Single Science AQA 2012 - 2013

YEAR TEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B1.1 Keeping Healthy	■ evaluate information about the effect of food on health ■ evaluate information about the effect of lifestyle on development of disease ■ analyse and evaluate claims made by slimming programmes, and slimming products. relate the contribution of Semmelweiss in controlling infection to solving modern problems with the spread of infection in hospitals ■ explain how the treatment of disease has changed as a result of increased understanding of the action of antibiotics and immunity ■ evaluate the consequences of mutations of bacteria and viruses in relation to epidemics and pandemics ■ evaluate the advantages and disadvantages of being vaccinated against a particular disease.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
	B1.2 Nerves and Hormones	■ evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including In Vitro Fertilisation (IVF) ■ evaluate the use of plant hormones in horticulture as weedkillers and to encourage the rooting of plant cuttings.	
	B1.3 The use and Abuse of drugs	■ evaluate the effect of statins in cardiovascular disease ■ evaluate different types of drugs and why some people use illegal drugs for recreation ■ evaluate claims made about the effect of prescribed and non-prescribed drugs on health ■ consider the possible progression from recreational drugs to hard drugs ■ evaluate the use of drugs to enhance performance in sport and to consider the ethical implications of their use.	
TERM 2	C1.1 The fundamental ideas in Chemistry	■ Atoms and elements are the building blocks of chemistry ■ Atoms contain protons, neutrons and electrons ■ When elements react they produce compounds.	
	C1.2 Limestone and Building Materials	■ consider and evaluate the environmental, social and economic effects of exploiting limestone and	

		producing building materials from it ■ evaluate the developments in using limestone, cement and concrete as building materials, and their advantages and disadvantages over other materials.	
	C1.3 Metals	■ consider and evaluate the social, economic and environmental impacts of exploiting metal ores, of using metals and of recycling metals ■ evaluate the benefits, drawbacks and risks of using metals as structural materials.	
	C1.4 Crude oil and Fuels	■ evaluate the impact on the environment of burning hydrocarbon fuels ■ consider and evaluate the social, economic and environmental impacts of the uses of fuels ■ evaluate developments in the production and uses of better fuels, for example ethanol and hydrogen ■ evaluate the benefits, drawbacks and risks of using plant materials to produce fuels.	
TERM 3	P1.1 The transfer of energy by heating processes and the factors that affect the rate at which that energy is transferred	■ compare ways in which energy is transferred in and out of objects by heating and ways in which the rates of these transfers can be varied ■ evaluate the design of everyday appliances that transfer energy by heating, including economic considerations ■ evaluate the effectiveness of different types of material used for insulation, including U-values and economic factors including payback time ■ evaluate different materials according to their specific heat capacities.	
	P1.2 Energy and Efficiency	■ compare the efficiency and cost effectiveness of methods used to reduce 'energy consumption' ■ describe the energy transfers and the main energy wastages that occur with a range of appliances ■ interpret and draw a Sankey diagram.	
	P1.3 The usefulness of electrical appliances	■ compare the advantages and disadvantages of using different electrical appliances for a particular application ■ consider the implications of instances when electricity is not available.	

Single Science AQA

YEAR ELEVEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B1.4Interdependence and Adaptation	■ suggest how organisms are adapted to the conditions in which they live ■ observe the adaptations, eg body shape, of a range of organisms from different habitats ■ develop an understanding of the ways in which adaptations enable organisms to survive ■ suggest the factors for which organisms are competing in a given habitat ■ evaluate data concerned with the effect of environmental changes on the distribution and and behaviour of living organisms.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
	B1.5 Energy and Food Chains	■ interpret pyramids of biomass and construct them from appropriate information.	
	B1.6 Waste materials from plants and Animals	■ evaluate the necessity and effectiveness of schemes for recycling organic kitchen or garden waste.	
	B1.7 Genetic Variation and it's control	■ interpret information about cloning techniques and genetic engineering techniques ■ make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including genetically modified (GM) crops.	
	B1.8 Evolution	■ interpret evidence relating to evolutionary theory ■ suggest reasons why Darwin's theory of natural selection was only gradually accepted ■ identify the differences between Darwin's theory of evolution and conflicting theories, such as that of Lamarck ■ suggest reasons for the different theories.	
TERM 2	C1.5 Other useful substances from crude oil	■ evaluate the social and economic advantages and disadvantages of using products from crude oil as fuels or as raw materials for plastics and other chemicals ■ evaluate the social, economic and environmental impacts of the uses, disposal and recycling of polymers ■ evaluate the advantages and disadvantages of making ethanol from renewable and non-renewable sources.	
	C1.6 Plant oils and their	■ evaluate the effects of using vegetable oils in foods	

