilemmas posed by advances in genetic modification.
B2: Topic 2 – Divide and Develop	Explain the potential of gene therapy for the relief of symptoms of inherited diseases such as cancer.
B2: Topic 2 – Divide and Develop	Discuss the ethics and health concerns of using growth factors to enhance performance in sport.
B2: Topic 3 – Energy Flow	Explore human exploitation of plants, including their use as a food source.
B2: Topic 3 – Energy Flow	Explore the evidence that a biosphere could be used to colonise Mars.
B2: Topic 3 – Energy Flow	Describe how the indiscriminate use of nitrogenous fertilisers led to environmental damage.
B2: Topic 3 – Energy Flow	Human populations are increasing. Describe how they are using resources unsustainably, e.g. deforestation, which sometimes leads to massive environmental change.
B2: Topic 3 – Energy Flow	Describe how environmental changes, such as global warming, are threatening human life on the planet as we know it.
B2: Topic 3 – Energy Flow	Discuss the social and ethical considerations of the unequal distribution of food.
B2: Topic 3 – Energy Flow	Explain how energy transfer can be maximised in food production using the examples of fish farms and greenhouses.
B2: Topic 3 – Energy Flow	Discuss the ways in which food production can be maximised by the use of optimum feeding/growing conditions, and disease and predator control using the

	examples of fish farms and greenhouses.
B2: Topic 3 – Energy Flow	Demonstrate an understanding of how secondary sources of data about global warming can be collected from the internet and briefly summarise the data using ICT.
B2: Topic 4 – Interdependence	Use primary and secondary data to consider how human activity, including differing economical and industrial conditions, can affect the environment and cause changes in sizes of population.
B2: Topic 4 – Interdependence	Investigate, using primary and secondary data, the impact of human activity on the environment, including the pollution of air and of water, and the effects of air pollutants (including carbon dioxide, sulphur dioxide and carbon monoxide) and of water pollutants (including sewage, nitrates and phosphates).
B2: Topic 4 – Interdependence	Interpret data on environmental change.
B2: Topic 4 – Interdependence	Explain the importance of protecting natural populations.
B2: Topic 4 – Interdependence	Interpret data to show the impact of human activity on the environment. To include: <ul style="list-style-type: none"> • living indicators, e.g. lichen distribution, incidence of skin cancer • non-living indicators, e.g. global temperature, ozone depletion.
B2: Topic 4 – Interdependence	Explore whether recycling reduces demand for resources and reduces the problem of waste disposal, including paper, plastics and metals.
B2: Topic 4 – Interdependence	Consider conservation management techniques, including reforestation, coppicing, replacement planting and discuss how conservation can lead to greater biodiversity.
C2: Topic 5 – Synthesis	Discuss how modern society depends on oil and predict the consequence when supplies begin to run out.
C2: Topic 5 – Synthesis	Describe how vegetable oil can be hydrogenated to form hydrogenated vegetable oil and what this is used for in the food industry.
C2: Topic 5 – Synthesis	Understand that chemists use information about known reactions to make new chemicals and predict the products of a reaction given the reactants and products of similar reactions.
C2: Topic 5 – Synthesis	Discuss the problems of disposing of some plastics, including non-biodegradability and breakdown to toxic products.
C2: Topic 5 – Synthesis	Discuss the issue of toxicity to humans in how chemists synthesise new substances.
C2: Topic 5 – Synthesis	Use information about a given reaction to predict the new products of a similar reaction.
C2: Topic 6 – In Your Element	Identify an example of creative insight in the history of

	discovery of the elements or periodic table.
C2: Topic 7 – Chemical Structures	Recognise the importance of chance in scientific discoveries such as Buckminster fullerenes.
C2: Topic 7 – Chemical Structures	Describe how ideas, such as the effectiveness of homeopathic medicine, are difficult for scientists to accept when they conflict with established theories.
C2: Topic 7 – Chemical Structures	Demonstrate an understanding of the limitations of representing models of atoms and molecules in two dimensions, and how simulation software can create three dimensional representations to clarify understanding.
C2: Topic 8 – How Fast? How Furious?	Demonstrate an understanding of how data from experiments about rates of reaction can be captured by data-logging, and how the data can be manipulated and displayed for analysis using spreadsheet software.

