Caroline Chisholm School
Ambition Confidence Success
Everyone Every Lesson Every Opportunity

Year 11 Chemistry Curriculum

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
Groups in the Periodic table **(Combined & Triple)**	Explain why some elements can be classified as alkali metals (group 1), halogens (group 7) or noble gases (group 0), based on their position in the periodic table Recall that alkali metals: a are soft b have relatively low melting points Describe the reactions of lithium, sodium and potassium with water Describe the pattern in reactivity of the alkali metals, lithium, sodium and potassium, with water; and use this pattern to predict the reactivity of other alkali metals Explain this pattern in reactivity in terms of electronic configurations Recall the colours and physical states of	CC13/SC17 SC17a Group 1 Sc17b Group 7 SC17c Halogen reactivity SC17d Group 0	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	**Connection finding (linking)** to use connections from past experiences (KS3) to seek generalisations in the topic **VAAs** **Hard Working: Practice** – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. **Agile - Enquiring** Independently identify questions and problems, justify their interest in them, and critically consider whether they	**Homework**: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	chlorine, bromine and iodine at room temperature Describe the pattern in the physical properties of the halogens, chlorine, bromine and iodine, and use this pattern to predict the physical properties of other halogens Describe the chemical test for chlorine Describe the reactions of the halogens, chlorine, bromine and iodine, with metals to form metal halides, and use this pattern to predict the reactions of other halogens Recall that the halogens, chlorine, bromine and iodine, form hydrogen halides which dissolve in water to form acidic solutions, and use this pattern to predict the				are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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	reactions of other halogens Describe the relative reactivity of the halogens chlorine, bromine and iodine, as shown by their displacement reactions with halide ions in aqueous solution, and use this pattern to predict the reactions of astatine Explain why these displacement reactions are redox reactions in terms of gain and loss of electrons, identifying which of the substances are oxidised and which are reduced Explain the relative reactivity of the halogens in terms of electronic configurations Explain why the noble gases are chemically					

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	inert, compared with the other elements, in terms of their electronic configurations Explain how the uses of noble gases depend on their inertness, low density and/or non-flammability Describe the pattern in the physical properties of some noble gases and use this pattern to predict the physical properties of other noble gases					
Rates of Reaction and Energy Changes (Combined & Triple)	Core Practical: Investigate the effects of changing the conditions of a reaction on the rates of chemical reactions by: a measuring the production of a gas (in the reaction between hydrochloric acid and marble chips)	CC14/SC18 SC18a Rates of reaction SC18b Factors affecting reaction rates SC18b Core Practical – Investigating reaction rates	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.)	● Arithmetic computation, ratio when measuring rates of reaction ● Drawing and interpreting appropriate graphs from data to	Connection finding (linking) to use connections from past experiences (KS3) to seek generalisations in the topic VAAs Hard Working: Practice – Self-regulate and revise	Homework: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework.

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	b observing a colour change (in the reaction between sodium thiosulfate and hydrochloric acid) Explain how reactions occur when particles collide and that rates of reaction are increased when the frequency and/or energy of collisions is increased Explain the effects on rates of reaction of changes in temperature, concentration, surface area to volume ratio of a solid and pressure (on reactions involving gases) in terms of frequency and/or energy of collisions between particles Interpret graphs of mass, volume or concentration of reactant or product against time	SC18c Catalysts and activation energy	End-of-topic tests. End of year exam (PPE).	determine rate of reaction ● Determining gradients of graphs as a measure of rate of change to determine rate ● Proportionality when comparing factors affecting rate of reaction	practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP	There will be revision homework before each Census Assessment and Topic Test.

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	Describe a catalyst as a substance that speeds up the rate of a reaction without altering the products of the reaction, being itself unchanged chemically and in mass at the end of the reaction Explain how the addition of a catalyst increases the rate of a reaction in terms of activation energy Recall that enzymes are biological catalysts and that enzymes are used in the production of alcoholic drinks				**Analysing: Precision** – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	
Heat Energy Changes in Chemical Reactions (Combined & Triple)	Recall that changes in heat energy accompany the following changes: a salts dissolving in water b neutralisation reactions	CC15/SC19 SC19a Exothermic and endothermic SC19b Energy changes in reactions	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson	● Arithmetic computation when calculating energy changes ● Interpretation of charts and graphs when	**Connection finding (linking)** to use connections from past experiences (KS3) to seek generalisations in the topic **VAAs**	**Homework**: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium.