	uses	and the impacts on diet and health ■ evaluate the use, benefits, drawbacks and risks of emulsifiers in foods.	
	C1.7 Changes in the Earth and it's Atmosphere	■ recognise that the Earth's crust, the atmosphere and the oceans are the only source of minerals and other resources that humans need ■ explain why Wegener's theory of crustal movement (continental drift) was not generally accepted for many years ■ explain why scientists cannot accurately predict when earthquakes and volcanic eruptions will occur ■ explain and evaluate theories of the changes that have occurred and are occurring in the Earth's atmosphere ■ explain and evaluate the effects of human activities on the atmosphere ■ describe why we do not know how life was first formed.	
TERM 3	P1.4 Methods we use to generate electricity	■ evaluate different methods of generating electricity ■ evaluate ways of matching supply with demand, either by increasing supply or decreasing demand ■ compare the advantages and disadvantages of overhead power lines and underground cables.	
	P1.5 The use of waves for communication and to provide evidence that the universe is expanding	■ compare the use of different types of waves for communication ■ evaluate the possible risks involving the use of mobile phones ■ consider the limitations of the model that scientists use to explain how the universe began and why the universe continues to expand.	

Double Science AQA

YEAR TEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B1.1 Keeping Healthy	■ evaluate information about the effect of food on health ■ evaluate information about the effect of lifestyle on development of disease ■ analyse and evaluate claims made by slimming programmes, and slimming products. relate the contribution of Semmelweiss in controlling infection to solving modern problems with the spread of infection in hospitals ■ explain how the treatment of disease has changed as a result of increased understanding of the action of antibiotics and immunity ■ evaluate the consequences of mutations of bacteria and viruses in relation to epidemics and pandemics ■ evaluate the advantages and disadvantages of being vaccinated against a particular disease.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
	B1.2 Nerves and Hormones	■ evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including In Vitro Fertilisation (IVF) ■ evaluate the use of plant hormones in horticulture as weedkillers and to encourage the rooting of plant cuttings.	
	B1.3 The use and Abuse of drugs	■ evaluate the effect of statins in cardiovascular disease ■ evaluate different types of drugs and why some people use illegal drugs for recreation ■ evaluate claims made about the effect of prescribed and non-prescribed drugs on health ■ consider the possible progression from recreational drugs to hard drugs ■ evaluate the use of drugs to enhance performance in sport and to consider the ethical implications of their use.	
	B1.4Interdependence and Adaptation	■ suggest how organisms are adapted to the conditions in which they live ■ observe the adaptations, eg body shape, of a range of organisms from different habitats ■ develop an understanding of the ways in which adaptations enable organisms to survive	

		■ suggest the factors for which organisms are competing in a given habitat ■ evaluate data concerned with the effect of environmental changes on the distribution and behaviour of living organisms.	
	B1.5 Energy and Food Chains	■ interpret pyramids of biomass and construct them from appropriate information.	
	B1.6 Waste materials from plants and Animals	■ evaluate the necessity and effectiveness of schemes for recycling organic kitchen or garden waste.	
	B1.7 Genetic Variation and it's control	■ interpret information about cloning techniques and genetic engineering techniques ■ make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including genetically modified (GM) crops.	
	B1.8 Evolution	■ interpret evidence relating to evolutionary theory ■ suggest reasons why Darwin's theory of natural selection was only gradually accepted ■ identify the differences between Darwin's theory of evolution and conflicting theories, such as that of Lamarck ■ suggest reasons for the different theories.	
TERM 2	C1.1 The fundamental ideas in Chemistry	■ Atoms and elements are the building blocks of chemistry ■ Atoms contain protons, neutrons and electrons ■ When elements react they produce compounds.	
	C1.2 Limestone and Building Materials	■ consider and evaluate the environmental, social and economic effects of exploiting limestone and producing building materials from it ■ evaluate the developments in using limestone, cement and concrete as building materials, and their advantages and disadvantages over other materials.	
	C1.3 Metals	■ consider and evaluate the social, economic and environmental impacts of exploiting metal ores, of using metals and of recycling metals ■ evaluate the benefits, drawbacks and risks of using metals as structural materials.	
	C1.4 Crude oil and Fuels	■ evaluate the impact on the environment of burning hydrocarbon fuels ■ consider and evaluate the social, economic and environmental impacts of the uses of fuels ■ evaluate developments in the production and uses of better fuels, for example ethanol and hydrogen	

