CENTURY

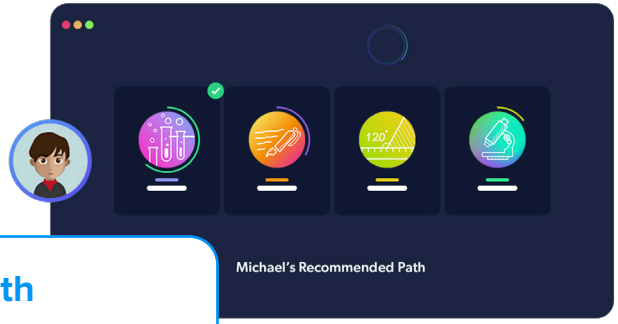
SECONDARY SCIENCE COURSE MAPPING

Supercharge learning through personalisation

www.century.tech

February 2022

HOW CENTURY WORKS



Diagnostics

Learners begin by completing diagnostics that quickly identify knowledge gaps and misconceptions, and help CENTURY recommend the best learning materials for each individual learner.

Recommended Path

This constantly adapting personalised pathway contains micro-lessons designed to address gaps in knowledge, provide stretch and challenge and promote long-term memory retention.

Leadership Dashboard

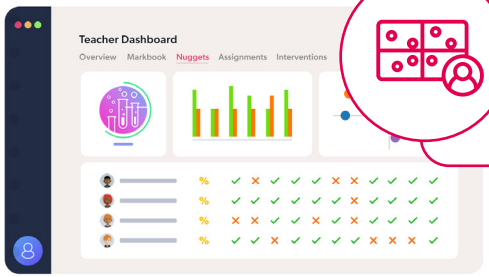
Senior and middle leaders get an overview of performance and engagement on a subject, class and learner level.

Achievements

Learners get rewarded with badges and streaks for completing micro-lessons or using CENTURY over a certain period of time to increase their motivation and engagement.

Automated Marking

Teachers can view data in real time, to help you quickly identify which learners require additional support or further stretch.

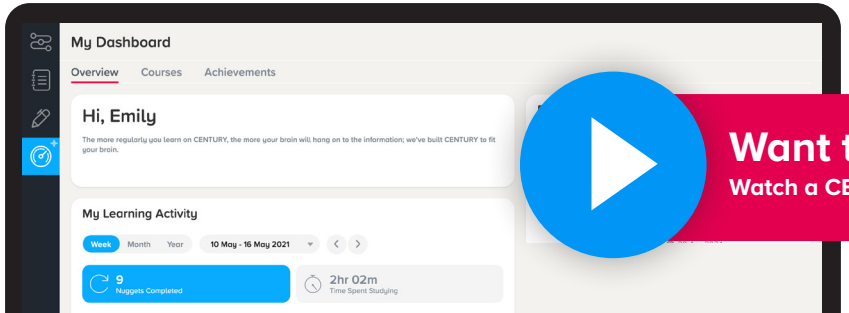


Teacher Dashboard

Use the markbook to monitor individual learners and whole-class trends with a range of dashboards.

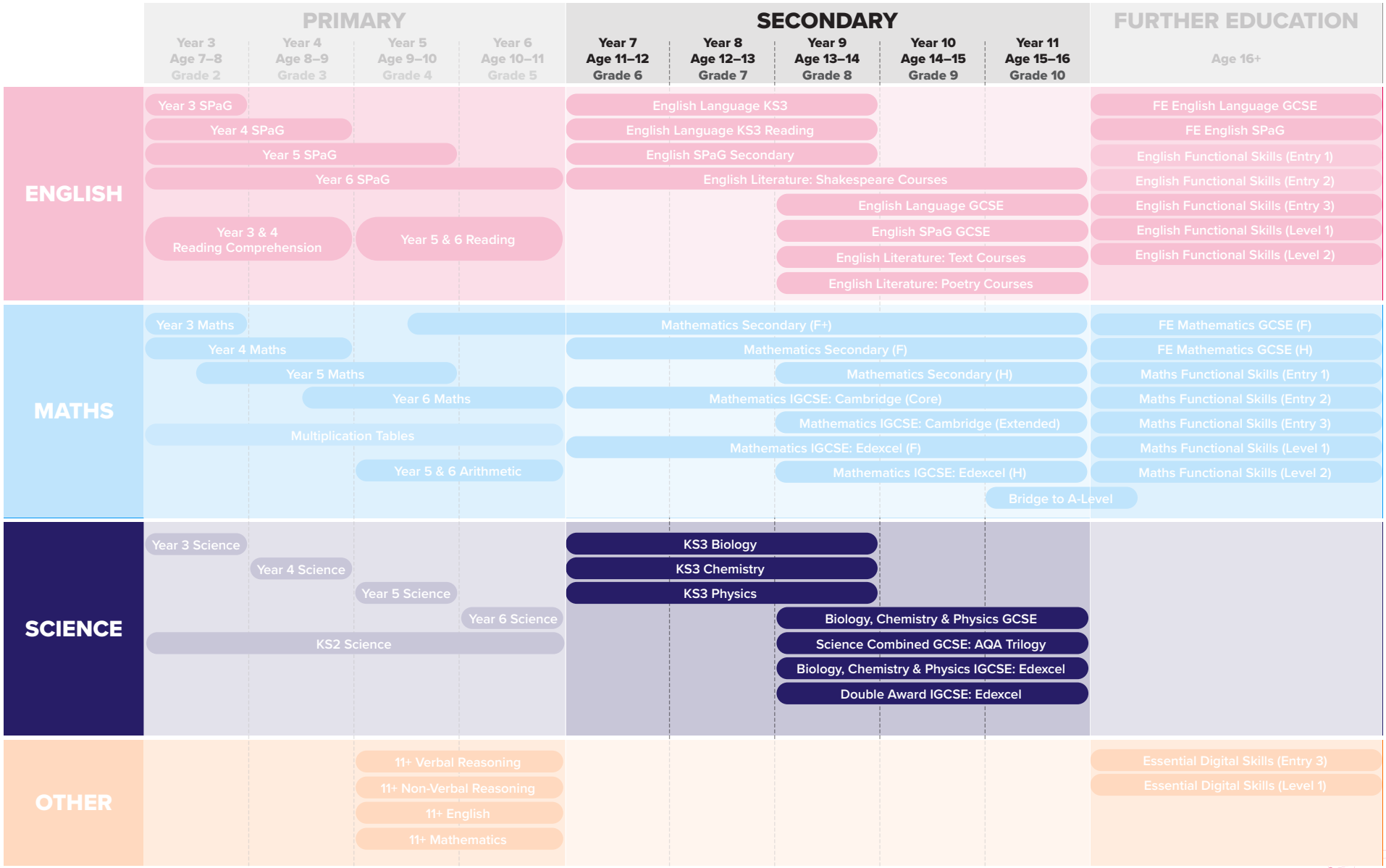
Learner Dashboard & Guardian Portal

Learners can identify their strengths and areas for improvement. Parents and guardians can monitor their learner's progress, completed work, and see work set.



Want to see this in action?
Watch a CENTURY platform walkthrough

CURRICULUM OVERVIEW



KS3 Science

KS3 Biology

95 Nuggets

Topics covered: fundamental life processes, movement, nutrition & digestion, circulation, gas exchange, health, plants, species relationships & interdependencies, genetics and evolution.

KS3 Chemistry

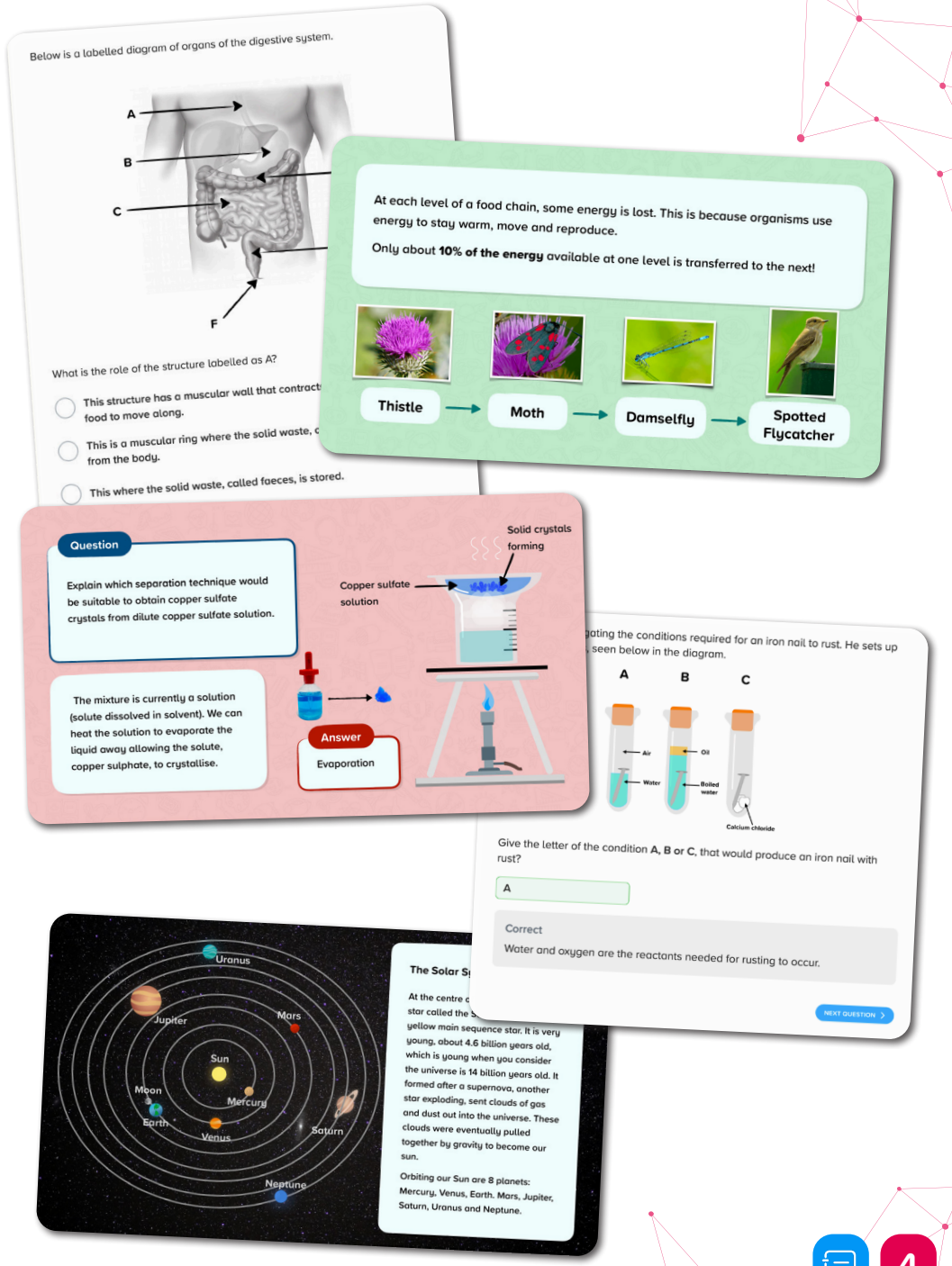
115 Nuggets

Topics covered: matter, the periodic table, electronic structure & bonding, separating mixtures, chemical reactions, equations & relative formula mass, acids & bases, the reactivity series, rates of reaction and Earth science.

KS3 Physics

190 Nuggets

Topics covered: motion, forces, fluids, pressure, work, electricity, static electricity, electronics, magnetism, sound, light, waves, energy, energy resources and space.



GCSE Separate Sciences

Mapped to the English national curriculum and are suitable for higher tier GCSE students.

Courses can be adapted to make them exam board-specific.

GCSE (H) Biology
110 Nuggets

GCSE (H) Chemistry
85 Nuggets

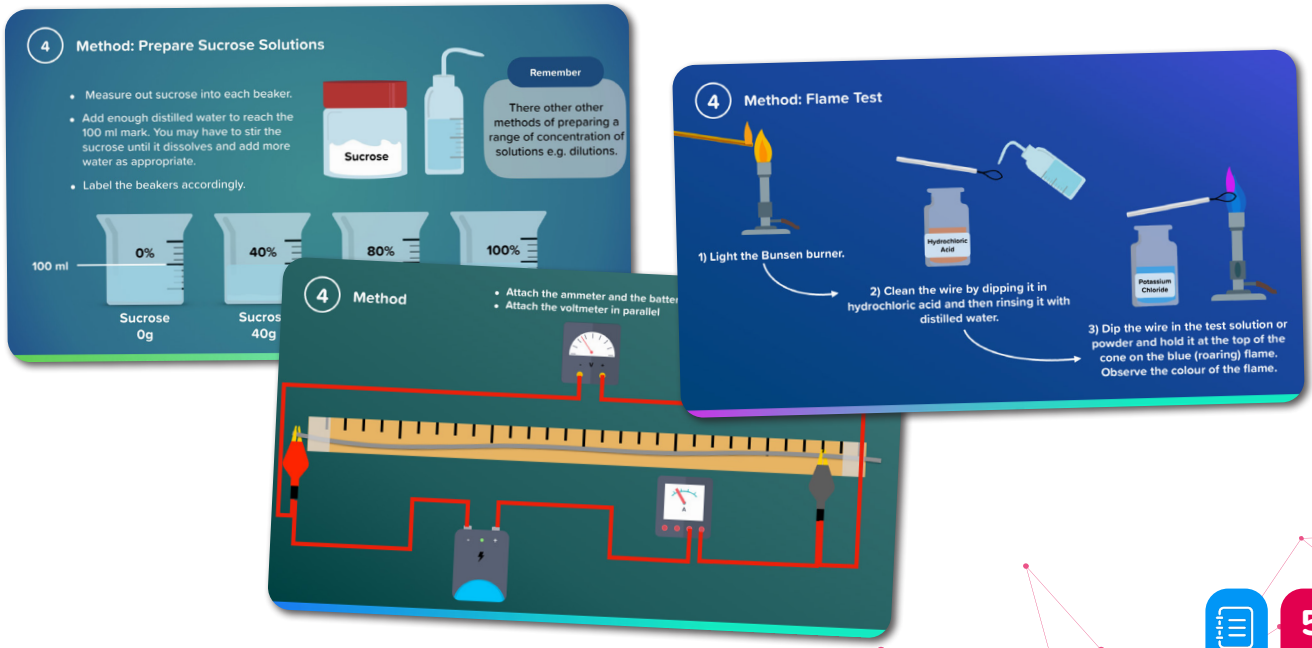
GCSE (H) Physics
100 Nuggets

GCSE Practicals
100 Nuggets

Contains the required practicals for AQA, Edexcel and OCR. Also includes nuggets on working scientifically and on relevant mathematics for scientists.

Students can practise their skills by exploring other investigations not specifically required for their exam.

Course can be adapted for your students or left unmodified.