OCR 1206	
Specific Reference & Topic	Specific Learning Object
B1: Understanding Ourselves B1a: Fit for Life	This item provides the opportunity to collect and analyse scientific data from primary and secondary sources, including the use of ICT sources and tasks when assessing and monitoring fitness. Students can gain the skills of working accurately and safely, individually and with others to collect first-hand data when investigating pulse recovery times.
B1: Understanding Ourselves B1b: What's for Lunch?	This item provides the opportunity to collect and analyse scientific data from primary and secondary sources.
B1: Understanding Ourselves B1b: What's for Lunch?	Use ICT tasks, including video clips, to research countries having food emergencies and people facing starvation.
B1: Understanding Ourselves B1b: What's for Lunch?	Recall that diets in many parts of the world are deficient in protein.
B1: Understanding Ourselves B1b: What's for Lunch?	Describe why a high protein diet is necessary for growing teenagers.
B1: Understanding Ourselves B1b: What's for Lunch?	Interpret simple data on diet.
B1: Understanding Ourselves B1b: What's for Lunch?	Discuss the influences of religion, personal choice (e.g. vegetarians, vegans) and medical reasons (e.g. food allergies) on a person's diet.
B1: Understanding Ourselves B1b: What's for Lunch?	Explain how a desire for perfection, low self-esteem and poor self-image can lead to a poor diet, and the increased risks involved.
B1: Understanding Ourselves B1c: Keeping Healthy	This item provides the opportunity to analyse, interpret, apply and question scientific information and ideas,

	including some questions that science cannot currently answer, in cancer treatment and drug testing. These topics also allow the discussion of the ethical issues raised and develop the skills of scientific argument and presentation of data.
B1: Understanding Ourselves B1c: Keeping Healthy	Chart the immunisation programme recommended for children up to the age of 16.
B1: Understanding Ourselves B1c: Keeping Healthy	Use a world map to plan holidays and estimate the risk of exposure to diseases such as malaria, cholera, hepatitis, polio and typhoid.
B1: Understanding Ourselves B1c: Keeping Healthy	Interpret data on the incidence of disease around the world to show links with climate and socio-economic factors.
B1: Understanding Ourselves B1c: Keeping Healthy	State that new medical treatments/drugs are tested before use.
B1: Understanding Ourselves B1c: Keeping Healthy	Can collect data from various sources for a named disease and identify danger sites on a world map.
B1: Understanding Ourselves B1c: Keeping Healthy	Explain why new treatments are tested using animals, human tissue and computer models, and understand objections to such tests.
B1: Understanding Ourselves B1c: Keeping Healthy	Interpret data on types of cancer and survival/mortality rates.
B1: Understanding Ourselves B1d: Keeping in Touch	Theories and ideas can be tested in the investigation of binocular vision.
B1: Understanding Ourselves B1d: Keeping in Touch	Research allowable reaction times in races.
B1: Understanding Ourselves B1e: Drugs and You	This item provides the opportunity to find out about the use of contemporary scientific and technological developments in the detection and analysis of difference drugs used in sport. Data from secondary sources can be collected and analysed using ICT tools. There is the opportunity to discuss how scientific knowledge and ideas change over time when investigating the link between smoking and lung cancer. Discussion of anti-smoking laws allows the development of an argument using scientific and technical terms.
B1: Understanding Ourselves B1e: Drugs and You	Can collect scientific information from a variety of sources to show the effects of drugs or smoking on the body, and display or present the information.
B1: Understanding Ourselves B1e: Drugs and You	Explain the basis of the legal classification of drugs.
B1: Understanding Ourselves B1e: Drugs and You	Interpret data on the alcohol content (measured in units of alcohol) of difference alcoholic drinks.
B1: Understanding Ourselves B1e: Drugs and You	Discuss the consequences of the legal classification of drugs in the context of both school and national policy.
B1: Understanding Ourselves	Discuss automatic control systems in students' lives,

