

Year 12 Long Term Scheme of Learning 2026-2027

Subject: Chemistry

National curriculum or specification coverage

- AQA A-level Chemistry (7405): Year 1 / AS specification coverage.
- Physical chemistry: 3.1.1 Atomic structure; 3.1.2 Amount of substance; 3.1.3 Bonding; 3.1.4 Energetics; 3.1.5 Kinetics; 3.1.6 Chemical equilibria, Le Chatelier's principle and K_c; 3.1.7 Oxidation, reduction and redox equations.
- Inorganic chemistry: 3.2.1 Periodicity; 3.2.2 Group 2, the alkaline earth metals; 3.2.3 Group 7 (17), the halogens.
- Organic chemistry: 3.3.1 Introduction to organic chemistry; 3.3.2 Alkanes; 3.3.3 Halogenoalkanes; 3.3.4 Alkenes; 3.3.5 Alcohols; 3.3.6 Organic analysis.
- Required practicals: RP1 Volumetric solution and acid–base titration; RP2 Enthalpy change; RP3 Effect of temperature on rate; RP4 Identification of ions in solution; RP5 Distillation of a reaction product; RP6 Tests for organic functional groups.

Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
31/08/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to Z = 36 using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
07/09/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to Z = 36 using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
14/09/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes.	Baseline questions; electron-configuration and mass-spectrum

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
		Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	calculations; bonding diagrams and molecular-shape questions.
21/09/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
28/09/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
05/10/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
		Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	
12/10/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
19/10/2026		Atomic structure; amount of substance; bonding (3.1.1, 3.1.2, 3.1.3) Explain relative masses and charges of protons, neutrons and electrons; use atomic and mass numbers to calculate particle numbers in atoms, ions and isotopes. Write electron configurations for atoms and ions up to $Z = 36$ using shells, subshells and orbitals; define first ionisation energy and interpret successive ionisation energies. Explain the stages of time-of-flight mass spectrometry and interpret mass spectra to determine relative atomic mass and isotopic abundance. Write chemical formulae and balanced equations; use the mole, Avogadro constant and relative masses in introductory calculations. Explain ionic, covalent, coordinate (dative) and metallic bonding; relate structure and bonding to physical properties of ionic, molecular, giant covalent and metallic substances. Use electron-pair repulsion to predict molecular shapes and bond angles; explain bond polarity and intermolecular forces, including hydrogen bonding.	Baseline questions; electron-configuration and mass-spectrum calculations; bonding diagrams and molecular-shape questions.
02/11/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
09/11/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
		RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	
16/11/2026	Ass 1	Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
23/11/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
30/11/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
07/12/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.

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14/12/2026		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
04/01/2027		Amount of substance; kinetics (3.1.2, 3.1.5) Calculate empirical and molecular formulae from experimental or percentage composition data; calculate masses, gas volumes, concentrations, percentage yield and atom economy from balanced equations. Use $pV = nRT$ with SI units; carry out multi-step mole calculations and process titration data, including concordant titres and uncertainties. RP1: Prepare a volumetric solution using appropriate apparatus, perform an acid–base titration and calculate the unknown concentration. Explain collision theory and activation energy; draw and interpret reaction profiles and Maxwell–Boltzmann energy distributions. Explain how temperature, concentration, pressure and catalysts influence reaction rate in terms of successful collisions and activation energy. RP3: Investigate how reaction rate changes with temperature; process results and evaluate reliability, control variables and uncertainty.	Assessment 1 (week of 16/11/26); RP1 titration record and calculations; RP3 rate investigation and graph.
11/01/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.
18/01/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.

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25/01/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.
01/02/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.
08/02/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.
22/02/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
		Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	
01/03/2027		Energetics; introductory organic chemistry; alkanes (3.1.4, 3.3.1, 3.3.2) Define enthalpy change, standard conditions and standard enthalpies of formation and combustion; distinguish exothermic and endothermic reactions. Calculate enthalpy changes using calorimetry ($q = mc\Delta T$), Hess's law, formation/combustion data and mean bond enthalpies; explain limitations. RP2: Measure an enthalpy change, calculate a molar enthalpy and evaluate heat loss and experimental uncertainty. Use IUPAC nomenclature and structural, displayed and skeletal formulae; identify functional groups and distinguish structural and stereoisomerism. Explain alkanes as saturated hydrocarbons; describe fractional distillation of crude oil, cracking, combustion and the environmental effects of pollutants. Write and explain the free-radical substitution mechanism of alkanes with halogens, including initiation, propagation and termination.	RP2 calorimetry write-up; Hess-cycle calculations; organic nomenclature and alkane reaction questions.
08/03/2027		Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K _c expressions, calculate K _c and equilibrium concentrations from supplied data and explain effects of temperature on K _c . Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E-Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.
15/03/2027		Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K _c expressions, calculate K _c and equilibrium concentrations from supplied data and explain effects of temperature on K _c . Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E-Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.
22/03/2027		Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K _c expressions, calculate K _c and equilibrium concentrations from supplied data and explain effects of temperature on K _c . Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E-Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
12/04/2027		Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K_c expressions, calculate K_c and equilibrium concentrations from supplied data and explain effects of temperature on K_c. Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E–Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.
19/04/2027	Ass 2	Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K_c expressions, calculate K_c and equilibrium concentrations from supplied data and explain effects of temperature on K_c. Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E–Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.
26/04/2027		Equilibrium; halogenoalkanes; alkenes (3.1.6, 3.3.3, 3.3.4) Explain dynamic equilibrium and use Le Chatelier's principle to predict effects of temperature, pressure and concentration; discuss industrial compromises and catalysts. Construct K_c expressions, calculate K_c and equilibrium concentrations from supplied data and explain effects of temperature on K_c. Explain halogenoalkane polarity and nucleophilic substitution with hydroxide, cyanide and ammonia; compare substitution and elimination conditions. Explain CFC-related ozone depletion where relevant; identify the correct free-radical mechanism as part of the earlier alkane topic. Explain alkene structure, E–Z isomerism, electrophilic addition with relevant reagents and reaction mechanisms; describe addition polymerisation and hydration of ethene.	Assessment 2 (week of 19/04/27); K _c calculations; mechanisms and organic reaction maps.
03/05/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding. Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.
10/05/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding.	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.