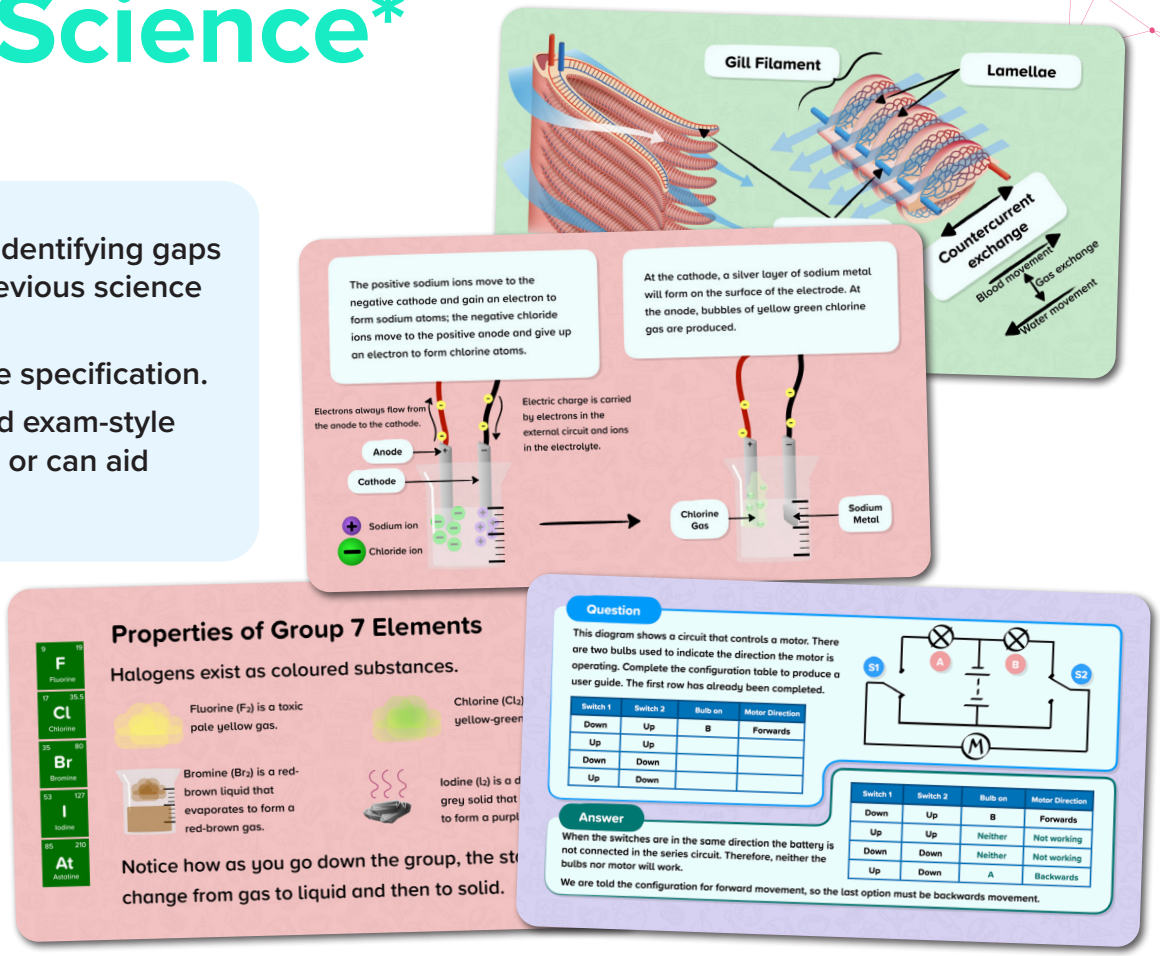
GCSE Combined Science*

AQA: 8464 (QAN: 601/8758/X)

Nuggets designed to cover one topic or skill, which makes identifying gaps and targeting interventions even more precise than with previous science courses.

The required practicals are included where they come in the specification.

Courses include **topic review diagnostics** for each topic and exam-style **paper review diagnostics** that can be used as assessments or can aid planning revision sessions closer to exams.



AQA Trilogy (F) – Biology

280 Nuggets (Paper 1)

AQA Trilogy (F) – Chemistry

285 Nuggets (Paper 1)

AQA Trilogy (F) – Physics

295 Nuggets (Paper 1)

***These courses are currently on a rolling release.**

Content from these courses will be included in the higher tier courses when they are available later this year, allowing data to move between courses.

Once the suite of AQA courses is complete, these nuggets will be rearranged and adapted for other exam specifications.

Edexcel IGCSE Science

Separate Sciences

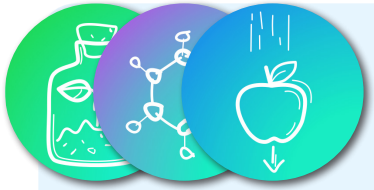
Alternative versions of our GCSE courses rearranged in the format of the Edexcel IGCSE with some supplementary nuggets covering the additional content.

IGCSE Biology: Edexcel (4BI1)
125 Nuggets

IGCSE Chemistry: Edexcel (4CH1)
100 Nuggets

IGCSE Physics: Edexcel (4PH1)
105 Nuggets

GCSE Practicals
100 Nuggets



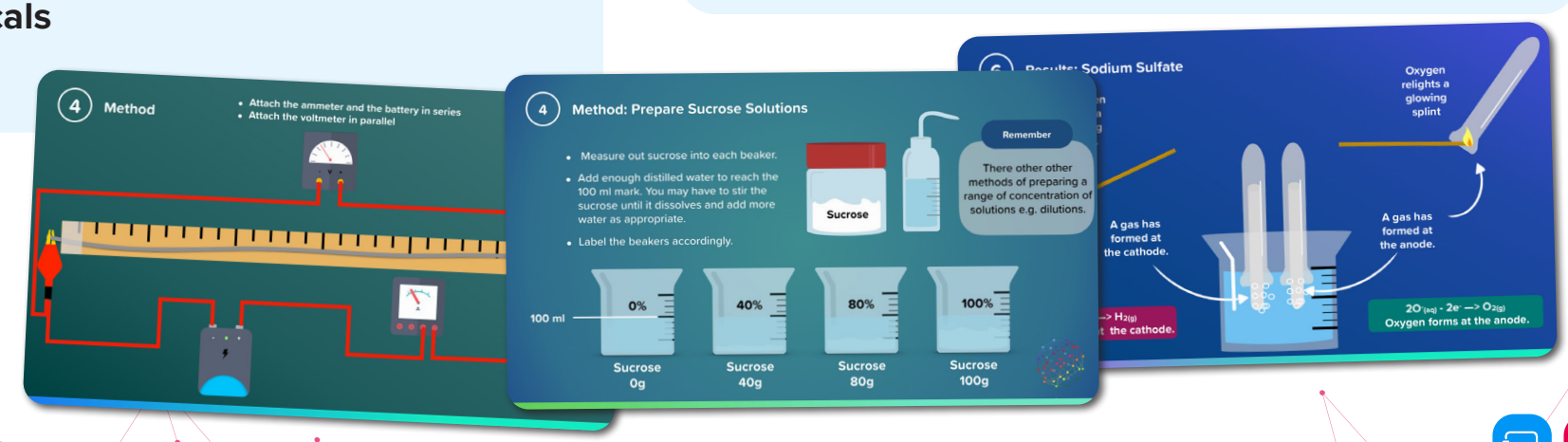
Double Award
Edexcel (4SD0)

Alternative versions of our GCSE courses rearranged in the format of the Edexcel IGCSE Double Award with some supplementary nuggets covering the additional content.

Double Award IGCSE: Edexcel – Biology
205 Nuggets

Double Award IGCSE: Edexcel – Chemistry
160 Nuggets

Double Award IGCSE: Edexcel – Physics
190 Nuggets



CENTURY

Mapping CENTURY KS3 nuggets to the English National Curriculum for Science

Supplementary nuggets have been included (starts on page 12) to allow you to build a course that fits your KS3 curriculum.

NC Topic	Nugget Names
Structure and Function of Living Organisms	
Cells and Organisation	Life Processes [BK1.01]
	An Introduction to Cells [BK1.02]
	Cell Organelles and their Functions [BK1.03]
	Using Microscopes [BK1.04]
	Specialised Cells [BK1.05]
	Cells to Organisms [BK1.07]
	Unicellular and Multicellular Organisms [BK1.08]
	Diffusion [BK1.09]
	Diffusion in Biology [BK1.10]
	Human Organs [BK2.01]
The Skeletal and Muscular Systems	Biomechanics: Joints [BK2.03]
	Biomechanics: Muscles [BK2.04]
	Measuring Movement [BK2.05]
Nutrition and Digestion	Healthy Diet [BK3.01]
	Energy From Food [BK3.02]
	Consequences of a Poor Diet [BK3.03]
	The Human Digestive System [BK3.04]
	Functions of the Digestive Organs [BK3.05]
	Bacteria in the Human Digestive System [BK3.06]
	Plant Tissues and Organs [BK9.01]
	Plant Minerals [BK9.05]
Gas Exchange Systems	The Human Gas Exchange System [BK5.01]
	Mechanics of Breathing [BK5.02]
	Adaptations in the Body for Gas Exchange [BK5.03]
	Measuring Breathing [BK5.04]
	Gas Exchange and Health [BK5.05]
	Smoking [BK5.06]
	Gas Exchange in Plants [BK9.03]
Reproduction	The Female Reproductive Organs [BK6.01]
	The Male Reproductive Organs [BK6.02]
	The Menstrual Cycle [BK6.03]

Reproduction	Sexual Reproduction in Humans [BK6.04]
	Pregnancy [BK6.05]
	Reproduction in Plants: Organs [BK9.06]
	Reproduction in Plants: Methods of Pollination [BK9.07]
	Reproduction in Plants: Fertilisation and Germination [BK9.08]
	Reproduction in Plants: Methods of Seed and Fruit Dispersal [BK9.09]
Health	Pathogens and Spread of Disease [BK7.01]
	Human Defence Systems [BK7.02]
	Immunity [BK7.03]
	Drugs [BK7.04]
	Medicines [BK7.05]
	Alcohol [BK7.06]
Material Cycles and Energy	
Photosynthesis	Photosynthesis [BK9.02]
	Increasing Photosynthesis [BK9.04]
	Role of the Producer [BK8.04]
Cellular Respiration	Aerobic Respiration [BK1.11]
	Anaerobic Respiration [BK1.12]
Interactions and Interdependencies	
Relationships in an Ecosystem	Roles in Ecosystems [BK8.02]
	Food Chains and Webs [BK8.03]
	Human Impact on Insect Pollination [BK8.07]
	Toxic Chemicals in Food Webs [BK8.06]
Genetics and Evolution	
Inheritance, Chromosomes, DNA and Genes	Nature vs Nurture [BK10.01]
	The Structure and Function of DNA [BK10.09]
	The Discovery of DNA [BK10.10]
	Species and Variation [BK10.02]
	Investigating Variation in Species [BK10.03]
	Competition in Environments [BK10.06]
	Natural Selection [BK10.07]
	Changes to Habitats and Extinction [BK10.08]
	Maintaining Biodiversity [BK10.11]
Chemistry	
The Particulate Nature of Matter	States of Matter [CK1.01]
	Changing States [CK1.02]
	Changing States: Particle Model [CK1.03]

Atoms, Elements and Compounds	Atoms, Elements, Compounds and Molecules [CK2.01]
	Element Symbols and State Symbols [CK2.03]
	Naming Compounds [CK2.04]
	Formulae for Compounds [CK2.05]
	Conservation of Mass [CK7.04]
	Chemical Reactions [CK6.01]
Pure and Impure Substances	Pure Substances and Mixtures [CK5.01]
	Solutions [CK5.03]
	Diffusion [CK1.05]
	Filtration [CK5.05]
	Evaporation [CK5.06]
	Distillation [CK5.07]
	Chromatography [CK5.08]
	Which Separating Technique? [CK5.09]
	Identifying Pure Substances [CK5.02]
Chemical Reactions	Chemical Equations [CK7.01]
	Oxidation [CK6.04]
	Combustion [CK6.05]
	Thermal Decomposition [CK6.06]
	Reactivity Series [CK9.01]
	Displacement Reactions [CK9.03]
	Acids and Bases [CK8.01]
	Indicators [CK8.03]
	Acids and Metals [CK8.05]
	Neutralisation [CK8.04]
	Catalysts [CK11.05]
Energetics	Exothermic Reactions [CK11.01]
	Endothermic Reactions [CK11.02]
The Periodic Table	Changing States: Particle Model [CK1.03]
	The Periodic Table [CK3.01]
	Metals vs Non-Metals [CK3.02]
	Group 1 [CK3.03]
	Group 7 [CK3.04]
	Group 0 [CK3.05]
	Group 2 [CK3.06]
	Metals vs Non-Metals [CK3.02]

Materials	Reactivity Series [CK9.01]
	Use of Reactivity Series [CK9.02]
	Extraction of Metals [CK9.04]
	Polymers [CK13.07]
	Ceramics and Composites [CK13.08]
Earth and Atmosphere	Structure of the Earth [CK12.01]
	The Rock Cycle [CK12.03]
	Finite and Renewable Resources [CK13.10]
	Recycling [CK13.11]
	The Carbon Cycle [BK8.10]
	Human Impact on the Atmosphere [BK8.08]
	Atmospheric Pollution [CK12.09]
	Human Impact on Climate Change [CK12.10]
Energy	
Calculation of Fuel Uses and Costs in the Domestic Context	Energy From Food [BK3.02]
	Energy at Home [PK16.05]
	The Cost of Energy [PK16.06]
	Fossil Fuels [PK16.01]
	Non-Renewable Energy Resources and Power Stations [PK16.02]
	Renewable Energy Resources [PK16.03]
Energy Changes and Transfers	Direction of Heat Transfer [PK7.02]
	Conduction [PK7.04]
	Conduction Applications [PK7.05]
	Convection [PK7.07]
	Radiation [PK7.08]
	Insulation [PK7.10]
	Changing Energy Stores [PK15.02]
	Energy Stores [PK15.01]
Changes in Systems	Summary: Energy Stores and Pathways [PK15.04]
	Energy Pathways [PK15.03]
Motion and Forces	
Describing Motion	Speed [PK1.01]
	Rearranging Speed [PK1.02]
	Shapes of Distance-Time Graphs [PK1.03]
	Finding Speed on a Distance-Time Graph [PK1.04]
	Relative Speed [PK1.10]

Forces	Introduction to Forces [PK2.01]
	Free Body Force Diagrams [PK2.03]
	Balanced and Unbalanced Forces [PK2.04]
	Calculating Balanced and Unbalanced Forces [PK2.05]
	Moments [PK5.01]
	Classes of Lever [PK5.02]
	Calculating Moments [PK5.03]
	Common Forces [PK2.02]
	Resistance Forces [PK2.15]
	Hooke's Law Practical [PK2.18]
	Stretching Objects [PK2.17]
	Introduction to Gravity [PK3.01]
	Weight and Mass [PK3.02]
	Static Electricity [PK9.01]
	Magnetic Materials [PK11.01]
Pressure in Fluids	Introduction to Pressure [PK6.01]
	Pressure in Solids [PK6.02]
	Pressure in a Liquid [PK6.04]
	Hydraulics [PK6.05]
	How does Pressure change with Depth and Height? [PK6.08]
Balanced Forces	Newton's Third Law [PK2.12]
Forces and Motion	Newton's First Law: What do Unbalanced Forces do? [PK2.06]
	Newton's Second Law [PK2.07]
Waves	
Observed Waves	Introduction to Waves [PK14.01]
	Wave Effects [PK14.02]
Sound Waves	Sound and Vibrations [PK12.01]
	Sources of Sound [PK12.02]
	Pitch and Frequency [PK12.03]
	Volume and Amplitude [PK12.04]
	Speed of Sound in Different Media [PK12.05]
	Echos [PK12.06]
	Echo Calculations [PK12.07]
	How the Ear Works [PK12.08]
	Human Hearing Range [PK12.09]
Energy and Waves	Examples of Waves [PK14.03]
	How Earthquakes Show Us the Structure of the Earth [CK12.05]
	Sound vs Light [PK13.01]

Light Waves	Sources of Light [PK13.02]
	What is Light? [PK13.03]
	Transmission, Absorption, Reflection [PK13.04]
	How Do We See? [PK13.05]
	Reflection [PK13.06]
	Images in Mirrors [PK13.07]
	Refraction [PK13.08]
	Advanced Refraction [PK13.09]
	Dispersion [PK13.10]
	Lenses [PK13.11]
	Images from Lenses [PK13.12]
	Colour Mixing: Filters [PK13.13]
	Colour Mixing: Seeing Objects in Different Lights [PK13.14]
	How does the eye work? [PK13.15]
	Introduction to the EM Spectrum [PK13.16]
Electricity and Electromagnetism	
Current Electricity	Current [PK8.08]
	Current in Series [PK8.09]
	Current in Parallel [PK8.10]
	Voltage [PK8.11]
	Voltage and Batteries [PK8.12]
	Voltage in Series [PK8.13]
	Voltage in Parallel [PK8.14]
	Resistance [PK8.15]
Static Electricity	Static Electricity: Attraction and Repulsion [PK9.02]
	Static Electricity and Shocks [PK9.03]
	The Van Der Graaf Generator [PK9.04]
Magnetism	Permanent and Induced Magnets [PK11.02]
	Making a Compass [PK11.03]
	Attraction and Repulsion of Magnets [PK11.04]
	Magnetic Fields around a Bar Magnet [PK11.05]
	Electromagnets [PK11.06]
	Experiments with Electromagnets [PK11.07]
	Uses of Electromagnets: Bell [PK11.09]
	Uses of Electromagnets: Relay Switch [PK11.10]
	Uses of Electromagnets: Circuit Breaker [PK11.11]
	Uses of Electromagnets: Motor [PK11.12]