B1f: Staying in Balance	e.g. central heating, air conditioning, cruise control in cars, incubators.
B1: Understanding Ourselves B1f: Staying in Balance	Discuss the use of thermal blankets after such activities as marathons.
B1: Understanding Ourselves B1f: Staying in Balance	Use ICT to produce a poster warning old people about hypothermia and telling them how to prevent it.
B1: Understanding Ourselves B1g: Gene Control	Recent developments in genetics have contributed to the increasing public interest in science and raised awareness of the issues involved.
B1: Understanding Ourselves B1g: Gene Control	Research the Human Genome Project.
B1: Understanding Ourselves B1g: Gene Control	Research the roles of Watson, Crick and others in increasing our understanding of the structure of DNA.
B1: Understanding Ourselves B1h: Who am I?	Debate the arguments for and against parents knowing a baby's gender before birth.
B1: Understanding Ourselves B1h: Who am I?	Recognise that there is a debate over the relative importance of genetic and environmental factors in determining some human attributes, e.g. intelligence, sporting ability, health.
B1: Understanding Ourselves B1h: Who am I?	Discuss the issues raised by knowledge of inherited 'diseases' in a family.
B2: Understanding our Environment B2a: Ecology in our School Grounds	Use variety of sampling techniques, e.g. pooters, nets, pitfall traps, quadrats, tullgren funnel, belt transects.
B2: Understanding our Environment B2a: Ecology in our School Grounds	Use sensors and data-loggers to collect data such as temperature, light intensity, soil PH; link this with the animals and plants found in different places.
B2: Understanding our Environment B2b: Grouping Organisms	Research the work of John Ray and Carl Linnaeus in developing a modern classification system.
B2: Understanding our Environment B2c: The Food Factory	Research how commercial greenhouses maximise the growth of crops by maximising the rate of photosynthesis.
B2: Understanding our Environment B2d: Compete or Die	Interpret data on the distribution and population size that shows that animals and plants can be affected by competition for limited resources.
B2: Understanding our Environment B2e: Adapt to Fit	Discuss possible climate changes and predict which animals and plants will successfully adapt to survive in the new conditions.
B2: Understanding our Environment B2f: Survival of the Fittest	Research the role of Alfred Russell Wallace in developing the theory of natural selection.
B2: Understanding our Environment B2g: Population out of Control?	Young people are aware of the increasing human population and how this is related to an increase in pollution levels. The use of living and non-living indicators of pollution is considered.
B2: Understanding our Environment B2h: Sustainability	Sustainable development is a term that is becoming more widely used and refers to the economic exploitation of the environment in a way that can be

	maintained without causing permanent damage. We are also conscious of the damage that has already been done and are trying to protect endangered habitats and species. This item develops ideas about our choices and responsibilities with particular reference to whales.
B2: Understanding our Environment B2h: Sustainability	Web search for whale information as an example of an endangered species.
B2: Understanding our Environment B2h: Sustainability	Class discussion on 'Why save the whales?'
B2: Understanding our Environment B2h: Sustainability	'Class discussion on 'Why should we have zoos/marine parks?'
B2: Understanding our Environment B2h: Sustainability	Describe how endangered species can be helped: <ul style="list-style-type: none"> • protecting habitats • legal protection • education programmes • captive breeding programmes • creating artificial ecosystems.
B2: Understanding our Environment B2h: Sustainability	Consider issues arising from keeping whales in captivity for entertainment, research, captive breeding programmes, and their lack of freedom.
B2: Understanding our Environment B2h: Sustainability	Discuss reasons for conservation programmes for: <ul style="list-style-type: none"> • protecting human food supply • ensuring minimal damage to food chains • future identification of plants for medical purposes • cultural aspects.
B2: Understanding our Environment B2h: Sustainability	Discuss the problems of whaling getting international agreement, policing laws and culling for research.
B2: Understanding our Environment B2h: Sustainability	Discuss the importance of population size, waste products and food and energy demands to sustainable development.
B2: Understanding our Environment B2h: Sustainability	Recognise that sustainability requires planning and operation at local, national and international levels.
B2: Understanding our Environment B2h: Sustainability	Describe how sustainable development may protect endangered species.
C1: Carbon Chemistry C1b: Food Additives	This item provides the opportunity to collect and analyse secondary data using ICT tools when researching food additives. Active and intelligent packaging involves finding out about contemporary scientific and technological developments and provides opportunities for interpreting and applying science data.
C1: Carbon Chemistry C1c: Smells	This item provides the opportunity to explore how and why decisions about science and technology are made, including ethical issues on the testing of cosmetics on animals.
C1: Carbon Chemistry	The investigation on nail varnish removal provides the