		■ evaluate the benefits, drawbacks and risks of using plant materials to produce fuels.	
	C1.5 Other useful substances from crude oil	■ evaluate the social and economic advantages and disadvantages of using products from crude oil as fuels or as raw materials for plastics and other chemicals ■ evaluate the social, economic and environmental impacts of the uses, disposal and recycling of polymers ■ evaluate the advantages and disadvantages of making ethanol from renewable and non-renewable sources.	
	C1.6 Plant oils and their uses	■ evaluate the effects of using vegetable oils in foods and the impacts on diet and health ■ evaluate the use, benefits, drawbacks and risks of emulsifiers in foods.	
	C1.7 Changes in the Earth and it's Atmosphere	■ recognise that the Earth's crust, the atmosphere and the oceans are the only source of minerals and other resources that humans need ■ explain why Wegener's theory of crustal movement (continental drift) was not generally accepted for many years ■ explain why scientists cannot accurately predict when earthquakes and volcanic eruptions will occur ■ explain and evaluate theories of the changes that have occurred and are occurring in the Earth's atmosphere ■ explain and evaluate the effects of human activities on the atmosphere ■ describe why we do not know how life was first formed.	
TERM 3	P1.1 The transfer of energy by heating processes and the factors that affect the rate at which that energy is transferred	■ compare ways in which energy is transferred in and out of objects by heating and ways in which the rates of these transfers can be varied ■ evaluate the design of everyday appliances that transfer energy by heating, including economic considerations ■ evaluate the effectiveness of different types of material used for insulation, including U-values and economic factors including payback time ■ evaluate different materials according to their specific heat capacities.	
	P1.2 Energy and Efficiency	■ compare the efficiency and cost effectiveness of methods used to reduce 'energy consumption' ■ describe the energy transfers and the main energy	

		wastages that occur with a range of appliances ■ interpret and draw a Sankey diagram.	
	P1.3 The usefulness of electrical appliances	■ compare the advantages and disadvantages of using different electrical appliances for a particular application ■ consider the implications of instances when electricity is not available.	
	P1.4 Methods we use to generate electricity	■ evaluate different methods of generating electricity ■ evaluate ways of matching supply with demand, either by increasing supply or decreasing demand ■ compare the advantages and disadvantages of overhead power lines and underground cables.	
	P1.5 The use of waves for communication and to provide evidence that the universe is expanding	■ compare the use of different types of waves for communication ■ evaluate the possible risks involving the use of mobile phones ■ consider the limitations of the model that scientists use to explain how the universe began and why the universe continues to expand.	

Double Science AQA

YEAR ELEVEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B2.1 Cells and simple cell transport	■ relate the structure of different types of cells to their function.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
	B2.2 Tissues, organs and organ systems	■ Know the functions of cells, tissues, organs	
	B2.3 Photosynthesis	■ interpret data showing how factors affect the rate of photosynthesis ■ evaluate the benefits of artificially manipulating the environment in which plants are grown.	
	B2.4 Organisms and their environment	■ suggest reasons for the distribution of living organisms in a particular habitat ■ evaluate methods used to collect environmental data, and consider the validity of the method and the reproducibility of the data as evidence for environmental change.	
	B2.5 Proteins – their functions and uses	■ evaluate the advantages and disadvantages of using enzymes in the home and in industry.	
	B2.6 Aerobic and anaerobic respiration	■ interpret the data relating to the effects of exercise on the human body.-	
	B2.7 Cell division and inheritance	■ explain why Mendel proposed the idea of separately inherited factors and why the importance of this discovery was not recognised until after his death ■ interpret genetic diagrams, including family trees ■ **construct genetic diagrams of monohybrid crosses and predict the outcomes of monohybrid crosses and be able to use the terms homozygous, heterozygous, phenotype and genotype** ■ predict and /or explain the outcome of crosses between individuals for each possible combination of dominant and recessive alleles of the same gene ■ make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments ■ make informed judgements about the economic, social and ethical issues concerning embryo	