Matter	
Physical Changes	Changing State [PK7.11]
	Solids, Liquids, Gases [PK4.01]
	Diffusion [CK1.05]
	Chemical Reactions [CK6.01]
Particle Model	Solids, Liquids, Gases [PK4.01]
	Density [CK1.07]
	Density: Floating and Sinking [PK4.02]
	Calculating Density [PK4.03]
	Measuring Density [PK4.04]
	Atoms, Elements, Compounds and Molecules [CK2.01]
Energy in Matter	Heat and Temperature [PK7.01]
	Energy Stores [PK15.01]
Space Physics	Introduction to Gravity [PK3.01]
	Weight and Mass [PK3.02]
	Measuring g on Earth Practical [PK3.03]
	Calculating Weight [PK3.04]
	Gravity and Orbits [PK3.06]
	How Does Gravity Change in Space? [PK3.07]
	Earth, Moon and Sun: Seasons [PK17.02]
	Structure of the Solar System [PK17.04]
	Structure of the Universe [PK17.05]
Supplementary Content	
Cells to Organisms	Bacteria and Fungi [BK1.06]
The Human Body	The Human Skeleton [BK2.02]
	The Blood [BK4.01]
	Structure and Function of the Heart [BK4.02]
	Blood Vessels [BK4.03]
	Measuring Heart Rate [BK4.04]
	The Effect of Exercise on Heart Rate [BK4.05]
	Heart Disease [BK4.06]
	The Lymphatic System [BK4.07]
Natural Cycles	Types of Ecosystems [BK8.01]
	Human Impact on Ecosystems [BK8.05]
	Investigating Ecosystems [BK8.09]
	The Nitrogen Cycle [BK8.11]
	The Water Cycle [BK8.12]

Plants	Investigating Plants [BK9.10]
	Why Are Plants Green? [BK9.11]
	Adaptations of Animals [BK10.04]
	Adaptations of Plants [BK10.05]
Particle Model	Changing States: Boiling and Melting Points [CK1.04]
	Behaviour of Matter [CK1.06]
	Energy During State Changes [CK11.04]
	Reaction Profiles [CK11.03]
	Rearranging Density Equation [PK4.05]
Atomic Structure and Bonding	Atomic Structure [CK2.02]
	Electronic Structure [CK4.01]
	Forming Ions [CK4.02]
	Ionic Bonding [CK4.03]
	Covalent Bonding [CK4.04]
	Metallic Bonding [CK4.05]
Mixtures	Potable Water [CK5.10]
	Solubility [CK5.04]
Chemical Reactions	Hazards and Risks [CK6.02]
	Testing for Gases [CK6.03]
	Flame Tests [CK6.07]
	Acids and Metal Oxides [CK8.06]
	Acids and Metal Hydroxides [CK8.07]
	Acids and Metal Carbonates [CK8.08]
Chemical Calculations	Balancing Equations [CK7.02]
	Relative Formula Mass [CK7.03]
	Percentage Yield [CK7.05]
	Atom Economy [CK7.06]
	Concentration and Strength [CK8.02]
Rates of Reaction	Electrolysis [CK9.05]
	Rates of Reaction [CK10.01]
	Factors Affecting the Rate of Reaction [CK10.02]
	Collision Theory [CK10.03]
	Measuring Rate of Reaction [CK10.04]
Earth Science	Types of Rock [CK12.02]
	Tectonic Plates [CK12.04]
	How has the Structure of the Earth Changed [CK12.06]

Climate Change	Climate [CK12.07]
	Natural Climate Change [CK12.08]
	Global Warming [PK16.04]
	Life-Cycle Assessment [CK13.12]
Properties of Materials	Properties of Materials - Chemical Properties [CK13.01]
	Properties of Materials - Physical Properties [CK13.02]
	Properties of Materials - Mechanical Properties [CK13.03]
	Types of materials [CK13.04]
	Properties of Metals vs Non-Metals [CK13.05]
	Alloys [CK13.06]
	Rusting and Corrosion [CK13.09]
Organic Chemistry	Hydrocarbons [CK14.01]
	Fractional Distillation of Crude Oil [CK14.02]
	Cracking of Crude Oil [CK14.03]
	Fuels [CK14.04]
Forces and Motion	Calculating Acceleration [PK1.05]
	Rearranging the Acceleration Equation [PK1.06]
	Shapes of Speed-Time Graphs [PK1.07]
	Finding Acceleration on a Speed-Time Graph [PK1.08]
	Finding Distance from a Speed-Time Graph [PK1.09]
	F=ma Practical [PK2.08]
	Rearranging F=ma [PK2.09]
	F=ma with unbalanced forces in 1D [PK2.10]
	The Two Acceleration Equations [PK2.11]
	Friction [PK2.13]
	Friction Experiment WS [PK2.14]
	Terminal Velocity [PK2.16]
	Rearranging Weight Equation [PK3.05]
	Freefall [PK3.08]
	Newton's Cannon [PK3.09]
Work and Moments	Rearranging the Moment Equation [PK5.04]
	Moments and Equilibrium [PK5.05]
	Advanced Moments: More than 2 objects on a see saw [PK5.06]
	Advanced Moments: Forces in both directions [PK5.07]
	Practical: Finding the Mass of a Ruler [PK5.08]
	Stability and Centre of Mass [PK5.09]
	Practical: Finding the Centre of Mass of a Lamina [PK5.10]
	Work [PK5.11]

Pressure	Rearranging Pressure [PK6.03]
	Hydraulic Equations [PK6.06]
	Atmospheric Pressure [PK6.07]
	How does Pressure change with Temperature? [PK6.09]
	How does Pressure change with Volume? [PK6.10]
Energy Transfer	Cooling Curves [PK7.03]
	Thermal Expansion [PK7.06]
	Radiation and Absorption Experiment [PK7.09]
	Cooling by Evaporation [PK7.12]
Electricity	Introduction to Electricity [PK8.01]
	Conductors and Insulators [PK8.02]
	Conductors Experiment WS [PK8.03]
	Circuit Symbols and Drawing Circuits [PK8.04]
	Advanced Circuit Symbols [PK8.05]
	Series and Parallel Circuits [PK8.06]
	Complete and Incomplete Circuits [PK8.07]
	Calculating Resistance [PK8.16]
	AC vs DC [PK8.17]
	Electrical Safety at Home [PK8.18]
	Wiring a Plug [PK8.19]
	Magnetic Field around an Electromagnet [PK11.08]
Electronics	Analogue and Digital [PK10.01]
	Logic Gates [PK10.02]
	Truth Tables [PK10.03]
	Combinations of Logic Gates [PK10.04]
	Advanced Logic Gates [PK10.05]
Efficiency	Efficiency [PK15.05]
	How to Draw a Sankey Diagram [PK15.06]
	Calculating Efficiency [PK15.07]
Space	Earth, Moon and Sun: Phases of the Moon [PK17.01]
	Earth, Moon and Sun: Eclipses [PK17.03]
	How do we know about the Universe? [PK17.06]
	How has our view of the Universe changed? [PK17.07]

CENTURY

Nuggets included in Biology - GCSE - Higher

You can edit this course to match your specification.

Strand	Nugget Names
Cell Biology	Eukaryotic Cells [BH1.01]
	Prokaryotic Cells [BH1.02]
	Microscopy [BH1.03]
	Orders of Magnitude [BH1.04]
	Microorganisms: Aseptic Technique [BH1.05]
	Analysing Bacterial Cultures [BH1.06]
	Specialised Cells [BH1.07]
	Cell Division: Mitosis [BH1.08]
	Cell Division: Cancer [BH1.09]
	Cell Division: Meiosis [BH1.10]
	Cell Differentiation & Stem Cells [BH1.11]
	Stem Cells in Medicine [BH1.12]
Cell Metabolism	Biological Molecules [BH2.01]
	Aerobic & Anaerobic Respiration [BH2.02]
	Respiration: Effects of Exercise [BH2.03]
	Enzyme Action [BH2.04]
	Factors Affecting Rate of Enzyme Activities [BH2.05]
	Enzymes: Digestion [BH2.06]
Transport Systems	Cells, Tissues and Organs [BH3.01]
	Transport in Cells: Diffusion [BH3.02]
	Transport in Cells: Osmosis [BH3.03]
	Transport in Cells: Active Transport [BH3.04]
	Exchange Surfaces & SA:V [BH3.05]
	Circulatory System: Blood Components [BH3.06]
	Circulatory System: Blood Vessels [BH3.07]
	Circulatory System: The Heart [BH3.08]
	Circulatory System: Breathing & Gaseous Exchange [BH3.09]
	Plant Tissues and Organs [BH3.10]
	Transport in Plants: Xylem and Phloem [BH3.11]
	Transpiration: Stomata and Factors Affecting Rate [BH3.12]
Non-communicable Disease	Health & Disease [BH4.01]
	Diet, Exercise & Disease [BH4.02]
	Smoking and Disease [BH4.03]
	Alcohol & Disease [BH4.04]
	Cardiovascular Disease [BH4.05]

Communicable Disease & Medicine	Pathogens: Spread & Prevention [BH5.01]
	Bacterial Diseases [BH5.02]
	Viral Diseases [BH5.03]
	Fungal Diseases [BH5.04]
	Protist Diseases: Malaria [BH5.05]
	Plant Disease: Detection & Defence [BH5.06]
	Human Defence System [BH5.07]
	Vaccines & Drugs [BH5.08]
	Developing Drugs [BH5.09]
	Monoclonal Antibodies [BH5.10]
Photosynthesis & Plant Responses	Photosynthesis [BH6.01]
	Limiting Factors of Photosynthesis [BH6.02]
	Controlling Photosynthesis [BH6.03]
	Plant Tropisms: Auxin [BH6.04]
	Using Plant Hormones: Auxin, Gibberellins & Ethene [BH6.05]
Reproduction, Inheritance & Genetics	Asexual & Sexual Reproduction [BH7.01]
	DNA & The Genome [BH7.02]
	DNA Structure & Protein Synthesis [BH7.03]
	Gene Expression & Mutation [BH7.04]
	Inheritance & Genetic Diagrams [BH7.05]
	Inherited Disorders, Codominance & Sex Determination [BH7.06]
	History of Inheritance: Mendel & Variation [BH7.07]
Evolution & Gene Technology	Theory of Natural Selection [BH8.01]
	Evidence for Evolution [BH8.02]
	Darwin, Wallace & Speciation [BH8.03]
	Classification Systems [BH8.04]
	Selective Breeding [BH8.05]
	Cloning Methods [BH8.06]
	Genetic Engineering & Gene Technologies [BH8.07]
Ecosystems	Levels of Organisation [BH9.01]
	Competition in Animals and Plants [BH9.02]
	Feeding Relationships and Trophic Levels [BH9.03]
	Biomass: Pyramids and Transfers [BH9.04]
	Distribution & Abundance of Organisms [BH9.05]
	The Decay Cycle [BH9.06]
	The Carbon Cycle [BH9.07]
	The Nitrogen Cycle [BH9.08]
	The Water Cycle [BH9.09]

Human Nervous System	The Nervous System [BH10.01]
	Reflex Arcs [BH10.02]
	The Eye: Structure and Function [BH10.03]
	The Eye: Common Defects and Treatment [BH10.04]
	The Brain [BH10.05]
Hormonal Control in Humans	The Endocrine System [BH11.01]
	Negative Feedback, Thyroxine & Adrenaline [BH11.02]
	Puberty & the Menstrual Cycle [BH11.03]
	Hormones & the Menstrual Cycle [BH11.04]
	Contraception Methods [BH11.05]
	Infertility Treaments [BH11.06]
	Insulin & Diabetes [BH11.07]
	Role of Glucagon [BH11.08]
Homeostasis	Thermoregulation [BH12.01]
	Removing Waste Products [BH12.02]
	The Human Kidney [BH12.03]
	Dialysis and Kidney Transplant [BH12.04]
	ADH & Water Balance [BH12.05]
Human Effect on the Environment	The Impact of Environmental Changes [BH13.01]
	Climate Change and Habitat Loss [BH13.02]
	Pollution [BH13.03]
	Maintaining Biodiversity [BH13.04]
	Food Security [BH13.05]

CENTURY

Nuggets included in Chemistry - GCSE - Higher

You can edit this course to match your specification.

Strand	Nugget Names
Atomic Structure and the Periodic Table	Atomic Structure [CHH1.01]
	The Atomic Model [CHH1.02]
	Atoms, Elements & Compounds [CHH1.03]
	Atomic Number, Mass Number & Isotopes [CHH1.04]
	Electronic Structure of Atoms [CHH1.05]
	Conservation of Mass [CHH1.06]
	Development of the Periodic Table [CHH1.07]
	Electronic Structure & The Periodic Table [CHH1.08]
	Alkali Metals [CHH1.09]
	The Halogens [CHH1.10]
	Metals, Non-metals & Transition Metals [CHH1.11]
Structure, Bonding and the Properties of Matter	States of Matter: Particle Model & Limitations [CHH2.01]
	Chemical Bonds: Ionic Bonding [CHH2.02]
	Chemical Bonds: Covalent Bonding [CHH2.03]
	Chemical Bonds: Metallic Bonding [CHH2.04]
	Chemical Bonds: Changes of State [CHH2.05]
	Chemical Bonds: Types of Substances [CHH2.06]
	Carbon: Structure and Bonding [CHH2.07]
	Nanoparticles [CHH2.08]
Chemical Changes	Chemical Formulae & Empirical Formulae [CHH3.01]
	Balancing Chemical Equations [CHH3.02]
	Testing for Gases [CHH3.03]
	The pH Scale & Neutralisation [CHH3.04]
	Acids: Reactions with Metals and Carbonates [CHH3.05]
	Acids: Strength & Concentration [CHH3.06]
	Redox Reactions [CHH3.07]
	The Reactivity Series & Displacement Reactions [CHH3.08]
	Electrolysis: The Process [CHH3.09]
	Electrolysis: Predicting the Products [CHH3.10]
Energy Changes	Exothermic & Endothermic Reactions [CHH4.01]
	Reaction Profiles [CHH4.02]
	Bond Energy Calculations [CHH4.03]
	Electrochemical Cells [CHH4.04]
	Voltage of a Cell [CHH4.05]
	Fuel Cells: Function, Advantages & Disadvantages [CHH4.06]

Rates of Reaction	Rate of Reaction: Measuring & Analysing [CHH5.01]
	Collision Theory [CHH5.02]
	Rate of Reaction: The Effect of Catalysts [CHH5.03]
	Reversible Reactions & Dynamic Equilibrium [CHH5.04]
	Dynamic Equilibrium: The Effect of Reaction Conditions [CHH5.05]
Organic Chemistry	Organic Reactions: Alkanes [CHH6.01]
	Organic Reactions: Alkenes [CHH6.02]
	Organic Reactions: Alcohols [CHH6.03]
	Organic Reactions: Carboxylic Acids [CHH6.04]
	Addition Polymerisation [CHH6.05]
	Condensation Polymerisation [CHH6.06]
	Natural Polymers & DNA [CHH6.07]
Chemical Analysis	Pure Substances and Mixtures [CHH7.01]
	Separation Techniques: Filtration and Crystallisation [CHH7.02]
	Separation Techniques: Simple and Fractional Distillation [CHH7.03]
	Separation Techniques: Chromatography [CHH7.04]
	Tests for Cations [CHH7.05]
	Tests for Anions [CHH7.06]
	Instrumental Methods of Analysis [CHH7.07]
Quantitative Chemistry	Mole: Mass and Molar Mass [CHH8.01]
	Avogadro's Constant & Mole [CHH8.02]
	Stoichiometry & Limiting Reactants [CHH8.03]
	Mole: Concentration & Volume of Solutions [CHH8.04]
	Mole: Titration Calculation [CHH8.05]
	Mole: Volume of Gases [CHH8.06]
Chemical Industries	Materials & Recycling [CHH9.01]
	Materials: Properties & Uses [CHH9.02]
	Corrosion: Process & Prevention [CHH9.03]
	Fractional Distillation of Crude Oil [CHH9.04]
	Extraction of Metals: Electrolysis [CHH9.05]
	Extraction of Metals: Reduction with Carbon [CHH9.06]
	Extraction Of Metals: Biological Methods [CHH9.07]
	Percentage Yield & Atom Economy [CHH9.08]
	The Haber Process [CHH9.09]
	Fertilisers: In the Lab & Industry [CHH9.10]

Earth and Atmosphere Science	Earth's Atmosphere: Formation and Development [CHH10.01]
	Greenhouse Effect and Climate Change [CHH10.02]
	Effects of Common Air Pollutants [CHH10.03]
	Potable Water & Purification [CHH10.04]
	Waste Water Treatment [CHH10.05]

CENTURY

Nuggets included in Physics - GCSE - Higher

You can edit this course to match your specification.