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		Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	
17/05/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding. Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.
24/05/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding. Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.
07/06/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding. Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.
14/06/2027		Redox; Group 2; periodicity; alcohols (3.1.7, 3.2.1, 3.2.2, 3.3.5) Assign oxidation states, name compounds using oxidation numbers, identify oxidation and reduction and construct and combine redox half-equations. Explain Period 3 trends in atomic radius, first ionisation energy, melting point and electrical conductivity using structure and bonding. Explain Group 2 trends in reactivity and reactions with water/oxygen; describe trends in solubility of hydroxides and sulfates and relevant	Redox half-equation exercises; periodic-trend explanations; RP5 distillation record.

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Date	Exams/ Assessments	Learning Intentions	Core Task/Assessments
		uses. Classify primary, secondary and tertiary alcohols; describe oxidation with acidified dichromate, distillation versus reflux and dehydration to alkenes. Compare hydration of ethene with fermentation to produce ethanol, including conditions, advantages and disadvantages. RP5: Distil a product from a reaction and explain separation, purification, apparatus choice and safety.	
21/06/2027		Group 7; organic analysis (3.2.3, 3.3.6) Describe halogen physical-property and oxidising-power trends; predict and explain halogen displacement reactions and write ionic equations. Identify halide ions using acidified silver nitrate; describe appropriate tests for Group 2 cations, ammonium, hydroxide, carbonate and sulfate ions. RP4: Perform qualitative tests to identify cations and anions in solution, recording observations and justified conclusions. Interpret infrared spectra and simple mass spectra of organic molecules, including characteristic absorptions and molecular-ion peaks. Use chemical tests to identify functional groups, distinguish suitable organic compounds and plan simple routes of organic synthesis. RP6: Carry out tests for alcohol, aldehyde, alkene and carboxylic acid functional groups; evaluate observations and limitations.	RP4 qualitative analysis record; RP6 functional-group tests; integrated AS-style questions.
28/06/2027		Group 7; organic analysis (3.2.3, 3.3.6) Describe halogen physical-property and oxidising-power trends; predict and explain halogen displacement reactions and write ionic equations. Identify halide ions using acidified silver nitrate; describe appropriate tests for Group 2 cations, ammonium, hydroxide, carbonate and sulfate ions. RP4: Perform qualitative tests to identify cations and anions in solution, recording observations and justified conclusions. Interpret infrared spectra and simple mass spectra of organic molecules, including characteristic absorptions and molecular-ion peaks. Use chemical tests to identify functional groups, distinguish suitable organic compounds and plan simple routes of organic synthesis. RP6: Carry out tests for alcohol, aldehyde, alkene and carboxylic acid functional groups; evaluate observations and limitations.	RP4 qualitative analysis record; RP6 functional-group tests; integrated AS-style questions.
05/07/2027		Group 7; organic analysis (3.2.3, 3.3.6) Describe halogen physical-property and oxidising-power trends; predict and explain halogen displacement reactions and write ionic equations. Identify halide ions using acidified silver nitrate; describe appropriate tests for Group 2 cations, ammonium, hydroxide, carbonate and sulfate ions. RP4: Perform qualitative tests to identify cations and anions in solution, recording observations and justified conclusions. Interpret infrared spectra and simple mass spectra of organic molecules, including characteristic absorptions and molecular-ion peaks. Use chemical tests to identify functional groups, distinguish suitable organic compounds and plan simple routes of organic synthesis. RP6: Carry out tests for alcohol, aldehyde, alkene and carboxylic acid functional groups; evaluate observations and limitations.	RP4 qualitative analysis record; RP6 functional-group tests; integrated AS-style questions.
12/07/2027		Group 7; organic analysis (3.2.3, 3.3.6) Describe halogen physical-property and oxidising-power trends; predict and explain halogen displacement reactions and write ionic equations. Identify halide ions using acidified silver nitrate; describe appropriate tests for Group 2 cations, ammonium, hydroxide, carbonate and sulfate ions. RP4: Perform qualitative tests to identify cations and anions in solution, recording observations and justified conclusions. Interpret infrared spectra and simple mass spectra of organic molecules, including characteristic absorptions and molecular-ion peaks. Use chemical tests to identify functional groups, distinguish suitable organic compounds and plan simple routes of organic synthesis. RP6: Carry out tests for alcohol, aldehyde, alkene and carboxylic acid functional groups; evaluate observations and limitations.	RP4 qualitative analysis record; RP6 functional-group tests; integrated AS-style questions.

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