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	c displacement reactions d precipitation reactions and that, when these reactions take place in solution, temperature changes can be measured to reflect the heat changes Describe an exothermic change or reaction as one in which heat energy is given out Describe an endothermic change or reaction as one in which heat energy is taken in Recall that the breaking of bonds is endothermic and the making of bonds is exothermic Recall that the overall heat energy change for a reaction is:		(e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	dealing with reaction profiles	Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside.	Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	a exothermic if more heat energy is released in forming bonds in the products than is required in breaking bonds in the reactants b endothermic if less heat energy is released in forming bonds in the products than is required in breaking bonds in the reactants Calculate the energy change in a reaction given the energies of bonds (in kJ mol–1) Explain the term activation energy Draw and label reaction profiles for endothermic and exothermic reactions, identifying activation energy				ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	
Fuels (Combined & Triple)	Recall that hydrocarbons are compounds that	CC16/SC20 SC20a Hydrocarbons in	Starter questions Exam-type questions	● Extract and interpret information from	Connection finding (linking)	Homework: retrieval quizzing which will assess both current

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	contain carbon and hydrogen only Describe crude oil as: a a complex mixture of hydrocarbons b containing molecules in which carbon atoms are in chains or rings (names, formulae and structures of specific ring molecules not required) c an important source of useful substances (fuels and feedstock for the petrochemical industry) d a finite resource Describe and explain the separation of crude oil into simpler, more useful mixtures by the process of fractional distillation Recall the names and uses of the following fractions:	crude oil and natural gas SC20b Fractional distillation of crude oil SC20c The alkane homologous series SC20d Complete and Incomplete combustion SC20e Combustible fuels and pollution SC20f Breaking down hydrocarbons	Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	to use connections from past experiences (KS3) to seek generalisations in the topic VAAs Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving.	learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	a gases, used in domestic heating and cooking b petrol, used as fuel for cars c kerosene, used as fuel for aircraft d diesel oil, used as fuel for some cars and trains e fuel oil, used as fuel for large ships and in some power stations f bitumen, used to surface roads and roofs Explain how hydrocarbons in different fractions differ from each other in: a the number of carbon and hydrogen atoms their molecules contain b boiling points c ease of ignition d viscosity and are mostly members of				Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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	the alkane homologous series Explain an homologous series as a series of compounds which: a have the same general formula b differ by CH2 in molecular formulae from neighbouring compounds c show a gradual variation in physical properties, as exemplified by their boiling points d have similar chemical properties Describe the complete combustion of hydrocarbon fuels as a reaction in which: a carbon dioxide and water are produced b energy is given out Explain why the incomplete combustion of					

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	hydrocarbons can produce carbon and carbon monoxide Explain how carbon monoxide behaves as a toxic gas Describe the problems caused by incomplete combustion producing carbon monoxide and soot in appliances that use carbon compounds as fuels Explain how impurities in some hydrocarbon fuels result in the production of sulfur dioxide Explain some problems associated with acid rain caused when sulfur dioxide dissolves in rain water Explain why, when fuels are burned in engines, oxygen and nitrogen can react together at high temperatures to					

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	produce oxides of nitrogen, which are pollutants Evaluate the advantages and disadvantages of using hydrogen, rather than petrol, as a fuel in cars Recall that petrol, kerosene and diesel oil are non-renewable fossil fuels obtained from crude oil and methane is a nonrenewable fossil fuel found in natural gas Explain how cracking involves the breaking down of larger, saturated hydrocarbon molecules (alkanes) into smaller, more useful ones, some of which are unsaturated (alkenes) Explain why cracking is necessary					