Strand	Nugget Names
Energy	Energy Stores and Pathways [PHH1.01]
	Dissipation of Energy [PHH1.02]
	Kinetic Energy [PHH1.03]
	Gravitational Potential Energy [PHH1.04]
	Elastic Potential Energy [PHH1.05]
	Energy Sources: Fossil Fuels and Nuclear Power [PHH1.06]
	Energy Sources: Biofuels, Wind, Solar and Geothermal [PHH1.07]
	Energy Sources: Hydroelectricity, Waves and Tides [PHH1.08]
	Energy Sources: Patterns & Trends [PHH1.09]
Energy Transfer	Work Done [PHH2.01]
	Power [PHH2.02]
	Heating & Specific Heat Capacity [PHH2.03]
	Conduction [PHH2.04]
	Thermal Conduction in Metals: Free Electrons [PHH2.05]
	Calculating Efficiency [PHH2.06]
	Increasing Efficiency [PHH2.07]
	Heating and Insulating Buildings [PHH2.08]
Forces	Forces Between Objects: Forces, Vectors and Scalars [PHH3.01]
	Weight, Mass and Gravitational Field Strength [PHH3.02]
	Resultant Forces & Free Body Diagrams [PHH3.03]
	Elasticity and Hooke's Law [PHH3.04]
	Pressure: Surfaces [PHH3.05]
	Pressure: Fluids [PHH3.06]
	Pressure: Atmosphere [PHH3.07]
	Moments and Equilibrium [PHH3.08]
	Moments: Levers [PHH3.09]
	Moments: Gears [PHH3.10]
Motion	Speed and Velocity [PHH4.01]
	Acceleration and Deceleration [PHH4.02]
	Motion Graphs: Distance-Time Graphs [PHH4.03]
	Motion Graphs: Velocity-Time Graphs [PHH4.04]
	Motion Graphs: Enclosed Areas and Tangents [PHH4.05]
	Reaction Time & Stopping Distance [PHH4.06]

Motion	Forces Between Objects: Newton's Third Law [PHH4.07]
	Forces & Motion: Newton's Second Law and Inertial Mass [PHH4.08]
	Forces & Motion: Momentum & Collisions [PHH4.09]
	Impact Forces in Car Crashes [PHH4.10]
Waves in Matter	Features of Waves [PHH5.01]
	Transverse and Longitudinal Waves [PHH5.02]
	Waves: Measuring Speed [PHH5.03]
	Waves: Reflection, Refraction, Transmission & Absorption [PHH5.04]
	Human Hearing [PHH5.05]
	Waves: Ultrasound [PHH5.06]
	Waves: Seismic Waves [PHH5.07]
Light and Electromagnetic Waves	Electromagnetic Waves [PHH6.01]
	Uses of Electromagnetic Waves [PHH6.02]
	Convex (Converging) Lenses [PHH6.03]
	Concave (Diverging) Lens [PHH6.04]
	Uses of Lenses and Magnification [PHH6.05]
	Visible Light [PHH6.06]
	Infrared Radiation and Black Body Radiation [PHH6.07]
Radioactivity	The Atomic Model [PHH7.01]
	Atoms, Isotopes and Ions [PHH7.02]
	Radioactive Decay: Types of Radiation [PHH7.03]
	Radioactive Decay: Nuclear Equations [PHH7.04]
	Background Radiation [PHH7.05]
	Half Life [PHH7.06]
	Uses and Risks of Nuclear Radiation [PHH7.07]
	Nuclear Fission [PHH7.08]
	Nuclear Fusion [PHH7.09]
The Particle Model of Matter	Density and States of Matter [PHH8.01]
	Physical and Chemical Changes [PHH8.02]
	Specific Latent Heat and Specific Heat Capacity [PHH8.03]
	Work Done on a gas [PHH8.04]
	Gas pressure and temperature [PHH8.05]
	Gas pressure and volume [PHH8.06]
	Pressure in gases and liquids [PHH8.07]

Space Physics	Orbits [PHH9.01]
	Red-Shift & the Expanding Universe [PHH9.02]
	The Life Cycle of Stars [PHH9.03]
	The Solar System [PHH9.04]
Electricity	Static Electricity & Electric Fields [PHH10.01]
	Introducing resistance, current and potential difference [PHH10.02]
	Calculating Current, Potential Difference and Resistance [PHH10.03]
	Circuit Symbols [PHH10.04]
	Power and energy [PHH10.05]
	Parallel and Series Circuits [PHH10.06]
	The National Grid [PHH10.07]
	Domestic Electricity [PHH10.08]
	Resistance across different components [PHH10.09]
Magnetism and Electromagnetism	Magnetism: Permanent and Induced Magnets [PHH11.01]
	Magnetic Fields [PHH11.02]
	Magnetic Fields of Electric Currents [PHH11.03]
	Uses of Electromagnets [PHH11.04]
	The Motor Effect and Fleming's Left Hand Rule [PHH11.05]
	The Motor Effect: Forces and Magnetic Flux Density [PHH11.06]
	Induced Potential: Alternators and Dynamos [PHH11.07]
	Transformers: How they work [PHH11.08]
	Transformers: Equations and Efficiency [PHH11.09]
	Microphones and Speakers [PHH11.10]

CENTURY

Nuggets included in Science – GCSE Practicals

Strand	Diagnostic	Nugget Names
Working Scientifically	Diagnostic: Designing Experiments [SP0.01]	Science & Scientific Applications [SP1.01]
		Developing Scientific Theories [SP1.02]
		Scientific Questions, Hypothesis & Prediction [SP1.03]
		Designing Investigations [SP1.04]
		Hazards and Risks [SP1.05]
	Diagnostic: Handling Data [SP0.02]	Data Calculation [SP1.06]
		Presenting Data: Tables [SP1.07]
		Presenting Data: Bar Charts [SP1.08]
		Presenting Data: Pie Charts [SP1.09]
		Presenting Data: Histograms [SP1.10]
		Presenting Data: Graphs [SP1.11]
	Diagnostic: Interpreting Data [SP0.03]	Interpreting Data: Gradients [SP1.12]
		Interpreting Data: Gradients of Curves [SP1.13]
		Interpreting Data: Area under the Graph [SP1.14]
		Interpreting Data: Area under the Curve [SP1.15]
		Interpreting Data: Shapes of Graphs [SP1.16]
	Diagnostic: Conclusions and Evaluations [SP0.04]	Drawing Conclusions [SP1.17]
		Errors and Uncertainties [SP1.18]
		Evaluating Experiments [SP1.19]
		Units [SP1.20]
		Using Formulas [SP1.21]
Chemistry Practicals		Investigating pH [SP2.01]
		Electrolysis Practical [SP2.02]
		Rates of Reaction: Surface Area (HCl and Marble) [SP2.03]
		Rates of Reaction: Temperature (HCl and Mg) [SP2.04]
		Rates of Reaction: Concentration (Cross Method) [SP2.05]
		Making Salts [SP2.06]
		Distillation Practical [SP2.07]
		Chromatography Practical [SP2.08]
		Identifying Cations: Flame Tests Practical [SP2.09]
		Identifying Cations: Precipitate Tests Practical [SP2.10]
		Identifying ions: Testing for Non-Metals Practical [SP2.11]
		Carrying out Titration Reactions [SP2.12]
		Titration Calculations from Experiments [SP2.13]
		Temperature Change in Combustion [SP2.14]
		Temperature Change in Exothermic Reactions [SP2.15]
		Group 7 trends in reactivity-displacement [SP2.16]

Biology Practicals	Osmosis in Potatoes: Method & Data Collection [SP3.01]
	Osmosis in Potatoes: Analysis & Conclusion [SP3.02]
	Testing Foods for Biological Molecules [SP3.03]
	Using Microscopes [SP3.04]
	Ecological Sampling: Quadrats [SP3.05]
	Ecological Sampling: Transects [SP3.06]
	Light Intensity & Photosynthesis [SP3.07]
	Investigating pH and Enzyme Activity [SP3.08]
	Investigating Antimicrobial Agents [SP3.09]
	Physiology: Respiration [SP3.10]
	Plant Responses to Light [SP3.11]
	Temperature and Decay [SP3.12]
	Anaerobic respiration [SP3.13]
	Reaction time [SP3.14]
	Investigating Temperature and Enzyme Activity [SP3.15]
	Investigating Respiration Using a Respirometer [SP3.16]
Physics Practicals	Specific Heat Capacity of Solids Practical [SP4.01]
	Specific Heat Capacity of Liquids Practical [SP4.02]
	Changing State: Experiment investigating Temperature [SP4.03]
	Finding the Density of Solids [SP4.04]
	Finding the Density of Liquids [SP4.05]
	Hooke's Law Experiment [SP4.06]
	Acceleration of a Trolley using Ticker Tape [SP4.07]
	F=ma Experiment (Pulleys) [SP4.08]
	F=ma Extension Ideas [SP4.09]
	Investigating the Brightness of Bulbs [SP4.10]
	Investigating Resistors in Series and Parallel [SP4.11]
	Investigating Resistance & Length [SP4.12]
	Investigating the I-V Characteristics of a Resistor [SP4.13]
	Investigating the I-V Characteristics of a Filament Bulb [SP4.14]
	Investigating the I-V Characteristics of a Diode [SP4.15]
	Finding the Speed of a Wave with a Ripple Tank [SP4.16]
	Finding the Speed of a Wave on a String [SP4.17]
	Reflection and Refraction of Light [SP4.18]
	Experiment to find the Refractive index [SP4.19]
	Radiation and Absorption Experiment [SP4.20]
	Thermal Insulation [SP4.21]

Maths for Scientists		Interpreting Pie Charts [MF50.11]
		Drawing Scatter Graphs [MF50.13]
		Creating Pie Charts (Calculator) [MF50.10]
		Bar Charts [MF50.04]
		Area of Right Angled Triangles [MF31.04]
		Area of Squares, Rectangles and Parallelograms [MF31.03]
		Range 1: Positive Integers [MF49.07]
		Mean 1: Positive Integers [MF49.03]
		Median [MF49.02]
		Mode [MF49.01]
		Understanding Percentages [MF7.01]
		Reading Scales [MF36.01]
		Converting Metric Length (One Step) [MF36.04]
		Substituting into a Formula [MF21.02]
		Rearranging Formulae: One Step [MF21.05]
		Finding the Gradient of a Line Segment: Using the Formula [MF23.09]
		Finding the Gradient of a Line Segment: Using the Graph [MF23.08]
		Hypotheses, Primary Data and Secondary Data [MF48.01]
		Discrete and Continuous Data [MF48.02]
		Substitution into Expressions 1: One Term [MF17.13]
		Solving Equations: One Step (÷) [MF19.03]
		Solving Equations: One Step (×) [MF19.02]
		Area of a Circle: From Radius [MF32.07]