		screening.	
	B2.8 Speciation	■ suggest reasons why scientists cannot be certain about how life began on Earth.	
TERM 2	C2.1 Structure and bonding	■ write formulae for ionic compounds from given symbols and ionic charges ■ represent the electronic structure of ions ■ represent the covalent bonds in molecules ■ represent the bonding in metals	
	C2.2 How structure influences the properties and uses of substances	■ relate the properties of substances to their uses ■ suggest the type of structure of a substance given its properties ■ evaluate developments and applications of new materials, eg nanomaterials, fullerenes and shape memory materials.	
	C2.3 Atomic structure, analysis and quantitative chemistry	■ evaluate sustainable development issues relating the starting materials of an industrial process to the product yield and the energy requirements of the reactions involved.	
	C2.4 Rates of reaction	■ interpret graphs showing the amount of product formed (or reactant used up) with time, in terms of the rate of the reaction ■ explain and evaluate the development, advantages and disadvantages of using catalysts in industrial processes.	
	C2.5 Exothermic and endothermic reactions	■ evaluate everyday uses of exothermic and endothermic reactions.	
	C2.6 Acids, bases and salts	■ select an appropriate method for making a salt, given appropriate information.	
	C2.7 Electrolysis	■ predict the products of electrolysing solutions of ions ■ explain and evaluate processes that use the principles described in this unit, including the use of electroplating.	
TERM 3	P2.1 Forces and their effects	■ interpret data from tables and graphs relating to speed, velocity and acceleration ■ evaluate the effects of alcohol and drugs on stopping distances ■ evaluate how the shape and power of a vehicle can be altered to increase the vehicle's top speed ■ draw and interpret velocity–time graphs for objects that reach terminal velocity, including a consideration of the forces acting on the object.	
	P2.2 The kinetic energy of objects speeding up or slowing down	■ evaluate the benefits of different types of braking system, such as regenerative braking. ■ evaluate the benefits of air bags, crumple zones, seat belts and side impact bars in cars.	

	P2.3 Currents in electrical circuits	■ apply the principles of basic electrical circuits to practical situations ■ evaluate the use of different forms of lighting, in terms of cost and energy efficiency.	
	P2.4 Using mains electricity safely and the power of electrical appliances	■ understand the principles of safe practice and recognise dangerous practice in the use of mains electricity ■ compare the uses of fuses and circuit breakers ■ evaluate and explain the need to use different cables for different appliances ■ consider the factors involved when making a choice of electrical appliances.	
	P2.5 What happens when radioactive substances decay, and the uses and dangers of their emissions	■ evaluate the effect of occupation and/or location on the level of background radiation and radiation dose ■ evaluate the possible hazards associated with the use of different types of nuclear radiation ■ evaluate measures that can be taken to reduce exposure to nuclear radiations ■ 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 ■ explain how results from the Rutherford and Marsden scattering experiments led to the 'plum pudding' model being replaced by the nuclear model.	
	P2.6 Nuclear fission and nuclear fusion	■ compare the uses of nuclear fusion and nuclear fission.	

Triple Science AQA

YEAR TEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B1.1 Keeping Healthy	■ evaluate information about the effect of food on health ■ evaluate information about the effect of lifestyle on development of disease ■ analyse and evaluate claims made by slimming programmes, and slimming products. relate the contribution of Semmelweiss in controlling infection to solving modern problems with the spread of infection in hospitals ■ explain how the treatment of disease has changed as a result of increased understanding of the action of antibiotics and immunity ■ evaluate the consequences of mutations of bacteria and viruses in relation to epidemics and pandemics ■ evaluate the advantages and disadvantages of being vaccinated against a particular disease.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
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	B2.7 Cell division and inheritance	■ explain why Mendel proposed the idea of separately inherited factors and why the importance of this	

		discovery was not recognised until after his death ■ interpret genetic diagrams, including family trees ■ **construct genetic diagrams of monohybrid crosses and predict the outcomes of monohybrid crosses and be able to use the terms homozygous, heterozygous, phenotype and genotype** ■ predict and /or explain the outcome of crosses between individuals for each possible combination of dominant and recessive alleles of the same gene ■ make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments ■ make informed judgements about the economic, social and ethical issues concerning embryo screening.	
	B2.8 Speciation	■ suggest reasons why scientists cannot be certain about how life began on Earth.	
TERM 2	C1.1 The fundamental ideas in Chemistry	■ Atoms and elements are the building blocks of chemistry ■ Atoms contain protons, neutrons and electrons ■ When elements react they produce compounds.	
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	C1.3 Metals	■ consider and evaluate the social, economic and environmental impacts of exploiting metal ores, of using metals and of recycling metals ■ evaluate the benefits, drawbacks and risks of using metals as structural materials.	
	C1.4 Crude oil and Fuels	■ evaluate the impact on the environment of burning hydrocarbon fuels ■ consider and evaluate the social, economic and environmental impacts of the uses of fuels ■ evaluate developments in the production and uses of better fuels, for example ethanol and hydrogen ■ evaluate the benefits, drawbacks and risks of using plant materials to produce fuels.	
	C1.5 Other useful substances from crude oil	■ evaluate the social and economic advantages and disadvantages of using products from crude oil as fuels or as raw materials for plastics and other	