C1c: Smells	opportunity to collect and analyse primary scientific data, working accurately and safely.
C1: Carbon Chemistry C1c: Smells	Debate: 'Is the testing of cosmetics on animals justified?'
C1: Carbon Chemistry C1c: Smells	Can test whether a substance dissolves in a solvent.
C1: Carbon Chemistry C1c: Smells	Interpret information on the effectiveness of solvents (no recall expected).
C1: Carbon Chemistry C1c: Smells	Explain why new cosmetic products need to be thoroughly tested before they are permitted to be used. Describe one advantage and one disadvantage of testing cosmetics on animals.
C1: Carbon Chemistry C1d: Making Crude Oil Useful	This item provides the opportunity to illustrate the use of ICT in science and technology when researching exploitation and the industrial production of products from crude oil. The discussion about exploitation of oil raises ethical issues and allows consideration of some questions that science cannot currently answer.
C1: Carbon Chemistry C1d: Making Crude Oil Useful	Research the problems of oil exploitation and possible solutions.
C1: Carbon Chemistry C1d: Making Crude Oil Useful	Explain some of the environmental problems involved in the exploitation of crude oil.
C1: Carbon Chemistry C1d: Making Crude Oil Useful	Discuss in simple terms the political problems associated with the exploitation of crude oil.
C1: Carbon Chemistry C1f: Designer polymers	Students may be familiar with the idea that everyday items such as supermarket bags are made from polymers. This item explores why technology moves forward with the development of materials, focusing on the very wide range of uses that polymers have, including health care, in the 21 st century. Issues of disposal of polymers are also considered.
C1: Carbon Chemistry C1f: Designer polymers	Activity interpreting information and researching personal interests in the context of why technology moves forward with the development of materials precisely matched to need (using a variety of contexts to capture different interests, e.g. CDs, sports equipment, health contexts etc).
C1: Carbon Chemistry C1f: Designer polymers	Data search about waterproof clothing, i.e. using appropriate ICT.
C1: Carbon Chemistry C1f: Designer polymers	Explain why the discovery of Gore-Tex® type materials has been of great help to active outdoor people to cope with perspiration wetness.
C1: Carbon Chemistry C1f: Designer polymers	Explain why chemists are developing additional polymers that are biodegradable. Explain some of the environmental and economic issues related to the use of polymers.
C1: Carbon Chemistry	Look at the products of complete and incomplete

C1g: Using carbon fuels	combustion by experiment and/or data search.
C1: Carbon Chemistry C1g: Using carbon fuels	Interpret data about fuels in order to choose the best fuel for a particular purpose (no recall expected).
C2: Rocks and Metals C2a: Paints and Pigments	Data search, using the internet, about paints and the ingredients in paints.
C2: Rocks and Metals C2a: Paints and Pigments	Survey some advertisement leaflets about different types of paints.
C2: Rocks and Metals C2a: Paints and Pigments	Historical survey into the history of dyeing fabrics.
C2: Rocks and Metals C2a: Paints and Pigments	Investigating thermochromic pigments using material, e.g. material from Middlesex University Teaching Resources.
C2: Rocks and Metals C2a: Paints and Pigments	Investigating phosphorescent pigments using material, e.g. material from Middlesex University Teaching Resources.
C2: Rocks and Metals C2a: Paints and Pigments	Apply data search to show ingredients of paint: solvent, binding medium and pigment.
C2: Rocks and Metals C2a: Paints and Pigments	Interpret the uses and properties of different paints given relevant information.
C2: Rocks and Metals C2b: Construction materials	Data search about construction materials and their sources.
C2: Rocks and Metals C2c: Does the Earth Move?	Create a model of the Earth's structure.
C2: Rocks and Metals C2c: Does the Earth Move?	Use ICT and/or other material to construct a map of where volcanoes and earthquakes occur on the Earth's surface.
C2: Rocks and Metals C2c: Does the Earth Move?	Model a volcano using the candle wax experiment http://www.jesei.org
C2: Rocks and Metals C2c: Does the Earth Move?	Look at examples of people who live near volcanoes and those who choose to study them.
C2: Rocks and Metals C2c: Does the Earth Move?	Describe that some people choose to live near volcanoes because volcanic soil is very fertile
C2: Rocks and Metals C2d: Metals and Alloys	Research alloys – their uses and composition.
C2: Rocks and Metals C2d: Metals and Alloys	Internet research about smart alloys and their uses.
C2: Rocks and Metals C2d: Metals and Alloys	Interpret data about the properties of metals including alloys, e.g. hardness, density, boiling point and strength.
C2: Rocks and Metals C2e: Cars for Scrap	Write a promotional leaflet for a car made from aluminium, illustrating the advantages of such a car over one made from iron or steel.