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Earth and Atmospheric Science **(Combined & Triple)**	Recall that the gases produced by volcanic activity formed the Earth's early atmosphere Describe that the Earth's early atmosphere was thought to contain: a little or no oxygen b a large amount of carbon dioxide c water vapour d small amounts of other gases and interpret evidence relating to this Explain how condensation of water vapour formed oceans Explain how the amount of carbon dioxide in the atmosphere was decreased when carbon dioxide dissolved as the oceans formed	CC17/SC21 SC21a The Early Atmosphere SC21bThe Changing Atmosphere SC21c The atmosphere today SC21d Climate Change	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	**Connection finding (linking)** to use connections from past experiences (KS3) to seek generalisations in the topic **VAAs** **Hard Working: Practice** – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. **Agile - Enquiring** Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving.	**Homework**: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	Explain how the growth of primitive plants used carbon dioxide and released oxygen by photosynthesis and consequently the amount of oxygen in the atmosphere gradually increased Describe the chemical test for oxygen Describe how various gases in the atmosphere, including carbon dioxide, methane and water vapour, absorb heat radiated from the Earth, subsequently releasing energy which keeps the Earth warm: this is known as the greenhouse effect Evaluate the evidence for human activity causing climate change, considering:				Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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	a the correlation between the change in atmospheric carbon dioxide concentration, the consumption of fossil fuels and temperature change b the uncertainties caused by the location where these measurements are taken and historical accuracy Describe: a the composition of today's atmosphere b the potential effects on the climate of increased levels of carbon dioxide and methane generated by human activity, including burning fossil fuels and livestock farming c that these effects may be mitigated: consider scale, risk and					

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	environmental implications					
Hydrocarbons (Triple Only)	Recall the formulae of molecules of the alkanes, methane, ethane, propane and butane, and draw the structures of these molecules, showing all covalent bonds Explain why the alkanes are saturated hydrocarbons Recall the formulae of molecules of the alkenes, ethene, propene, butene, and draw the structures of these molecules, showing all covalent bonds (but-1-ene and but-2-ene only) Explain why the alkenes are unsaturated hydrocarbons, describing that their molecules contain the functional group C=C	SC22 SC22a Alkanes and Alkenes SC22b Reactions of Alkanes and Alkenes	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	Connection finding (linking) to use connections from past experiences (KS3) to seek generalisations in the topic VAAs Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they	Homework: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	Recall the addition reaction of ethene with bromine, showing the structures of reactants and products, and extend this to other alkenes Explain how bromine water is used to distinguish between alkanes and alkenes Describe how the complete combustion of alkanes and alkenes involves the oxidation of the hydrocarbons to produce carbon dioxide and water.				are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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Alcohols and Carboxylic Acids (Triple Only)	Recall the formulae of molecules of the alcohols, methanol, ethanol, propanol (propan-1-ol only) and butanol (butan-1-ol only), and draw the structures of these molecules, showing all covalent bonds Recall that the functional group in alcohols is –OH and that alcohols can be dehydrated to form alkenes Core Practical: Investigate the temperature rise produced in a known mass of water by the combustion of the alcohols ethanol, propanol, butanol and pentanol Recall the formulae of molecules of the carboxylic acids, methanoic, ethanoic,	SC23 SC23a Ethanol Production SC23b Alcohols SC23b Core Practical – The combustion of alcohols SC23c Carboxylic acids	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	Connection finding (linking) to use connections from past experiences (KS3) to seek generalisations in the topic VAAs Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving.	Homework: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	propanoic and butanoic acids, and draw the structures of these molecules, showing all covalent bonds Recall that the functional group in carboxylic acids is –COOH and that solutions of carboxylic acids have typical acidic properties Recall that ethanol can be oxidised to produce ethanoic acid and extend this to other alcohols Recall members of a given homologous series have similar reactions because their molecules contain the same functional group and use this to predict the products of other members of these series Describe the production of ethanol				Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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	by fermentation of carbohydrates in aqueous solution, using yeast to provide enzymes Explain how to obtain a concentrated solution of ethanol by fractional distillation of the fermentation mixture					
Polymers (Triple Only)	Recall that a polymer is a substance of high average relative molecular mass made up of small repeating units Describe: a how ethene molecules can combine together in a polymerisation reaction b that the addition polymer formed is called poly(ethene) Describe how other addition polymers can be made by combining together other monomer	SC24 SC24a Addition polymerisation SC24b Polymer properties and uses SC24c Condensation polymerisation SC24d Problems with polymers	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	Connection finding (linking) to use connections from past experiences (KS3) to seek generalisations in the topic VAAs Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them.	Homework: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	molecules containing C=C, to include poly(propene), poly(chloroethene) (PVC) and poly(tetrafluoroethene) (PTFE) Deduce the structure of a monomer from the structure of an addition polymer and vice versa Explain how the uses of polymers are related to their properties and vice versa: including poly(ethene), poly(propene), poly(chloroethene) (PVC) and poly(tetrafluoroethene) (PTFE) Explain: a why polyesters are condensation polymers b how a polyester is formed when a				Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes.	