		chemicals ■ evaluate the social, economic and environmental impacts of the uses, disposal and recycling of polymers ■ evaluate the advantages and disadvantages of making ethanol from renewable and non-renewable sources.	
	C1.6 Plant oils and their uses	■ evaluate the effects of using vegetable oils in foods and the impacts on diet and health ■ evaluate the use, benefits, drawbacks and risks of emulsifiers in foods.	
	C1.7 Changes in the Earth and it's Atmosphere	■ recognise that the Earth's crust, the atmosphere and the oceans are the only source of minerals and other resources that humans need ■ explain why Wegener's theory of crustal movement (continental drift) was not generally accepted for many years ■ explain why scientists cannot accurately predict when earthquakes and volcanic eruptions will occur ■ explain and evaluate theories of the changes that have occurred and are occurring in the Earth's atmosphere ■ explain and evaluate the effects of human activities on the atmosphere ■ describe why we do not know how life was first formed.	
	C2.1 Structure and bonding	■ write formulae for ionic compounds from given symbols and ionic charges ■ represent the electronic structure of ions ■ represent the covalent bonds in molecules ■ represent the bonding in metals	
	C2.2 How structure influences the properties and uses of substances	■ relate the properties of substances to their uses ■ suggest the type of structure of a substance given its properties ■ evaluate developments and applications of new materials, eg nanomaterials, fullerenes and shape memory materials.	
	C2.3 Atomic structure, analysis and quantitative chemistry	■ evaluate sustainable development issues relating the starting materials of an industrial process to the product yield and the energy requirements of the reactions involved.	
	C2.4 Rates of reaction	■ interpret graphs showing the amount of product formed (or reactant used up) with time, in terms of the rate of the reaction ■ explain and evaluate the development, advantages and disadvantages of using catalysts in industrial	

		processes.	
	C2.5 Exothermic and endothermic reactions	■ evaluate everyday uses of exothermic and endothermic reactions.	
	C2.6 Acids, bases and salts	■ select an appropriate method for making a salt, given appropriate information.	
	C2.7 Electrolysis	■ predict the products of electrolysing solutions of ions ■ explain and evaluate processes that use the principles described in this unit, including the use of electroplating.	
TERM 3	P1.1 The transfer of energy by heating processes and the factors that affect the rate at which that energy is transferred	■ compare ways in which energy is transferred in and out of objects by heating and ways in which the rates of these transfers can be varied ■ evaluate the design of everyday appliances that transfer energy by heating, including economic considerations ■ evaluate the effectiveness of different types of material used for insulation, including U-values and economic factors including payback time ■ evaluate different materials according to their specific heat capacities.	
	P1.2 Energy and Efficiency	■ compare the efficiency and cost effectiveness of methods used to reduce 'energy consumption' ■ describe the energy transfers and the main energy wastages that occur with a range of appliances ■ interpret and draw a Sankey diagram.	
	P1.3 The usefulness of electrical appliances	■ compare the advantages and disadvantages of using different electrical appliances for a particular application ■ consider the implications of instances when electricity is not available.	
	P1.4 Methods we use to generate electricity	■ evaluate different methods of generating electricity ■ evaluate ways of matching supply with demand, either by increasing supply or decreasing demand ■ compare the advantages and disadvantages of overhead power lines and underground cables.	
	P1.5 The use of waves for communication and to provide evidence that the universe is expanding	■ compare the use of different types of waves for communication ■ evaluate the possible risks involving the use of mobile phones ■ consider the limitations of the model that scientists use to explain how the universe began and why the universe continues to expand.	