C2: Rocks and Metals C2e: Cars for Scrap	Interpret data about the rate of corrosion of different metals in different conditions (no recall is expected).
C2: Rocks and Metals C2e: Cars for Scrap	Interpret data about the rate of corrosion of different metals in different conditions (no recall is expected).
C2: Rocks and Metals C2e: Cars for Scrap	Explain why a material used in a car is suited to a given use given appropriate data (no recall expected). Explain the advantages and disadvantages of recycling the materials used to make cars. Explain that new laws will soon specify that a minimum percentage of all materials used to manufacture cars must be recyclable.
C2: Rocks and Metals C2f: Clean Air	Research (e.g. using the internet) the increase in occurrences of asthma in the UK and possible links with air pollution.
C2: Rocks and Metals C2f: Clean Air	Write a leaflet describing the main forms of atmospheric pollution, their effects and origins.
C2: Rocks and Metals C2f: Clean Air	Research the methods of preventing atmospheric pollution.
C2: Rocks and Metals C2f: Clean Air	Relate the common pollutants found in air to the environmental problem the pollutant causes: <ul style="list-style-type: none"> • carbon monoxide – a poisonous gas • oxides of nitrogen – photochemical smog and acid rain • sulphur dioxide – acid rain that will kill plants, kill aquatic life, erode stonework and corrode metals.
C2: Rocks and Metals C2f: Clean Air	Explain why it is important that atmospheric pollution is controlled.
C2: Rocks and Metals C2f: Clean Air	Evaluate the effects of human influences on the composition of air: <ul style="list-style-type: none"> • deforestation • increased energy consumption (burning of fossil fuels) • population.
C2: Rocks and Metals C2f: Clean Air	Describe one possible theory for how the atmosphere evolved: <ul style="list-style-type: none"> • degassing from the Earth's crust • initial atmosphere of ammonia and carbon dioxide • formation of water • development of photosynthetic organisms.
C2: Rocks and Metals C2g: Faster or Slower (1)	Investigate the rate of reaction using magnesium ribbon or calcium carbonate and dilute hydrochloric acid. Or: Investigate the rate of reaction using magnesium ribbon or calcium carbonate and dilute hydrochloric acid using a gas syringe to collect gas.