CENTURY

Combined Science GCSE: AQA Trilogy (F) - Biology

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 1 - Cell Biology	4.1.1.1	Diagnostic: Cells & Cell Structure [BI0.01]	BI1.01	Introduction to Prokaryotic & Eukaryotic Cells	An introduction to the differences between prokaryotic and eukaryotic cells and their sizes.
	4.1.1.2		BI1.02	Animal Cells	Identify the sub-cellular structures of animal cells and give their functions.
	4.1.1.2		BI1.03	Plant Cells	Identify the sub-cellular structures of plant cells and give their functions.
	4.1.1.2		BI1.04	Comparing Animal & Plant Cells	Compare the structure of animal and plant cells and give their functions.
	4.1.1.1		BI1.05	Bacterial Cells	Identify the sub-cellular structures of bacterial cells and give their functions.
	4.1.1.1		BI1.07	Comparing Prokaryotic & Eukaryotic Cells	Compare the structure of prokaryotic and eukaryotic cells.
	Supplementary		BI1.08	Algae	Describe the structures of algae, where they are found and their importance in ecosystems.
	Supplementary (4.6.4)		BI1.09	Archaea	Describe the structures of archaea, where they are found and their importance in ecosystems and industry.
	4.1.1.5		BI1.10	Microscopes	Describe the developments in microscopy techniques over time and explain how electron microscopy has increased understanding of cells.
	4.1.1.5		BI1.11	Calculating Magnification I	Calculate magnification without unit conversions.
	4.1.1.5		BI1.12	Calculating Magnification II	Calculate magnification with unit conversions.
	4.1.1.5		BI1.13	Rearranging the Magnification Equation	Rearrange the magnification equation.
	RP1		BI1.14	Required Practical 1: Using a Light Microscope	Using a light microscope to observe, draw and label cells.
	4.1.1.4/ 4.1.2.3		BI1.15	Differentiation	Describe cell differentiation in animals and plants and explain its importance.
	4.1.1.3		BI1.16	Specialised Cells in Animals	Give examples of specialised cells in animals and describe their features.
cont. next page	4.1.1.3		BI1.17	Specialised Cells in Plants	Give examples of specialised cells in plants and describe their features.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.1.2.1	Diagnostic: Body Cell Division & Stem Cells [BI0.03]	BI1.18	Chromosomes	State where chromosomes are found and their arrangement. Define DNA, chromosome and gene.
	4.1.2.2		BI1.19	The Cell Cycle	Describe the stages of the cell cycle.
	4.1.2.2		BI1.20	Cell Division: Mitosis	Describe the process of cell division by mitosis.
	4.1.2.3		BI1.28	Plant Stem Cells	Describe where plant stem cells are found and their differentiation.
	4.1.2.3		BI1.29	Using Plant Stem Cells	Describe how plant stem cells can be used by humans to clone plants.
	4.1.2.3		BI1.30	Animal Stem Cells	Describe where animal stem cells are found and their differentiation.
	4.1.2.3		BI1.31	Using Animal Stem Cells	Describe stem cell treatments.
	4.1.2.3		BI1.32	Therapeutic Cloning	Describe the process of therapeutic cloning and give advantages and disadvantages of it.
	4.1.2.3		BI1.33	The Ethics of Using Embryonic Stem Cells	Describe the ethical arguments for and against the use of embryonic stem cells.
Topic 1 - Cell Biology	4.1.3.1	Diagnostic: Exchanging Substances [BI0.06]	BI1.34	Exchanging Substances: Diffusion	Define and describe diffusion.
	4.1.3.1		BI1.35	Factors Affecting the Rate of Diffusion	List the factors that affect the rate of diffusion and apply that knowledge.
	4.1.3.1		BI1.36	Examples of Diffusion in Biology	Give examples of diffusion in biology.
	4.1.3.2		BI1.37	Exchanging Substances: Osmosis	Define and describe osmosis.
	RP2		BI1.38	Required Practical 2: Osmosis - Method & Data Collection	Investigate the effects of a range of concentration of solutions on the mass of potato.
	RP2		BI1.39	Required Practical 2: Osmosis - Analysis & Conclusion	Investigate the effects of a range of concentration of solutions on the mass of potato.
	4.1.3.3		BI1.42	Exchanging Substances: Active Transport	Define and describe active transport.
	4.1.3.3		BI1.43	Examples of Active Transport	Give examples of active transport.
cont. next page	4.1.3.1/2/3	cont. next page	BI1.44	Comparing Diffusion, Osmosis & Active Transport	Compare diffusion, osmosis and active transport.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page Topic 1 - Cell Biology	4.1.3.1	cont. from previous page Diagnostic: Exchanging Substances [BI0.06]	BI1.45	Surface Area to Volume Ratio	Calculate and compare surface area to volume ratios.
	4.1.3.1		BI1.46	The Need for Exchange Surfaces	Use surface area to volume ratios to explain the need for exchange surfaces in multicellular organisms.
	4.1.3.1		BI1.47	Exchange Surfaces: Alveoli	Describe the structure of alveoli and explain how they are adapted for exchanging materials.
	4.1.3.1		BI1.48	Exchange Surfaces: Villi	Describe the structure of villi and explain how they are adapted for exchanging materials.
	4.1.3.1		BI1.49	Exchange Surfaces: Leaves	Describe the structure of leaves and explain how they are adapted for exchanging materials.
	4.1.3.1		BI1.50	Exchange Surfaces: Roots	Describe the structure of roots and explain how they are adapted for exchanging materials.
	4.1.3.1		BI1.51	Exchange Surfaces: Gills	Describe the structure of gills and explain how they are adapted for exchanging materials.
			BI1.52	Topic 1 Review: Cell Biology — Set A	Biology Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.
			BI1.53	Topic 1 Review: Cell Biology — Set B	Biology Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 2 - Organisation	4.2.1	Diagnostic: The Digestive System [BI0.08]	BI2.01	Animal Tissues	Give a definition of a tissue and some examples from animals.
	4.2.1		BI2.02	Human Organs	Give a definition of an organ, identify some examples from humans and give their functions.
	4.2.1		BI2.03	Human Organ Systems	Give a definition of an organ system, identify some examples from humans and give their functions.
	4.2.2.1		BI2.04	The Human Digestive System	Describe how several organs work together to digest and absorb food.
	4.2.2.1		BI2.05	The Functions of the Digestive Organs	Describe the functions of the organs in the digestive system.
	4.2.2.1	Diagnostic: The Chemistry of Food [BI0.09]	BI2.06	Healthy Diet	Describe the main components of a healthy human diet and explain why these components are needed.
	4.2.2.1		BI2.07	Chemistry of Food: Carbohydrates	Describe the structure of carbohydrates and give examples of how they are used by organisms.
	4.2.2.1		BI2.08	Chemistry of Food: Proteins	Describe the structure of proteins and state how they are used by organisms.
	4.2.2.1		BI2.09	Chemistry of Food: Lipids	Describe the structure of lipids and state how they are used by organisms.
	4.2.2.1	Diagnostic: Enzymes & Digestion [BI0.10]	BI2.10	Enzymes: Structure & Function	Describe the structure of enzymes and the lock and key model.
	4.2.2.1 / 4.4.2.3		BI2.11	Enzymes: Metabolism	Define metabolism and state that enzymes regulate metabolism.
	4.2.2.1		BI2.12	Enzymes: Factors Affecting Activity	State that temperature and pH affect the rate of an enzyme catalysed reaction.
	4.2.2.1		BI2.13	Enzymes: Collision Theory	Use collision theory to explain how concentration, surface area, temperature and catalyst (including enzymes) affect the rate of reaction.
	4.2.2.1		BI2.14	Enzymes: Explaining Factors Affecting Activity	Explain why temperature and pH affect the rate of an enzyme catalysed reaction.
	4.2.2.1		BI2.15	Enzymes: Rate Calculations I	Calculate rate of enzyme driven reactions. Word problems and no unit conversions.
	4.2.2.1		BI2.16	Enzymes: Rate Calculations II	Calculate rate of enzyme driven reactions. Word problems, tables and unit conversions.
	4.2.2.1		BI2.17	Enzymes: Rate Calculations III	Calculate rate of enzyme driven reactions. Word problems, tables, graphs and unit conversions.
	4.2.2.1		BI2.18	Enzymes: Digestive Enzymes	State where digestive enzymes are produced/found, their substrates and products.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.2.2.1	cont. from previous page	BI2.19	The Production & Function of Bile	State where bile is produced and stored. Describe the role of bile in digestion.
Topic 2 - Organisation	4.2.2.1	Diagnostic: Enzymes & Digestion [BI0.10]	BI2.20	Enzymes: Describing Enzyme Activity Data	Describe patterns in enzyme activity data in graphs and tables.
	4.2.2.1		BI2.21	Enzymes: Interpreting Enzyme Activity Data	Interpret data to explain enzyme activity and apply knowledge.
	RP3		BI2.22	Required Practical 3: Qualitative Carbohydrate Tests	Use iodine solution and Benedict's reagent to test for carbohydrates (glucose and starch).
	RP3		BI2.23	Required Practical 3: Qualitative Protein Test	Use biuret reagent to test for proteins.
	RP3		BI2.24	Required Practical 3: Qualitative Lipid Tests	Use ethanol and water or Sudan III solution to test for lipids.
	RP3		BI2.25	Required Practical 3: Testing Foods for Biological Molecules	Use reagents to test for carbohydrates (glucose and starch), lipids and protein in a range of foods.
	RP4		BI2.26	Required Practical 4: Effect of pH on Amylase - Method	Investigate the effect of pH on the rate of reaction of amylase.
	RP4		BI2.27	Required Practical 4: Effect of pH on Amylase - Analysis & Concl.	Investigate the effect of pH on the rate of reaction of amylase.
	4.2.2.2	Diagnostic: Breathing & Gas Exchange [BI0.12]	BI2.34	The Human Gas Exchange System	Describe the structure and function of the human gas exchange system.
	4.2.2.2		BI2.35	Mechanics of Breathing	Explain the mechanical process of breathing and model breathing using a bell jar.
	4.2.2.2		BI2.36	How Lungs are Adapted for Gas Exchange	Identify main features of the lungs and explain how they facilitate air gas exchange in humans.
	4.2.2.2		BI2.37	Calculating Breathing Rate I	Identify the structures of the lung and complete simple calculations of breathing rates.
	4.2.2.2		BI2.38	Calculating Breathing Rate II	Identify the structures of the lung and calculate breathing rates using data from tables and graphs.
	4.2.1	Diagnostic: Circulatory System [BI0.13]	BI2.39	The Need for Transport Systems	Use volume and diffusion distance to explain the need for transport systems in multicellular organisms.
	4.2.2.2		BI2.40	The Circulatory System	Describe the double circulatory system and the structure and function of the blood.
	4.2.2.2		BI2.41	Structure of the Heart	Identify the blood vessels and chambers of the heart.
cont. next page	4.2.2.2	cont. next page	BI2.42	Function of the Heart	Describe blood flow in the heart and the function of each heart structure.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.2.2.2	cont. from previous page	BI2.43	Explaining the Structure of the Heart	Explain the structures and adaptations of the heart.
Topic 2 - Organisation	4.2.2.2	Diagnostic: Circulatory System [BI0.13]	BI2.44	Measuring Heart Rate	Describe what causes a pulse and show how it can be used the measure pulse/heart rate.
	4.2.2.2		BI2.45	How the Heart Beats (Natural Pacemaker)	Describe what a natural pacemaker is and where it can be found.
	4.2.2.2		BI2.46	The Structure and Function of Blood Vessels	Describe the structure of the different blood vessels and their functions.
	4.2.2.2		BI2.47	Explaining the Structure of Blood Vessels	Explain how blood vessels are adapted for their function.
	4.2.2.3		BI2.49	Blood Components & their Functions	Identify the components of blood and list their functions.
	4.2.2.3		BI2.50	The Structure of Blood Components	Describe the structure of components of blood.
	4.2.2.3		BI2.51	Explaining the Structure of Blood Components	Explain how components of blood are adapted for their functions.
	4.2.2.2		BI2.52	Calculating the Rate of Blood Flow I	Calculate rate of blood flow. Word problems and no unit conversions.
	4.2.2.2		BI2.53	Calculating the Rate of Blood Flow II	Calculate rate of blood flow. Word problems and unit conversions.
	4.2.2.5	Diagnostic: Health & Non-Communicable Disease [BI0.15]	BI2.54	Health & Disease	Define health, disease, communicable disease and non-communicable disease. Give examples of factors that affect health.
	4.2.2.6		BI2.55	Risk Factors & Causal Mechanisms	Define risk factor, causal mechanism, causation and correlation. Give some general examples.
	4.2.2.5		BI2.56	Disease Interactions	Give examples of disease interactions.
	4.2.2.6		BI2.57	The Costs of Non-Communicable Disease	Describe the human and financial cost of non-communicable disease to an individual, a local community, a nation or globally.
	4.2.2.6		BI2.58	Smoking & Disease	Describe the effect of smoking on the incidence of non-communicable disease.
	4.2.2.6		BI2.59	Alcohol & Disease	Describe the effect of drinking alcohol on the incidence of non-communicable disease.
	4.2.2.6		BI2.60	Diet, Exercise, Obesity & Disease	Describe the effect of diet, exercise and obesity on the incidence of non-communicable disease.
	4.2.2.7		BI2.61	Benign & Malignant Tumours	Describe the changes in cells that can lead to tumour growth, describe the characteristics of benign and malignant tumours and give risk factors for developing cancers.
cont. next page	4.2.2.6		BI2.62	Studying Disease	Extract & interpret information about disease and risk factors from charts, graphs and tables.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.2.2.4	Diagnostic: Cardiovascular Disease [B10.16]	BI2.63	Cardiovascular Disease	Describe cardiovascular disease and give examples (such as CHD).
	4.2.2.4		BI2.64	Heart Failure	Define heart failure and describe what happens when the heart fails.
	4.2.2.4		BI2.65	Coronary Heart Disease	Describe coronary heart disease, give risk factors and explain how it can lead to a heart attack.
	4.2.2.4		BI2.66	Heart Attacks	Explain what happens during a heart attack using aerobic respiration. Give possible causes of heart attacks and how to reduce the risks.
Topic 2 - Organisation	4.2.2.2	Diagnostic: Treating Cardiovascular Disease [B10.17]	BI2.67	Artificial Pacemakers	Describe artificial pacemakers and explain how they function.
	4.2.2.4		BI2.68	Stents	Describe the purpose and the fitting of stents. Give some benefits and risks of the surgery.
	4.2.2.4		BI2.69	Coronary Artery Bypass	Describe the purpose and the fitting of bypass vessel grafts. Give some benefits and risks of the surgery.
	4.2.2.4		BI2.70	Cholesterol & Statins	Describe cholesterol as a lipid, give the risks of high cholesterol and lifestyle factors that raise/lower blood cholesterol.
	4.2.2.4		BI2.71	Faulty Heart Valves & Replacing Them	Describe the purpose and fitting of replacement heart valves. Compare natural tissue valves with prostheses. Give some benefits and risks of the surgery.
	4.2.2.4		BI2.72	Heart Transplants	Describe the purpose and fitting of heart and heart-lung transplants. Give some benefits and risks of the surgery.
	4.2.2.4		BI2.73	Artificial Hearts	Describe the purpose and fitting of artificial hearts. Give some benefits and risks of the surgery and of using prostheses.
	4.2.2.4		BI2.74	Treating Heart Disease: A Summary	Identify and compare heart disease treatments. Assumes prior knowledge of heart pathologies and treatments.
	4.2.3.1 / 4.2.3.2	Diagnostic: Plant Anatomy [B10.18]	BI2.75	Plant Organs & Organ Systems	Give a definition of a cell, tissue, organ, organ system and organism. Identify plant organs and describe the system for transporting substances around the plant.
	4.2.3.1		BI2.76	Describing the Structure & Function of Plant Tissues	Describe the structure of different plant tissues and give their functions.
	4.2.3.1		BI2.77	Explaining the Structure of Plant Tissues	Explain how plant tissues are adapted for their functions.
	4.2.3.2		BI2.78	Gas Exchange in Plants	Describe how gases are exchanged in plants, the leaf adaptations and how leaves compare to lungs. Explain the net movement of gases in the daylight compared to night.
	4.2.3.2		BI2.79	Estimating the Surface Area of a Leaf	Use squared paper to estimate the surface area of a leaf.
	4.2.3.2		BI2.80	Investigating Stomata	Investigate the number of stomata using nail varnish or by peeling the epidermis. Assumes prior knowledge of using a microscope.
	4.2.3.2		BI2.81	Stomata Calculations & Estimations	Estimate the number of stomata found on a leaf. Use calculations to compare the number of stomata on different leaves, or between the surface and underside of leaves.
cont. next page	4.2.3.2		BI2.82	Plant Roots: Absorbing Water & Minerals	Describe and explain how plants absorb water and minerals. Give adaptations of root cells that maximise the rate of absorption.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 2 - Organisation**	4.2.3.2	**Diagnostic: Transpiration & Translocation [BIO.19]**	**BI2.83**	**Transpiration**	Describe transpiration and the transpiration stream.
	4.2.3.2		**BI2.84**	**Factors Affecting the Rate of Transpiration**	State which factors increase the rate of transpiration and which decrease it.
	4.2.3.2		**BI2.85**	**Explaining Effects on Transpiration**	Explain why some factors increase the rate of transpiration and some decrease it.
	4.2.3.2		**BI2.86**	**Investigating Transpiration**	Describe the use of a potometer. Requires knowledge of transpiration.
	4.2.3.2		**BI2.87**	**Calculating the Rate of Transpiration**	Calculate the rate of transpiration from tables and graphs. Includes unit conversions.
	4.2.3.2		**BI2.88**	**Interpreting Stomata & Transpiration Data I**	Interpret more simple data sets in terms of factors affecting transpiration. Requires previous knowledge of how and why various factors affect transpiration.
	4.2.3.2		**BI2.89**	**Interpreting Stomata & Transpiration Data II**	Interpret more complex data sets in terms of factors affecting transpiration. Requires previous knowledge of how and why various factors affect transpiration.
	4.2.3.2		**BI2.90**	**Translocation**	Describe how sugars are transported in plants.
	4.2.3.2		**BI2.91**	**Comparing Transpiration & Translocation**	Compare the function of xylem and phloem. Requires previous knowledge of the structure of the tissues, transpiration and translocation.
			BI2.92	**Topic 2 Review: Organisation — Set A**	Biology Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.
			BI2.93	**Topic 2 Review: Organisation — Set B**	Biology Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 3 - Infection & Response	Prior	Diagnostic: The Spread of Communicable Disease [BI0.20]	BI3.01	Introduction to Pathogens	Define 'pathogen', give viruses, bacteria, protists and fungi as examples of pathogens and identify them from images or diagrams.
	4.3.1.1		BI3.02	Spread of Communicable Disease in Plants	Give ways pathogens can spread between plants.
	4.3.1.1		BI3.03	Controlling the Spread of Disease in Plants	Give ways the spread of pathogens between plants can be controlled.
	4.3.1.1		BI3.04	Spread of Communicable Disease in Animals	Give ways pathogens can spread between animals.
	4.3.1.1		BI3.05	Controlling the Spread of Disease in Animals	Give ways the spread of pathogens between animals can be controlled.
	Supplementary		BI3.06	Vectors of Disease	Describe a vector as an organism that transmits a pathogen from one individual to another and give some common examples.
	Supplementary		BI3.07	Outbreaks of Disease	Define endemic level, epidemic and pandemic. Describe factors that influenced the spread of the 1918 influenza pandemic. Give examples of how epidemics may arise, such as new strains emerging and host behaviour.
	Supplementary		BI3.08	Controlling Outbreaks of Disease	Give ways the spread of pathogens can be controlled and disease outbreaks can be contained.
	4.3.1.1	Diagnostic: Infectious Diseases [BI0.21]	BI3.09	Viruses	Describe viruses and give some common examples.
	4.3.1.2		BI3.10	Measles	Describe measles as an example of a viral disease of humans. Give the symptoms of measles, its mode of transmission, complications and treatments/vaccinations.
	4.3.1.2		BI3.11	HIV & AIDS	Describe HIV as an example of a virus that infects humans. Give the symptoms of HIV infection & AIDS, its mode of transmission, complications and treatments.
	4.3.1.2		BI3.12	Tobacco Mosaic Virus	Describe TMV as an example of a virus that infects plants. Give the symptoms of TMV infection, its mode of transmission and controlling the spread of infection.
	Supplementary		BI3.13	Fungi	Describe fungi and give some common examples.
	4.3.1.4		BI3.14	Rose Black Spot	Describe rose black spot as an example of a fungal disease of plants. Give the symptoms, its mode of transmission and controlling the spread of infection.
	Supplementary		BI3.15	Protists	Describe protists and give some common examples.
	4.3.1.5		BI3.16	Malaria	Describe malaria as an example of a protist disease of humans. Give the symptoms of malaria infection, its mode of transmission, complications and treatments.
	4.3.1.3		BI3.17	Salmonella	Describe salmonella food poisoning as an example of a bacterial disease of animals. Give the symptoms, its mode of transmission and controlling the spread of infection.
	4.3.1.3		BI3.18	Gonorrhoea	Describe gonorrhoea as an example of a bacterial disease of animals. Give the symptoms, its mode of transmission and controlling the spread of infection.
	4.3.1.3		BI3.19	Summary: Communicable Diseases	Compare and contrast measles, HIV, AIDS, TMV, rose black spot, malaria, salmonella & gonorrhoea. Give the symptoms of infection with any of these pathogens, their modes of transmission and controlling the spread of infection. Assumes some background knowledge of these particular diseases, the spread of disease, controlling the spread of disease and pathogens.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.3.1.6	Diagnostic: Human Immunity & Defence [BI0.22]	BI3.20	Human Non-Specific Defences	Describe the non-specific defence systems of the human body against pathogens.
	Supplementary		BK4.07	The Lymphatic System	To be able to describe the function of the lymphatic system.
	4.3.1.6		BI3.21	The Immune System	Describe phagocytosis, antibody production and antitoxin production.
	4.3.1.6		BI3.22	Antigens, Antibodies & Immunity	Define antigen & antibody. Describe the specific nature of antibodies, the 'memory' of the immune system and the primary and secondary immune responses.
	4.3.1.7	Diagnostic: Vaccinations [BI0.22]	BI3.23	Vaccinations: Traditional Vaccines	Describe vaccines that contain attenuated pathogens or parts of pathogens and explain how they work. Describe the primary and secondary immune response and how this applies to vaccination programs.
	Supplementary		BI3.24	Vaccinations: mRNA Vaccines	Describe mRNA vaccines and explain how they work. Describe the primary and secondary immune response and how this applies to vaccination programs. Includes some graph reading/interpreting.
	Supplementary		BI3.25	Vaccinations: Dealing with Variants	Explain what variants of pathogens are and how vaccine development attempts to tackle them.
	Supplementary		BI3.26	Vaccinations: Herd Immunity	Describe and explain herd immunity. Compare the eradication of small pox with the reemergence of measles.
	4.3.1.7		BI3.27	Vaccinations: Misconceptions	Describe some common misconceptions regarding vaccines and explain the science behind the corrections.
	4.3.1.8	Diagnostic: Medical Drugs [BI0.24]	BI3.28	Medical Drugs: Painkillers	Give definitions of medical drugs and painkiller. Identify when painkillers might be used and what they can/cannot treat.
	4.3.1.8		BI3.29	Medical Drugs: Antibiotics	Give definitions of medical drugs and antibiotic. Identify when antibiotics might be used and what they can/cannot treat.
	4.3.1.8		BI3.30	Medical Drugs: Other Antimicrobials	Give definitions of antimicrobial, antiseptic, disinfectant, antiviral, antifungal, fungicide and antiparasitic. Identify when they might be used and what they can/cannot treat.
	4.3.1.8		BI3.31	Medical Drugs: Summary	Give definitions of medical drug, painkiller, antimicrobial, antiseptic, disinfectant, antibiotic, antiviral, antifungal, fungicide and antiparasitic. Identify when they might be used and what they can/cannot treat.
	4.3.1.9	Diagnostic: Developing Drugs [BI0.25]	BI3.32	Developing Drugs: Discovery	Describe how aspirin, digitalis and penicillin were discovered and how they work.
	4.3.1.9		BI3.33	Developing Drugs: Key Words	Define the key words relating to all stages of drug development.
	4.3.1.9		BI3.34	Developing Drugs: Preclinical Trials	Describe preclinical trials. State reasons for and against testing on animals.
	4.3.1.9		BI3.35	Developing Drugs: Clinical Trials - Phase 1	Describe phase 1 trials. Explain why testing is carried out on healthy volunteers.
	4.3.1.9		BI3.36	Developing Drugs: Clinical Trials - Phase 2	Describe phase 2 trials. Describe and explain why phase 2 trials are randomised, double blind and placebo-controlled.
cont. next page	4.3.1.9	cont. next page	BI3.37	Developing Drugs: Clinical Trials - Phase 3	Describe phase 3 trials. Describe and explain why phase 3 trials are randomised, double blind and placebo-controlled. Explain the ethics of using a placebo.