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	monomer molecule containing two carboxylic acid groups is reacted with a monomer molecule containing two alcohol groups c how a molecule of water is formed each time an ester link is formed Describe some problems associated with polymers including the: a availability of starting materials b persistence in landfill sites, due to non-biodegradability c gases produced during disposal by combustion d requirement to sort polymers so that they can be melted and reformed into a new product Evaluate the advantages and				Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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	disadvantages of recycling polymers, including economic implications, availability of starting materials and environmental impact Recall that: a DNA is a polymer made from four different monomers called nucleotides (names of nucleotides not required) b starch is a polymer based on sugars c proteins are polymers based on amino acids					
Quantitative analysis: tests for ions (Triple Only)	Explain why the test for any ion must be unique Describe flame tests to identify the following ions in solids: a lithium ion, Li+ (red) b sodium ion, Na+ (yellow)	SC25 SC25a Flame tests and photometry SC25b Tests for positive ions SC25c Tests for negative ions SC25c Core practical – Identifying ions	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn	● Extract and interpret information from charts, graphs and tables ● Use orders of magnitude to evaluate the significance of data	**Connection finding (linking)** to use connections from past experiences (KS3) to seek generalisations in the topic **VAAs**	**Homework**: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium.

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	c potassium ion, K+ (lilac) d calcium ion, Ca2+ (orange-red) e copper ion, Cu2+ (blue-green) Describe tests to identify the following ions in solids or solutions as appropriate: a aluminium ion, Al3+ b calcium ion, Ca2+ c copper ion, Cu2+ d iron(II) ion, Fe2+ e iron(III) ion, Fe3+ f ammonium ion, NH4 + using sodium hydroxide solution Describe the chemical test for ammonia Describe tests to identify the following ions in solids or solutions as appropriate: a carbonate ion, CO3 2–, using dilute acid and identifying the		etc.) End-of-topic tests. End of year exam (PPE).		Hard Working: Practice – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. Agile - Enquiring Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving. Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside.	Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	carbon dioxide evolved b sulfate ion, SO_4^{2-}, using dilute hydrochloric acid and barium chloride solution c chloride ion, Cl^-, bromide ion, Br^-, iodide ion, I^-, using dilute nitric acid and silver nitrate solution Core Practical: Identify the ions in unknown salts, using the tests for the specified cations and anions in Identify the ions in unknown salts, using results of the tests above Describe that instrumental methods of analysis are available and that these may improve sensitivity, accuracy and speed of tests				ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	

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Bulk and Surface Properties of Matter Including Nanoparticles (Triple Only)	Compare the size of nanoparticles with the sizes of atoms and molecules Describe how the properties of nanoparticulate materials are related to their uses including surface area to volume ratio of the particles they contain, including sunscreens Explain the possible risks associated with some nanoparticulate materials Compare, using data, the physical properties of glass and clay ceramics, polymers, composites and metals Explain why the properties of a material make it suitable for a given use and use data to select materials	SC26 SC26a Choosing materials SC26b Composite materials SC26c Nanoparticles	Starter questions Exam-type questions Hinge questions Use of web-based applications to assess knowledge in lesson (e.g. Isaac Physics, Educake, Active Learn etc.) End-of-topic tests. End of year exam (PPE).	● Estimate size and scale of atoms and nanoparticles ● Interpret, order and calculate with numbers written in standard form when dealing with nanoparticles ● Use ratios when considering relative sizes and surface area to volume comparisons ● Calculate surface areas and volumes of cubes	**Connection finding (linking)** to use connections from past experiences (KS3) to seek generalisations in the topic **VAAs** **Hard Working: Practice** – Self-regulate and revise practice schedules in line with improvements. Set own goals and monitor progress towards them. Actively seek ways to improve. **Agile - Enquiring** Independently identify questions and problems, justify their interest in them, and critically consider whether they are worth asking and solving.	**Homework**: retrieval quizzing which will assess both current learning and learning from previous years. Homework will be set on Educake, Century Tech, Isaac Physics or Seneca Premium. Exam questions may also be set as homework. There will be revision homework before each Census Assessment and Topic Test.

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	appropriate for specific uses				Use connections from across the curriculum to develop their enquiry, answering questions that are of real value to society both in and outside. ACP Analysing: Precision – Select appropriate skills and conventions and use effectively to reach strong outcomes. Realising: Automaticity – Effortlessly use key facts, concepts and ideas relevant to the stage of learning. Draw upon a range of skills without the need to think or process	