Triple Science AQA

YEAR ELEVEN

	Unit title	Learning objectives	Assessment and Assignments
TERM 1	B3.1 Movement of molecules in and out of cells	■ evaluate the development and use of artificial aids to breathing, including the use of artificial ventilators ■ evaluate the claims of manufacturers about sports drinks ■ analyse and evaluate the conditions that affect water loss in plants.	End of Unit modules Tests. ISAs. Mock exam. GCSE exams.
	B3.2 Transport systems in plants and animals	■ evaluate data on the production and use of artificial blood products ■ evaluate the use of artificial hearts and heart valves ■ evaluate the use of stents.	
	B3.3 Homeostasis	■ evaluate the advantages and disadvantages of treating kidney failure by dialysis or kidney transplant ■ evaluate modern methods of treating diabetes.	
	B3.4 Humans and their environment	■ analyse and interpret scientific data concerning environmental issues ■ evaluate methods used to collect environmental data and consider their validity and reliability as evidence for environmental change ■ evaluate the methods being used to feed and provide water to an increasing human population, both in terms of short term and long term effects ■ evaluate the use of biogas generators ■ evaluate the positive and negative effects of managing food production and distribution, and be able to recognise that practical solutions for human needs may require compromise between competing priorities.	
TERM 2	C3.1 The periodic table	■ evaluate the work of Newlands and Mendeleev in terms of their contributions to the development of the modern periodic table ■ explain why scientists regarded a periodic table of the elements first as a curiosity, then as a useful tool and finally as an important summary of the structure of atoms.	
	C3.2 Water	■ evaluate the use of commercial water softeners ■ consider and evaluate the environmental, social and economic aspects of water quality and hardness ■ consider the advantages and disadvantages of adding chlorine and fluoride to drinking water.	
	C3.3 Calculating and	■ consider the social, economic and environmental	

	explaining energy change	consequences of using fuels ■ interpret simple energy level diagrams in terms of bond breaking and bond formation (including the idea of activation energy and the effect on this of catalysts) ■ evaluate the use of hydrogen to power cars compared to other fuels	
	C3.4 Further analysis and quantitative chemistry	■ interpret results of the chemical tests in this specification ■ interpret and evaluate the results of analyses carried out to identify elements and compounds for forensic, health or environmental purposes.	
	C3.5 The production of ammonia	■ evaluate the conditions necessary in an industrial process to maximise yield and minimise environmental impact ■ **describe and evaluate the effects of changing the conditions of temperature and pressure on a given reaction or process** ■ evaluate the conditions used in industrial processes in terms of energy requirements.	
TERM 3	P2.1 Forces and their effects	■ interpret data from tables and graphs relating to speed, velocity and acceleration ■ evaluate the effects of alcohol and drugs on stopping distances ■ evaluate how the shape and power of a vehicle can be altered to increase the vehicle's top speed ■ draw and interpret velocity–time graphs for objects that reach terminal velocity, including a consideration of the forces acting on the object.	
	P2.2 The kinetic energy of objects speeding up or slowing down	■ evaluate the benefits of different types of braking system, such as regenerative braking. ■ evaluate the benefits of air bags, crumple zones, seat belts and side impact bars in cars.	
	P2.3 Currents in electrical circuits	■ apply the principles of basic electrical circuits to practical situations ■ evaluate the use of different forms of lighting, in terms of cost and energy efficiency.	
	P2.4 Using mains electricity safely and the power of electrical appliances	■ understand the principles of safe practice and recognise dangerous practice in the use of mains electricity ■ compare the uses of fuses and circuit breakers ■ evaluate and explain the need to use different cables for different appliances ■ consider the factors involved when making a choice of electrical appliances.	

	P2.5 What happens when radioactive substances decay, and the uses and dangers of their emissions	■ evaluate the effect of occupation and/or location on the level of background radiation and radiation dose ■ evaluate the possible hazards associated with the use of different types of nuclear radiation ■ evaluate measures that can be taken to reduce exposure to nuclear radiations ■ 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 ■ explain how results from the Rutherford and Marsden scattering experiments led to the 'plum pudding' model being replaced by the nuclear model.	
	P2.6 Nuclear fission and nuclear fusion	■ compare the uses of nuclear fusion and nuclear fission.	
	P3.1 Medical applications of physics	■ draw and interpret ray diagrams in order to determine the nature of the image ■ evaluate the use of different lenses for the correction of defects of vision ■ compare the medical use of ultrasound and X rays ■ evaluate the advantages and disadvantages of using ultrasound, X-rays and Computerised Tomography (CT) scans.	
	P3.2 Using physics to make things work	■ analyse the stability of objects by evaluating their tendency to topple ■ recognise the factors that affect the stability of an object ■ evaluate how the design of objects affects their stability ■ interpret and evaluate data on objects moving in circular paths.	
	P3.3 Keeping things moving	■ interpret diagrams of electromagnetic appliances in order to explain how they work ■ compare the use of different types of transformer for a particular application.	