<p>C2: Rocks and Metals C2g: Faster or Slower (1)</p>	<p>Interpret data in table, graphical and written form involving the effect of temperature and concentration on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • reading off values from graph • recognising the fastest reaction by comparing gradients of graphs • recognising the shortest reaction time and hence the fastest reaction.
<p>C2: Rocks and Metals C2g: Faster or Slower (1)</p>	<p>Interpret data in table, graphical and written form involving the effect of concentration and temperature on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • deciding when a reaction has finished • comparing the rate of reaction during a reaction • deciding when the rate of reactions is the greatest.
<p>C2: Rocks and Metals C2g: Faster or Slower (1)</p>	<p>Interpret data in table, graphical and written form involving temperature and concentration on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • calculating the rate of reaction from the slope of an appropriate graph • extrapolation • interpolation.
<p>C2: Rocks and Metals C2h: Faster or Slower (2)</p>	<p>Class practical to investigate catalysis using hydrogen peroxide and metal oxide catalysts, or zinc and dilute hydrochloric acid with a variety of possible catalysts including copper and copper compounds.</p>
<p>C2: Rocks and Metals C2h: Faster or Slower (2)</p>	<p>Investigate surface area using magnesium powder and ribbon with acid or marble chips, or powder with acid.</p>
<p>C2: Rocks and Metals C2h: Faster or Slower (2)</p>	<p>Interpret data in table, graphical and written form involving the effect of surface area and the addition of a catalyst on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • reading off values from a graph • recognising the fastest reaction by comparing gradients of graphs • recognising the shortest reaction time and hence the fastest reaction.
<p>C2: Rocks and Metals C2h: Faster or Slower (2)</p>	<p>Interpret data in table, graphical and written form involving the effect of surface area and the addition of a catalyst on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • deciding when a reaction has finished • comparing the rate of reaction during a reaction • deciding when the rate of reaction is the greatest.
<p>C2: Rocks and Metals C2h: Faster or Slower (2)</p>	<p>Interpret data in table, graphical and written form involving surface area and the addition of a catalyst on the rate of reaction, e.g.:</p> <ul style="list-style-type: none"> • calculating the rate of reaction from the slope of an appropriate graph • extrapolation • interpolation.

P1: Energy for the Home P1b: Keeping homes warm	Survey to compare the effectiveness of different building materials using information from the internet and builders' merchants.
P1: Energy for the Home P1b: Keeping homes warm	Can use secondary sources, e.g. the internet, to compare the effectiveness of different insulating methods of different combinations of insulating materials.
P1: Energy for the Home P1d: Cooking with waves	Interpret given information about the use and safety of mobile phone technology, e.g. using internet searches.
P1: Energy for the Home P1d: Cooking with waves	Survey of opinions about the positioning of mobile phone masts.
P2: Living for the Future P2a: Collecting Energy from the Sun	Investigate how the voltage and current from a photocell varies with distance from the light source. Research the use of photocells for providing electricity in remote locations. Investigate how the power of a photocell depends on its surface area. Investigate how photocells can be connected to increase their voltage.
P2: Living for the Future P2a: Collecting Energy from the Sun	Describe the advantages and disadvantages of wind turbines.
P2: Living for the Future P2b: Power Station (1)	Describe and recognise that there is a significant waste of energy in a conventional power station.
P2: Living for the Future P2c: Power Station (2)	Use software to find out how a nuclear power station operates.
P2: Living for the Future P2c: Power Station (2)	Survey the efficiency rating of fridges, freezers and light bulbs.
P2: Living for the Future P2c: Power Station (2)	Find out about the evidence for global warming in the last 200 years.
P2: Living for the Future P2c: Power Station (2)	Discuss the possible consequences of global warming.
P2: Living for the Future P2c: Power Station (2)	Discuss the advantages and disadvantages of using fossil fuels for making electricity.
P2: Living for the Future P2e: Our Magnetic Field	Survey the sources of background radiation.
P2: Living for the Future P2e: Our Magnetic Field	Discuss the evidence for the presence of the moon as a result of a collision between the Earth and another planet.
P2: Living for the Future P2e: Our Magnetic Field	Survey the various uses of satellites around the Earth.
P2: Living for the Future P2e: Our Magnetic Field	Survey the electricity and communications blackouts caused by solar flares.
P2: Living for the Future P2g: Threats to Earth	Survey the evidence for the destruction of the dinosaurs by an asteroid.