Topic 3 - Infection & Response

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 3 - Infection & Response (cont. from previous page)	4.3.1.10	Diagnostic: Developing Drugs [BI0.25] (cont. from previous page)	BI3.38	Developing Drugs: Peer Review	Explain why peer review is needed and describe the function of regulatory authorities.
	4.3.1.9		BI3.39	Developing Drugs: Post-Market Surveillance	Explain why phase 4 / post-marketing surveillance is required. Describe the participants involved, the length of the trial and why that is important.
	4.3.1.9		BI3.40	Developing Drugs: Summary	Describe and give reasons for each stage of the drug development process. Assumes some knowledge of keywords and scientific method.
	Supplementary		BI3.41	Development of the COVID Vaccine	Compare the average time for a vaccine to be developed with the time it took for the first COVID vaccine to be made. Explain why COVID vaccines have been made and approved so quickly. Define novel virus, genetic sequence and mRNA.
			BI3.57	Topic 3 Review: Infection & Response — Set A	Biology Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.
			BI3.58	Topic 3 Review: Infection & Response — Set B	Biology Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 4 -Bioenergetics	4.4.1.1	Diagnostic: Introduction to Photosynthesis [BI0.29]	BI4.01	Introduction to Photosynthesis	State that glucose is a store of chemical energy and why it is important to organisms. Explain the importance of producers.
	4.4.1.1		BI4.02	Photosynthesis: Word Equation	Define photosynthesis. State the word equation for photosynthesis.
	4.4.1.1		BI4.03	Photosynthesis: Symbol Equation	Define photosynthesis. State the word and symbol equations for photosynthesis.
	4.4.1.2		BI4.04	Photosynthesis: Leaf Adaptations	Describe & explain the internal and external adaptations of a leaf.
	4.4.1.3		BI4.05	Photosynthesis: How Plants Use Glucose	Describe how plants and algae use the glucose produced during photosynthesis.
	4.4.1.3		BI4.06	Practical: Fate of Glucose & Starch	Describe how a plant can be tested for starch to show that photosynthesis has taken place.
	4.4.1.1		CH5.13	Endothermic Reactions: Photosynthesis	Describe photosynthesis as the endothermic chemical process. Includes the word & symbol equation.
	4.4.1.2	Diagnostic: Rate of Photosynthesis [BI0.30]	BI4.07	Rate of Photosynthesis: Introduction	Define the rate of a chemical reaction and the rate of photosynthesis.
	4.4.1.2		BI4.08	Rate of Photosynthesis: Describing Limiting Factors	Describe how carbon dioxide, light intensity, temperature and chlorophyll concentration affect the rate of photosynthesis.
	4.4.1.2		BI4.09	Rate of Photosynthesis: Explaining Limiting Factors	Explain how carbon dioxide, light intensity, temperature and chlorophyll concentration affect the rate of photosynthesis.
	4.4.1.2		BI4.10	Rate of Photosynthesis: Interpreting Data of Limiting Factors I	Interpret data in graphs for rate of photosynthesis against carbon dioxide concentration, light intensity or temperature. Does not include interacting factors.
	4.4.1.2		BI4.15	Rate of Photosynthesis: Measuring	Describe how the rate of photosynthesis can be measured using pondweed. Covers counting bubbles, gas volume in measuring cylinder and gas syringe.
	RP 5		BI4.16	Required Practical 5: Photosynthesis & Light Intensity	Investigate the effect of light intensity on the rate of photosynthesis using pondweed.
	4.4.1.2		BI4.18	Practical: Photosynthesis & Temperature	Investigate the effect of temperature on the rate of photosynthesis using pondweed.
	4.4.1.2		BI4.19	Practical: Photosynthesis & Carbon Dioxide Concentration	Investigate the effect of carbon dioxide on the rate of photosynthesis using pondweed.
	4.4.1.3		BI4.20	Practical: Photosynthesis & Chlorophyll	Describe how a variegated plant can be tested for starch using iodine to show that chlorophyll is needed for photosynthesis to take place.
	4.4.1.2		BI4.21	Rate of Photosynthesis: Calculating I	Calculate rate of photosynthesis. Word problems and no unit conversions.
	4.4.1.2		BI4.22	Rate of Photosynthesis: Calculating II	Calculate rate of photosynthesis. Word problems, tables and linear graphs. No unit conversions.
	4.4.1.4		BI4.27	Photosynthesis & Biomass	Explain how biomass is made and the importance of photosynthesis in supplying biomass to all other organisms on Earth.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	4.4.2.1	Diagnostic: Respiration [BI0.34]	BI4.28	Introduction to Respiration	State that all the energy needed for life processes is transferred by respiration. Describe respiration as the breakdown of organic molecules.
	4.4.2.1		BI4.29	Aerobic Respiration: Word Equation	Describe aerobic respiration and give the word equation.
	4.4.2.1		BI4.30	Aerobic Respiration: Symbol Equation	Describe aerobic respiration and give the word and symbol equations.
	4.4.2.1		BI4.31	Anaerobic Respiration in Animals: Word Equation	Describe the process of anaerobic respiration in animals and give the word equation.
	4.4.2.1		BI4.33	Anaerobic Respiration in Plants: Word Equation	Describe the process of anaerobic respiration in plants and give the word equation.
	4.4.2.1		BI4.35	Using Respiration in Yeast	Describe the process of anaerobic respiration/fermentation in yeast. Explain the economic importance of aerobic respiration and fermentation in making bread and alcoholic drinks.
	4.4.2.1		BI4.36	Comparing Anaerobic Respiration in Animals, Plants & Fungi	Compare the site, reactant(s), products of and energy released by anaerobic respiration in animals, plants and fungi (yeast). Includes word equations.
	4.4.2.1		BI4.37	Comparing Aerobic & Anaerobic Respiration	Compare the site, reactant(s), products of and energy released by anaerobic and aerobic respiration in animals, plants and fungi (yeast). Includes word equations.
	4.4.2.1		CH5.06	Exothermic Reactions: Respiration	Describe respiration as an exothermic chemical process. Includes equations for aerobic & anaerobic respiration.
	Supplementary		BI4.38	Importance of Anaerobic Respiration in Plants & Yeast	Describe the process of anaerobic respiration in plants and yeast and when it occurs. Explain the economic importance of anaerobic respiration in yeast.
	4.4.2.2		BI4.39	Importance of Anaerobic Respiration in Animals	Describe the process of anaerobic respiration in animals and explain why it occurs.
Topic 4 - Bioenergetics	4.4.2.2	Diagnostic: Exercise, Cardiac Output & Metabolism [BI0.36]	BI4.40	Effect of Exercise on the Body	Describe skeletal muscle and how the body responds to exercise.
	4.4.2.2		BI4.41	Explaining the Effect of Exercise on the Body	Explain the adaptations of skeletal muscle and how the body responds to exercise.
	Supplementary		BI4.42	Cardiac Output	Describe the structure and functions of parts of the heart. Define cardiac output, explain stroke volume & give the equation for cardiac output.
	Supplementary		BI4.43	Calculating Cardiac Output I	Calculate cardiac output. Word problems and no unit conversions.
	Supplementary		BI4.44	Calculating Cardiac Output II	Calculate cardiac output. Word problems, tables and unit conversions.
	Supplementary		BI4.45	Calculating Cardiac Output III	Calculate cardiac output. Word problems, tables, graphs and unit conversions.
	Supplementary		BI4.46	Rearranging Cardiac Output	Rearrange cardiac output to find heart rate and stroke volume. Includes word problems, tables, graphs and unit conversions.
cont. next page	Supplementary	cont. next page	BI4.47	Describing Cardiac Output Data	Describe patterns in cardiac output data in graphs and tables. Includes calculating cardiac output with no unit conversions.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 4 - Bioenergetics**	Supplementary	cont. from previous page **Diagnostic: Exercise, Cardiac Output & Metabolism [BI0.36]**	**BI4.48**	**Interpreting Cardiac Output Data**	Interpret data to explain cardiac output data and apply knowledge. Includes calculating cardiac output with no unit conversations.
	4.4.2.2		**BI4.49**	**Oxygen Debt**	Describe oxygen debt is and explain why it occurs.
	4.4.2.3		**BI4.51**	**Metabolism**	Define metabolism and metabolic rate. Give examples of metabolic processes. Explain the role of enzymes in metabolism.
	Supplementary		**BI4.52**	**Photosynthesis & Respiration**	Describe how respiration and photosynthesis are linked in plants and animals. Explain the importance of photosynthesis to all life on Earth.
	Supplementary		**BI4.53**	**Practical: Using a Respirometer**	Use a respirometer to demonstrate that oxygen is removed from the air when an organism respires.
	Supplementary		**BI4.54**	**Practical: Respiration & Indicators**	Demonstrate an organism is respiring by detecting the release of carbon dioxide using hydrogen carbonate indicator.
	Supplementary		**BI4.55**	**Practical: Respiration & Temperature Change**	Demonstrate that an organism is respiring by measuring the temperature change.
	Supplementary		**BI4.56**	**Practical: Respiration & Limewater**	Demonstrate that an organism is respiring by observing a chemical change in limewater.
			BI4.57	**Topic 4 Review: Bioenergetics — Set A**	Biology Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.
			BI4.58	**Topic 4 Review: Bioenergetics — Set B**	Biology Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.
			BI4.65	**Paper 1 Review: Biology — Set A**	Biology Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.
			BI4.66	**Paper 1 Review: Biology — Set B**	Biology Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.