P2: Living for the Future P2g: Threats to Earth	Discuss how the surface of the moon provides evidence for the continual bombardment of the Earth by asteroids.
P2: Living for the Future P2g: Threats to Earth	Survey the history of Halley's comet.
P2: Living for the Future P2g: Threats to Earth	Survey the exploration of comets by robot spacecraft.
P2: Living for the Future P2g: Threats to Earth	Discuss the collision of a comet with Jupiter.
P2: Living for the Future P2g: Threats to Earth	Debate the importance of funding telescopes to search for Near Earth Objects.
P2: Living for the Future P2g: Threats to Earth	Describe some of the evidence for past asteroid collisions: <ul style="list-style-type: none"> • craters • layers of unusual elements in rocks • sudden changes of fossil numbers between adjacent layers of rock.
P2: Living for the Future P2h: The Big Bang	The Big Bang theory is considered. Describe some ideas about the Big Bang theory for the origin of the universe: <ul style="list-style-type: none"> • started with an explosion • the universe is still expanding.
P1: Energy for the Home P1f: Wireless signals	Interpret simple information on digital and analogue signals.
P1: Energy for the Home P1h: Stable Earth	Global Warming. The incidents of skin cancer are rising, even in the UK. Develop ideas surrounding these and other observations. It also examines how climate is being affected by natural and human activity.
P1: Energy for the Home P1g: Light	Describe how, historically, the use of light greatly increased the speed of communication but that it requires the use of a code.
P1: Energy for the Home P1g: Light	Interpret given information about sun protection factor (no recall is expected).
P1: Energy for the Home P1g: Light	Interpret given information about climate change as a result of natural or human activity (no recall is expected).

AQA 1214	
Specific Reference & Topic	Specific Learning Object
Biology 1a: Human Biology 11.1 How do human bodies respond to changes inside them and to their environment?	To evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including IVF.

Biology 1a: Human Biology 11.1 How do human bodies respond to changes inside them and to their environment?	To evaluate the claims of manufacturers about sports drinks.
Biology 1a: Human Biology 11.2 What can we do to keep our bodies healthy?	To evaluate information about effect of food on health.
Biology 1a: Human Biology 11.2 What can we do to keep our bodies healthy?	To evaluate claims made by slimming programmes.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the effect of statins on cardiovascular disease.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the different types of drugs and why some people use illegal drugs for recreation.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate claims made about the effect of cannabis on health and the link between cannabis and addiction to hard drugs.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To explain how the link between smoking tobacco and lung cancer gradually became accepted.
Biology 1a: Human Biology 11.3 How do we use/abuse medical and recreational drugs?	To evaluate the different ways of trying to stop smoking.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To relate the contribution of Semmelweis in controlling infection to the solving of the modern problem of the spread of infection in hospitals.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To evaluate the advantages and disadvantages of being vaccinated against a particular disease.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To explain how the treatment of disease has changed as a result of increased understanding of the action of antibodies and immunity.
Biology 1a: Human Biology 11.4 What causes infectious diseases and how can our bodies defend themselves against them?	To evaluate the consequence of mutations of bacteria and viruses in relation to epidemics and pandemics, e.g. bird influenza.
Biology 1b: Evolution and Environment 11.5 What determines where particular species live and how many of them are there?	To suggest how organisms adapt to the conditions in which they live.
Biology 1b: Evolution and Environment 11.5 What determines where particular	To suggest the factors for which organisms are competing in a given habitat.

species live and how many of them are there?	
Biology 1b: Evolution and Environment 11.5 What determines where particular species live and how many of them are there?	To suggest reasons for the distribution of animals or plants in a particular habitat.
Biology 1b: Evolution and Environment 11.6 Why are individuals of the same species different from each other? What new methods do we have for producing plants and animals with the characteristics we prefer?	To interpret information about cloning techniques and genetic engineering techniques.
Biology 1b: Evolution and Environment 11.6 Why are individuals of the same species different from each other? What new methods do we have for producing plants and animals with the characteristics we prefer?	To make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons why scientists cannot be certain about how life began on Earth.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To interpret evidence relating to evolutionary theory.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons why Darwin's theory of natural selection was only gradually accepted.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To identify the differences between Darwin's theory of evolution and conflicting theories.
Biology 1b: Evolution and Environment 11.7 Why have some species of plants and animals died out? How do new species of plants and animals develop?	To suggest reasons for the different theories.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To analyse and interpret scientific data concerning environmental issues.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To weigh evidence and form balanced judgements about some of the major environmental issues facing society, including the importance of sustainable development.
Biology 1b: Evolution and Environment 11.8 How do humans affect the environment?	To evaluate methods used to collect environmental data and consider their ability and reliability as evidence for environmental change.

Chemistry 1a: Products from Rocks 12.1 How do rocks provide building materials?	To consider and evaluate the environmental, social and economic effects of exploiting limestone and producing building materials from it.
Chemistry 1a: Products from Rocks 12.1 How do rocks provide building materials?	To evaluate the developments in using limestone, cement, concrete and glass as building materials, and their advantages and disadvantages over other materials.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To consider and evaluate the social, economic and environmental impacts of exploiting metal ores, of using metals and of recycling metals.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To evaluate the benefits, drawbacks and risks of using metals as structural materials and as smart materials.
Chemistry 1a: Products from Rocks 12.2 How do rocks provide metals and how are metals used?	To explain how the properties of alloys (but not smart alloys) are related to models of their structures.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To evaluate the impact on the environment of burning hydrocarbon fuels.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To consider and evaluate the social, economic and environmental impacts of the uses of fuels.
Chemistry 1a: Products from Rocks 12.3 How do we get fuels from crude oil?	To evaluate developments in the production and uses of better fuels, e.g. ethanol, hydrogen.
Chemistry 1b: Oils, Earth and Atmosphere 12.4 How are polymers and ethanol made from oil?	To evaluate the social and economic advantages and disadvantages of using products from crude oil as fuels or as raw materials for plastic and other chemicals.
Chemistry 1b: Oils, Earth and Atmosphere 12.4 How are polymers and ethanol made from oil?	To evaluate the social, economic and environmental impacts of the uses, disposal and recycling of polymers.
Chemistry 1b: Oils, Earth and Atmosphere 12.4 How are polymers and ethanol made from oil?	To evaluate the advantages and disadvantages of making ethanol from renewable and non-renewable sources.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the effects of using vegetable oils in foods and the impacts on diet and health.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the benefits, drawbacks and risks of using vegetable oils to produce fuels.
Chemistry 1b: Oils, Earth and Atmosphere 12.5 How can plant oils be used?	To evaluate the use, benefits, drawbacks and risks of ingredients and additives in foods.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth	To explain why the theory of crustal movement (continental drift) was not generally accepted for many years after it was proposed.

and its atmosphere?	
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain why scientists cannot accurately predict when earthquakes and volcanic eruptions will occur.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain and evaluate theories of the changes that have occurred and are occurring in the Earth's atmosphere.
Chemistry 1b: Oils, Earth and Atmosphere 12.6 What are the changes in the Earth and its atmosphere?	To explain and evaluate the effects of human activities on the atmosphere.
Physics 1a: Energy and Electricity 13.1 How is heat (thermal energy) transferred and what factors affect the rate at which heat is transferred?	To evaluate ways in which heat is transferred in and out of bodies and ways in which the rates of these transfers can be reduced.
Physics 1a: Energy and Electricity 13.2 What is meant by the efficient use of energy?	To describe the intended energy transfers/transformations and the main energy wastages that occur with a range of devices.
Physics 1a: Energy and Electricity 13.2 What is meant by the efficient use of energy?	To evaluate the effectiveness and cost-effectiveness of methods used to reduce energy consumption.
Physics 1a: Energy and Electricity 13.3 Why are electrical devices so useful?	To compare and contrast the particular advantages and disadvantages of using different electrical devices for a particular application.
Physics 1a: Energy and Electricity 13.4 How should we generate the electricity we need?	To compare and contrast the particular advantages and disadvantages of using different energy sources to generate electricity.
Physics 1b: Radiation and the Universe 13.6 What are the uses and dangers of emissions from radioactive substances?	To evaluate the appropriateness of radioactive sources for particular uses, including as tracers, in terms of the type(s) of radiation emitted and their half-lives.
Physics 1b: Radiation and the Universe 13.7 What do we know about the origins of the Universe and how it continues to change?	To compare and contrast the particular advantages and disadvantages of using different types of telescope on Earth and in space to make observations on, and deductions about, the universe.