CENTURY

Combined Science GCSE: AQA Trilogy (F) - Chemistry

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 1 - Atomic Structure & the Periodic Table	5.1.1.1	Diagnostic: Atoms, Elements & Compounds [CH0.01]	CH1.01	Atoms, Elements, Compounds & Molecules	An introduction to atoms, elements, compounds and molecules.
	5.1.1.1		CH1.02	Element Symbols	Use element symbols correctly.
	5.1.1.1		CH1.03	Names & Symbols of the First 20 Elements	Correctly use the names and symbols of the first 20 elements of the Periodic Table.
	5.1.1.1		CH1.04	Formulae for Elemental Molecules & Compounds	Recall and use the chemical formulae for common elemental molecules and compounds.
	5.1.1.1		CH1.05	Formulae for Compounds with Brackets	Recall and use the chemical formulae for compounds that include brackets.
	5.1.1.1		CH1.06	Naming Compounds	Describe and use the rules for naming compounds.
	5.1.1.1 / 5.2.2.2		CH1.07	State Symbols	Use state symbols correctly.
	5.1.1.4	Diagnostic: Atomic Structure [CH0.02]	CH1.08	Atomic Structure	Describe the structure of the atom.
	5.1.1.5		CH1.09	Size of Atoms	Recall the radius of an atom/nucleus and relate size and scale of atoms to objects.
	5.1.1.4		CH1.10	Atomic Number & Mass Number	Use the atomic number and mass number to calculate the numbers of subatomic particles.
	5.1.1.5		CH1.11	Isotopes	Recall the definition of an isotope and apply it to familiar situations.
	5.1.1.4		CH1.12	What is Relative? Mass & Charges	Recall the relative masses/charges of subatomic particles and define relative atomic mass.
	5.1.1.6		CH1.13	Calculating Relative Atomic Mass	Calculate relative atomic mass.
	5.1.1.7		CH1.14	Electronic Structure	Recall the 2, 8, 8 structure and apply this to the first 20 elements.
	6.4.1.1		CH1.15	Changing Energy Levels This is in physics in trilogy, but due to the nature of the topic it is included in both the chemistry and physics courses.	Recall that electron arrangements may change with the absorption/emission of electromagnetic radiation and apply this to familiar situations.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	5.1.1.1	Diagnostic: Chemical Equations [CH0.03]	CH1.16	Chemical Reactions	Recognise when a simple chemical reaction has occurred and use simple word equations.
Topic 1 - Atomic Structure & the Periodic Table	5.1.1.1		CH1.17	Writing Word Equations	Write and extract information from word equations.
	5.1.1.1		CH1.18	Writing Simple Formula Equations	Write and extract information from simple formula equations.
	5.1.1.1		CH1.19	Balancing Chemical Equations I	Balance simple chemical equations (no brackets).
	5.1.1.1		CH1.20	Balancing Chemical Equations II	Balance chemical equations (with brackets).
	5.1.1.2 / 5.8.1.1	Diagnostic: Pure Substances, Mixtures & Separation Technique [CH0.05]	CH1.22	Pure Substances & Mixtures	Define 'pure' and 'mixture'. Identify pure substances and mixtures from diagrams and text.
	5.1.1.2		CH1.23	Separating Mixtures	Identify different separating techniques and apply knowledge to solve simple problems.
	Supplementary		CH1.24	Keywords Relating to Solutions	Use the keywords relating to solutions correctly.
	5.1.1.2		CH1.25	Filtration	Recall the method for carrying out filtration and its uses.
	5.1.1.2		CH1.26	Evaporation	Recall the method for carrying out evaporation and its uses.
	5.1.1.2		CH1.27	Crystallisation	Recall the method for carrying out crystallisation and its uses.
	RP13		CH1.28	Required Practical 13: Simple Distillation	Recall the method for carrying out simple distillation and its uses.
	5.1.1.2		CH1.29	Fractional Distillation	Recall the method for carrying out fractional distillation and its uses.
	5.1.1.2		CH1.30	Paper Chromatography	Recall the method for carrying out paper chromatography and its uses.
	5.1.1.2		CH1.31	Which Separation Technique?	Apply knowledge of separation techniques to solve problems.
	5.1.1.3	Diagnostic: History of the Atom [CH0.06]	CH1.32	Development of Scientific Models	Describe the scientific method and identify different types of model.
	5.1.1.3		CH1.33	Dalton's Atomic Theory of Matter	Describe and use early models of the atom.
cont. next page	5.1.1.3	cont. next page	CH1.34	Thomson's Plum Pudding Model	Describe and use the Plum Pudding Model, and explain how the model was developed.

Topic	Spec	Diagnostic	Nugget	Nugget Name	Nugget Summary
cont. from previous page **Topic 1 - Atomic Structure & the Periodic Table** cont. next page	5.1.1.3	cont. from previous page **Diagnostic: History of the Atom [CH0.06]**	**CH1.35**	**Rutherford's Nuclear Model**	Describe and use the Nuclear Model, and explain how the model was developed.
	5.1.1.3		**CH1.36**	**Bohr's Planetary Model**	Describe and use the Planetary Model, and explain how the model was developed.
	5.1.1.3		**CH1.37**	**Discovery of Protons**	Recall the discovery of protons and explain how this added to the model of the atom.
	5.1.1.3		**CH1.38**	**Chadwick & the Discovery of the Neutron**	Recall the discovery of neutrons and explain how this added to the model of the atom.
	5.1.1.3		**CH1.39**	**History of the Atom - a Timeline**	Recall the timeline of the development of the atomic model and identify the different models from diagrams.
	5.1.1.3		**CH1.40**	**Plum Pudding vs the Nuclear Model**	Compare the Plum Pudding Model to the Nuclear Model of the atom.
	5.1.2.1	**Diagnostic: The Periodic Table [CH0.07]**	**CH1.41**	**The Periodic Table**	Use the modern periodic table.
	5.1.2.2		**CH1.42**	**Early Periodic Tables**	Describe and use early periodic tables, particularly Newlands'.
	5.1.2.2		**CH1.43**	**Mendeleev & the Periodic Table**	Describe and use Mendeleev's periodic table.
	5.1.2.2		**CH1.44**	**Comparing the Periodic Tables of Newlands & Mendeleev**	Compare Newlands' periodic table to Mendeleev's periodic table.
	5.1.2.2		**CH1.45**	**Development of the Modern Periodic Table**	Describe the arrangement of the modern periodic table and apply this knowledge.
	5.1.2.3 / 5.2.1.2		**CH1.46**	**Forming Ions**	Describe how ions form, draw and write the electronic structure of ions and identify ion formed using the periodic table.
	5.1.2.3		**CH1.47**	**The Periodic Table : Metals & Non-metals**	Identify metals and non-metals from their position on the periodic table. Describe and compare the properties and behaviour of metals and non-metals.
	Supplementary		**CH1.48**	**Common Ions**	Recall and use the formulae of common mono- and polyatomic ions.
	Supplementary	cont. next page	**CH1.49**	**Identifying Atoms & Ions from Electronic Structure**	Identify atoms and ions of the first twenty elements from their electron structure (written and drawn).

Topic	Spec	Diagnostic	Nugget	Nugget Name	Nugget Summary
Topic 1 - Atomic Structure & the Periodic Table	cont. from previous page	cont. from previous page	CH1.50	The Periodic Table : Group 0	Describe the electronic structure, properties and trends of group 0 elements.
	5.1.2.4	Diagnostic: The Periodic Table [CH0.07]	CH1.51	The Periodic Table : Group 1	Describe the electronic structure, properties and trends of group 1 elements.
	5.1.2.5		CH1.52	The Periodic Table : Group 7	Describe the electronic structure, properties and trends of group 7 elements.
	5.1.2.6		CH1.53	The Periodic Table : Explaining Trends in Reactivity	Explain trends in reactivity using ideas of electron shielding.
	5.1.2.5 / 5.1.2.6		CH1.56	Topic 1 Review - Atomic Structure & Periodic Table (Set A)	Chemistry Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.
			CH1.57	Topic 1 Review- Atomic Structure & Periodic Table (Set B)	Chemistry Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 2 - Bonding, Structure & Properties of Matter	5.2.1.1	Diagnostic: Bonding in Metals [CH0.09]	CH2.01	Introducing Chemical Bonds	Describe ionic, covalent and metallic bonds in terms of the transfer/sharing of electrons and in terms of electrostatic forces.
	5.2.1.5		CH2.02	Metallic Bonding	Identify and describe metallic bonds.
	5.2.1.5		CH2.03	Representing Metallic Bonds	Identify metallic bonding from 2D or 3D representations.
	5.2.2.7		CH2.04	Pure Metals	Identify and describe pure metals and their structure.
	5.2.2.7		CH2.05	Properties of Pure Metals	State the properties of pure metals and apply this knowledge to simple situations.
	5.2.2.7		CH2.06	Explaining the Properties Pure Metals	Explain the properties of pure metals in terms of their structure.
	5.2.2.7		CH2.07	Alloys & Their Properties	Explain the properties of alloys in terms of their structure and compare alloys to pure metals.
	5.2.2.7		CH2.08	Explaining the Properties of Alloys	Explaining the properties of alloys compared to pure metals, linking to their structure.
	5.2.2.8		CH2.09	Metals as Conductors	Explain the electrical and thermal conductivity of metals in terms of their structure.
	5.2.2.1 / 5.2.2.2	Diagnostic: Fundamental States of Matter [PH0.045]	PH3.01	Fundamental States of Matter: Characteristics	Identify the four fundamental states of matter and their basic properties.
	5.2.2.1		PH3.02	Fundamental States of Matter: Particle Model	Describe the arrangement, movement and the relative energy of particles in the fundamental states of matter using the particle model.
	Supplementary		PH3.03	Density	Identify the meaning of density and compare the density of different objects.
	Supplementary		PH3.04	Density of Fundamental States of Matter	Describe the density of the fundamental states of matter and make comparisons using the particle model.
	Supplementary		PH3.20	Phase Transitions	Describe phase transitions between the different fundamental states of matter.
	5.2.2.1		PH3.21	Phase Transitions: Particle Model	Describe phase transitions between the different fundamental states of matter using the particle model.
	Supplementary		PH3.22	Evaporation vs Boiling	Describe and compare the different forms of vaporisation that can occur.
	Supplementary		PH3.23	Physical vs Chemical Changes: The Particle Model	Identify the difference between chemical and physical changes.
	5.2.2.1		PH3.24	Phase Transitions: Melting & Boiling Points	Predict the physical state of a substance under specified conditions, given suitable data.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	5.2.1.2	Diagnostic: Ionic Substances [CH0.10]	CH2.10	Ionic Bonding I	Identify and describe the formation of ionic bonds using dot and cross diagrams. This nugget contains 1:1 ratio examples only.
	5.2.1.2		CH2.11	Ionic Bonding II	Identify and describe the formation of ionic bonds using dot and cross diagrams. This nugget contains 1:2 and 2:1 ratio examples.
	5.2.1.2		CH2.12	Predicting Formulae from Ions I	Use the known charges of common ions to predict the formulae of ionic compounds.
	5.2.1.3		CH2.18	Ionic Compounds	Describe the structure of ionic compounds.
	5.2.1.2		CH2.19	Representing Ionic Compounds	Identify ionic compounds from 2D or 3D representations. Describe the structure of an ionic compound using a diagram.
	5.2.1.3		CH2.20	Limitations of Representations of Ionic Compounds	Describe the limitations of 2D or 3D representations of ionic compounds.
	5.2.2.3		CH2.21	Properties of Ionic Compounds	State the properties of ionic compounds.
	5.2.2.3		CH2.22	Explaining the Properties of Ionic Compound	Explain the properties of ionic compounds in terms of their structure.
	5.2.1.3		CH2.23	Deducing Formulae from Diagrams of Ionic Compounds	Use diagrams and knowledge of ions to determine the formulae of ionic compounds.
	5.2.1.4	Diagnostic: Covalent Bonding [CH0.12]	CH2.24	Covalent Bonding I	Identify and describe the formation of covalent bonds using dot and cross diagrams. This nugget contains elemental molecules and the formation of single, double and triple bonds.
	5.2.1.4		CH2.25	Covalent Bonding II	Identify and describe the formation of covalent bonds using dot and cross diagrams. This nugget contains the formation of simple compounds.
	5.2.1.4		CH2.26	Representing Covalent Bonds	Identify covalent compounds from 2D or 3D representations. Describe the structure of a covalent structure using a diagram.
	5.2.1.4		CH2.27	Limitations of Representations of Covalent Bonds	Describe the limitations of 2D or 3D representations of covalent compounds.
	Supplementary		CH2.28	Deducing Formulae from Diagrams of Covalent Compounds	Use diagrams to determine the formulae and empirical formulae of covalent compounds.
Topic 2 - Bonding, Structure & Properties of Matter	Supplementary	Diagnostic: Small & Giant Covalent Substances [CH0.13]	CH2.29	Intermolecular & Intramolecular forces	Define inter- and intramolecular forces and compare them.
	5.2.1.4		CH2.30	Small Molecular Substances	Describe the structure of small molecular substances and give some common examples.
	5.2.2.4		CH2.31	Properties of Small Molecular Substances	Give the properties of small molecular substances.
	5.2.2.4		CH2.32	Explaining the Properties of Small Molecular Substances	Explain the properties of small molecular substances in terms of their structure.
cont. next page		cont. next page			

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 2 - Bonding, Structure & Properties of Matter** cont. next page	5.2.2.6	cont. from previous page Diagnostic: Small & Giant Covalent Substances [CH0.13]	CH2.33	Giant Covalent Structures & Their Properties	Describe the structure of giant covalent structures and give their general properties.
	5.2.1.4 / 5.2.2.6		CH2.34	Comparing Small & Giant Covalent Substances	Compare the structure and properties of small and giant covalent substances.
	5.2.2.6	Diagnostic: Silicon Dioxide & Polymers [CH0.14]	CH2.35	Structure & Properties of Silicon Dioxide	Describe the structure of silicon dioxide and give its properties.
	5.2.2.6		CH2.36	Explaining the Properties of Silicon Dioxide	Explain the properties of silicon dioxide in terms of its structure. Assumes knowledge of small molecular substances.
	5.2.2.5		CH2.37	Structure & Properties of Polymers	Describe the structure of polymers and give their general properties.
	5.2.2.5		CH2.38	Explaining the Properties of Polymers	Explain the general properties of polymers in terms of their structure.
	5.2.1.4		CH2.39	Representing Polymers	Describe the displayed formula of monomers and interpret to deduce the structure of a polymer.
	5.2.3.1	Diagnostic: Carbon Allotropes [CH0.15]	CH2.40	Structure & Properties of Diamond	Describe the structure of diamond and give its properties.
	5.2.3.1		CH2.41	Explaining the Properties of Diamond	Explain the properties of diamond in terms of its structure.
	5.2.3.2		CH2.42	Structure & Properties of Graphite	Describe the structure of graphite and give its properties.
	5.2.3.2		CH2.43	Explaining the Properties of Graphite	Explain the properties of graphite in terms of its structure.
	5.2.3.1 / 5.2.3.2		CH2.44	Comparing Graphite & Diamond	Compare the structures of diamond and graphite. Explain the properties of graphite and diamond in terms of their structures.
	5.2.3.3		CH2.45	Structure & Properties of Graphene	Describe the structure of graphene and give its properties.
	5.2.3.3		CH2.46	Explaining the Properties of Graphene	Explain the properties of graphene in terms of its structure.
	5.2.3.2 / 5.2.3.3		CH2.47	Comparing Graphite & Graphene	Compare the structures of graphite and graphene. Explain the properties of graphite and graphene in terms of their structures.
	5.2.3.3		CH2.48	Structure & Properties of Fullerenes	Describe the structure of fullerenes and give their properties.
	5.2.3.3		CH2.49	Explaining the Properties of Fullerenes	Explain the properties of fullerenes in terms of their structure.
	5.2.3		CH2.50	Carbon Allotropes: A Summary	Compare the structures of diamond, graphite, graphene, buckminsterfullerene & nanotubes. Explain and compare their properties in terms of their structures.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 2 - Bonding, Structure & Properties of Matter**	Supplementary	**Diagnostic: Identifying Bonding, Deducing Properties & Writing Equations [CH0.16]**	**CH2.51**	**Molecular Compounds vs Ionic Compounds**	Compare covalent and ionic compounds. Define the term molecule.
	Supplementary		**CH2.52**	**Identifying Bonding from Substance Names**	Identify metallic, ionic and covalent bonding from the elements involved
	Supplementary		**CH2.53**	**Identifying Bonding from Diagrams**	Identify metallic, ionic and covalent bonding from 2D or 3D representations.
	5.2		**CH2.54**	**Summary: Structures & Properties of Substances**	A summary of the structures and properties of substances, including the common themes.
	5.2		**CH2.55**	**Summary: Explaining the Properties of Substances**	A summary of the properties of substances, covering the explanations of common themes.
	Supplementary		**CH2.57**	**Valency & Number of Covalent Bonds Formed**	Deduce the valency of atoms and use it to predict the structure of molecules.
	5.1.1.1		**CH2.58**	**Writing Balanced Formula Equations I**	Use knowledge of bonding to determine the formulae of compounds and write balanced formula equations. 1:1 ratio compounds.
	5.1.1.1		**CH2.59**	**Writing Balanced Formula Equations II**	Use knowledge of bonding to determine the formulae of compounds and write balanced formula equations. No brackets.
	Supplementary		**CH2.61**	**What is a Crystal?**	Describe crystalline structures and give examples of ionic, metallic and covalent crystals.
			CH2.67	**Topic 2 Review - Bonding, Structure and Properties of Matter (Set A)**	Chemistry Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.
			CH2.68	**Topic 2 Review - Bonding, Structure and Properties of Matter (Set B)**	Chemistry Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page Topic 3 - Quantitative Chemistry	5.3.1.2	Diagnostic: Relative Formula Mass [CH0.19]	CH3.01	Calculating Relative Formula Mass I	Calculate the relative formula mass of compounds with simple 1:1 ratios. Atomic masses are given in the questions.
	5.3.1.2		CH3.02	Calculating Relative Formula Mass II	Calculate the relative formula mass of compounds without brackets. Atomic masses are given in the questions.
	5.3.1.2		CH3.03	Calculating Relative Formula Mass III	Calculate the relative formula mass of compounds without brackets. Atomic masses need to be read from a periodic table.
	5.3.1.2		CH3.04	Calculating Relative Formula Mass IV	Calculate the relative formula mass of compounds with brackets. Atomic masses need to be read from a periodic table.
	5.3.1.1		CH3.05	Conservation of Mass	Describe the concept of conservation of mass using the masses of reactants and products. No requirement for student to balance equations.
	5.3.1.2		CH3.06	Using Equations to Calculate Relative Formula Mass I	Calculate the relative formula mass of compounds in a reaction using the symbol equation, while applying the concept of conservation of mass. No requirement for student to balance
	5.3.1.2		CH3.07	Using Equations to Calculate Relative Formula Mass II	Calculate the relative formula mass of compounds in a reaction using the symbol equation, while applying the concept of conservation of mass. Equations require balancing before
	5.3.1.3		CH3.09	Explaining Observed Mass Changes	Explain the observed mass changes in experiments according to the conservation of mass.
	5.3.1.2	Diagnostic: Percentage Mass Calculations [CH0.21]	CH3.10	Calculating Percentage Mass I	Calculate the percentage mass of compounds with simple 1:1 ratios. Atomic masses are given in the questions.
	5.3.1.2		CH3.11	Calculating Percentage Mass II	Calculate the percentage mass of compounds without brackets. Atomic masses are given in the questions.
	5.3.1.2		CH3.12	Calculating Percentage Mass III	Calculate the percentage mass of compounds without brackets. Atomic masses need to be read from a periodic table.
	5.3.1.2		CH3.13	Calculating Percentage Mass IV	Calculate the percentage mass of compounds with brackets. Atomic masses need to be read from a periodic table.
	5.3.1.4	Diagnostic: Uncertainty of Repeated Measurements [CH0.23]	CH3.15	Uncertainty of Repeated Measurements	Identify how to represent the distribution of results with uncertainty around the mean.
	5.3.1.4		CH3.16	Calculating Uncertainty in Repeated Measurements	Calculate the distribution of results with uncertainty around the mean.
cont. next page	5.3.1.4		CH3.17	Interpreting Uncertainty in Repeated Measurements	Interpret from graphs the distribution of results with uncertainty around the mean.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 3 - Quantitative Chemistry**	5.3.2.5	Diagnostic: Concentration Calculations (g/dm³) [CH0.26]	**CH3.34**	**Concentration of Solutions**	Describe the use of the (aq) state symbol in relation to concentration.
	5.3.2.5		**CH3.35**	**Calculating Concentration I (g/dm³)**	Calculate the concentration of solutions in g/dm³. Unit conversions are not required.
	5.3.2.5		**CH3.36**	**Calculating Concentration II (g/dm³)**	Calculate the concentration of solutions in g/dm³. Unit conversions are required.
	5.3.2.5		**CH3.37**	**Rearranging the Concentration Equation (g/dm³)**	Rearrange the concentration equation to calculate the mass and volume of solutions. Includes application questions and requires unit conversions.
			CH3.59	**Topic 3 Review - Quantitative Chemistry (Set A)**	Chemistry Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.
			CH3.60	**Topic 3 Review - Quantitative Chemistry (Set B)**	Chemistry Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 4 - Chemical Changes	5.4.1.1	Diagnostic: Oxidation & Reduction [CH0.34]	CH4.001	Metals & Oxygen: Word Equations	Write and extract information from word equations for the reaction between metals and oxygen.
	5.4.1.1		CH4.002	Metals & Oxygen: Symbol Equations	Write and extract information from symbol equations for the reaction between metals and oxygen.
	5.4.1.1		CH4.003	Oxidation & Reduction: Oxygen	Explain oxidation and reduction in terms of loss or gain of oxygen.
	5.4.1.1		CH4.004	Oxidising & Reducing Agents: Oxygen	Identify oxidising and reducing agents in oxidation and reduction reactions.
	5.4.1.2	Diagnostic: Reactivity Series [CH0.36]	CH4.012	Reactivity Series	Explain the reactivity of metals based on their reactions with water and dilute acids.
	5.4.1.2		CH4.013	Reactivity & Forming Ions	Explain how the reactivity of metals with water and dilute acids is related to the tendency of the metal to form its positive ion.
	5.4.1.2		CH4.014	Deducing the Order of Reactivity	Deduce an order of reactivity of metals based on experimental results.
	5.4.1.2		CH4.015	Displacement Reactions: Word Equations	Write and extract information from word equations for displacement reactions.
	5.4.1.2		CH4.016	Displacement Reactions: Symbol Equations	Write and extract information from symbol equations for displacement reactions.
	5.4.1.3		CH4.018	Extraction of Metals By Reduction	Explain, using the position of carbon in the reactivity series, the principles of processes used to extract metals, including extraction of a non-ferrous metal.
	Prior	Diagnostic: Acids, Bases & Alkalis [CH0.38]	CH4.019	Acids & Bases	Describe acids and bases using laboratory and everyday examples.
	Prior		CH4.020	Alkalis	Explain the general properties of alkalis and give examples.
	Prior		CH4.021	pH Scale	Recall that relative acidity and alkalinity are measured by pH, using the pH scale.
	5.4.2.1		CH4.022	Acids & Metals: Word Equations	Write and extract information from word equations between acids and metals.
	5.4.2.1		CH4.023	Acids & Metals: Symbol Equations	Write and extract information from symbol equations between acids and metals.
	5.4.2.4		CH4.025	Acids & Alkalis in Aqueous Solution	Describe how acids and alkalis release hydrogen and hydroxide ions in aqueous solutions.
	4.4.2.4		CH4.026	Indicators: Universal Indicator	Describe how universal indicator can be used to estimate the pH of a solution.
	Supplementary		CH4.030	Indicators: Litmus	Describe how litmus and universal indicator can be used to indicate the pH of a solution.
	4.4.2.4		CH4.033	pH Meters	Describe how a pH meter can be used to accurately measure the pH of a solution.

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Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	5.4.1.1	Diagnostic: Neutralisation [CH0.40]	CH4.038	Neutralisation	Write and extract information from word equations for the reaction between metals and oxygen.
	5.4.1.1		CH4.040	Neutralisation & pH	Write and extract information from symbol equations for the reaction between metals and oxygen.
	5.4.1.1		CH4.041	Neutralisation - Acids & Metal Oxides: Word Equations	Explain oxidation and reduction in terms of loss or gain of oxygen.
	5.4.1.1		CH4.042	Neutralisation - Acids & Metal Oxides: Symbol Equations	Identify oxidising and reducing agents in oxidation and reduction reactions.
	5.4.1.2		CH4.043	Neutralisation - Acids & Metal Hydroxides: Word Equations	Explain the reactivity of metals based on their reactions with water and dilute acids.
	5.4.1.2		CH4.044	Neutralisation - Acids & Metal Hydroxides: Symbol Equations	Explain how the reactivity of metals with water and dilute acids is related to the tendency of the metal to form its positive ion.
	5.4.1.2		CH4.045	Neutralisation - Acids & Metal Carbonates: Word Equation	Deduce an order of reactivity of metals based on experimental results.
	5.4.1.2		CH4.046	Neutralisation - Acids & Metal Carbonates: Symbol Equations	Write and extract information from word equations for displacement reactions.
	5.4.1.2		CH4.047	Summary: Acids, Metals & Metal Compounds Word Equations	Write and extract information from symbol equations for displacement reactions.
	5.4.1.3		CH4.048	Summary: Acids, Metals & Metal Compound Symbol Equations	Explain, using the position of carbon in the reactivity series, the principles of processes used to extract metals, including extraction of a non-ferrous metal.
Topic 4 - Chemical Changes	Supplementary	Diagnostic: Solubility [CH0.42]	CH4.049	Solubility Rules: Alkali Metals & Ammonium Ion	Solubility rule for compounds containing either an alkali metal or an ammonium ion.
	Supplementary		CH4.050	Solubility Rules: Nitrates	Solubility rule for compounds containing a nitrate ion.
	Supplementary		CH4.051	Solubility Rules: Sulfates	Solubility rule for compounds containing a sulfate ion.
	Supplementary		CH4.052	Solubility Rules: Halides	Solubility rule for compounds containing a halide ion.
	Supplementary		CH4.053	Solubility Rules: Carbonates & Phosphates	Solubility rule for compounds containing either a carbonate or phosphate ion.
	Supplementary		CH4.054	Solubility Rules: Hydroxides	Solubility rule for compounds containing a hydroxide ion.
	Supplementary		CH4.055	Solubility Rules: Sulfides	Solubility rule for compounds containing a sulfide ion.
	Supplementary		CH4.057	Solubility Rules: Summary	A summary of the solubility rules for compounds containing a variety of different ions.
cont. next page	5.4.2.3	cont. next page	CH4.059	Soluble Salts	Explanation of producing soluble salts from a variety of acid reactions.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	5.4.1.1	cont. from previous page	CH4.061	Required Practical 8: Making Soluble Salts From an Insoluble Oxide	Required Practical - Preparation of a salt from the reaction between an acid & metal oxide.
	5.4.1.1	Diagnostic: Solubility [CH0.42]	CH4.063	Required Practical 8: Making Soluble Salts From an Insoluble Carbonate	Required Practical - Preparation of a salt from the reaction between an acid & metal carbonate.
	5.4.1.1		CH4.064	Practical: Producing Insoluble Salts	Practical - Preparation of a pure, dry, insoluble salt from the reaction between two salt solutions.
	5.4.1.1	Diagnostic: Electrolysis [CH0.48]	CH4.072	Electrolysis	Introduction to electrolysis, describing how ionic compounds when molten or in an aqueous solution go through the process of decomposition, by the passage of an electric current.
	5.4.1.2		CH4.073	The Process of Electrolysis	Describing the transfer of charge during electrolysis, through the movement of ions in the electrolyte.
	5.4.1.2		CH4.078	Electrolysis of Molten Lead (II) Bromide	Describing the decomposition of Lead (II) Bromide through the process of electrolysis.
	5.4.1.2		CH4.080	Predicting Products of Electrolysis of Molten Ionic Compounds	Describing how to predict the products of the electrolysis in the molten state.
	5.4.1.2		CH4.082	Electrolysis of Concentrated Aqueous Sodium Chloride	Description of electrolysis of concentrated aqueous sodium chloride and the products formed.
	5.4.1.2		CH4.084	Electrolysis of Aqueous Copper (II) Sulfate	Description of electrolysis of aqueous copper (II) sulfate and the products formed.
	5.4.1.3		CH4.086	Electrolysis of Dilute Sulfuric acid	Description of electrolysis of dilute sulfuric acid and the products formed.
	Supplementary		CH4.088	Electrolysis of Aqueous Copper (II) Chloride	Description of electrolysis of aqueous copper (II) chloride and the products formed.
	Supplementary		CH4.090	Predicting Products of the Electrolysis of Aqueous Solutions	Description of how to predict the products of electrolysis in aqueous solutions.
	Supplementary		CH4.092	Predicting Products of Electrolysis: Summary	A summary to describe how to predict the products of Electrolysis.
	Supplementary		CH4.096	Required Practical 9: Electrolysis	Required Practical - Investigation into the products formed during the electrolysis of aqueous solutions.
	Supplementary		CH4.098	Required Practical 9: Electrolysis - Analysis and Conclusion	Required Practical - Analysis & conclusion for the investigation into products formed during the electrolysis of aqueous solutions.
	Supplementary		CH4.099	Extracting Metals by Electrolysis	Extracting metals from their ores using electrolysis using aluminium as an example.
	Supplementary		CH4.101	Evalulating Extracting Metals	Evaluating the methods used to extract metals from their ores.
			CH4.103	Topic 4 Review - Chemical Changes (Set A)	Chemistry Topic 4 Review for Combined Science AQA Trilogy Foundation Tier.
			CH4.104	Topic 4 Review - Chemical Changes (Set B)	Chemistry Topic 4 Review for Combined Science AQA Trilogy Foundation Tier.

Topic 4 - Chemical Changes

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	5.5.1.2	Diagnostic: Exothermic Reactions [CH0.52]	CH5.01	Collision Theory	Describe collision theory and define activation energy.
	5.5.1.1		CH5.02	Exothermic Reactions: Introduction	Describe exothermic reactions and use the law of conservation of energy to explain why the product molecules must have less energy than the reactants.
	5.5.1.2		CH5.03	Exothermic Reactions: Profiles	Label exothermic reaction profiles and extract information from them.
	5.5.1.2		CH5.04	Exothermic Reactions: Combustion	Describe combustion as an exothermic oxidation reaction. Give the basic word equation for the complete and incomplete combustion of fuel.
	5.5.1.2		CH5.05	Exothermic Reactions: Displacement	Describe displacement as typically exothermic. Extract information from word & symbol equations for displacement reactions.
	5.5.1.2		CH5.06	Exothermic Reactions: Respiration	Describe respiration as an exothermic chemical process. Includes equations for aerobic & anaerobic respiration.
	5.5.1.2		CH5.07	Exothermic Reactions: Neutralisation	Describe neutralisation as an example of an exothermic reaction.
	5.5.1.2		CH5.08	Exothermic Reactions: Self-heating Devices	Give heat packs, hand warmers and self-heating food/drink packaging as examples of everyday uses of exothermic reactions.
	5.5.1.2		CH5.09	Exothermic Reactions: Summary	Define exothermic reactions and use reaction profiles. Give combustion, displacement, respiration, neutralisation and self-heating devices as examples.
	5.5.1.1	Diagnostic: Endothermic Reactions [CH0.53]	CH5.10	Endothermic Reactions: Introduction	Describe endothermic reactions and use the law of conservation of energy to explain why the product molecules must have more energy than the reactants.
	5.5.1.2		CH5.11	Endothermic Reactions: Profiles	Label endothermic reaction profiles and extract information from them.
	5.5.1.2		CH5.12	Endothermic Reactions: Thermal Decomposition	Describe thermal decomposition as an example of an endothermic chemical reaction.
	5.5.1.2		CH5.13	Endothermic Reactions: Photosynthesis	Describe photosynthesis as the endothermic chemical process. Includes the word & symbol equation.
	5.5.1.2		CH5.14	Endothermic Reactions: Citric Acid & Sodium Hydrogen Carbonate	Describe the reaction between citric acid and sodium hydrogen carbonate as an example of an endothermic reaction.
	5.5.1.2		CH5.15	Endothermic Reactions: Sports Injury Packs	Describe self-cooling sports injury packs as an example of an every day use of endothermic reactions.
	5.5.1.2		CH5.16	Endothermic Reactions: Summary	Define endothermic reactions and use reaction profiles. Give photosynthesis, thermal decomposition, citric acid and sodium hydrogencarbonate and sports injury packs as
	5.5.1.1	Diagnostic: Temperature Changes [CH0.54]	CH5.17	Exothermic & Endothermic Reactions: Identifying	Identify exothermic and endothermic reactions based on reaction profiles and/or the temperature change of the surroundings.
cont. next page	5.5.1.1	cont. next page	CH5.18	Exothermic & Endothermic Reactions: Drawing Reaction Profiles	Identify correctly drawn reaction profiles showing the relative energies and energy changes.

Topic 5 - Energy Changes

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 5 - Energy Changes**	5.5.1.2	cont. from previous page **Diagnostic: Temperature Changes [CH0.54]**	**CH5.19**	**Exothermic & Endothermic Reactions: Evaluating Uses**	Evaluate the use of exothermic and endothermic reactions for a specific purpose, considering temperature change, environmental impact and the toxicity of chemicals.
	5.5.1./5.5.1.2		**CH5.20**	**Exothermic & Endothermic Reactions: Summary**	Identify exothermic and endothermic reactions and give examples of both.
	RP10		**CH5.25**	**Required Practical 10: Temperature Change - Hydrochloric Acid & Metals**	Investigate the variables which affect temperature change in a chemical reaction between an acid and metal.
	RP10		**CH5.26**	**Required Practical 10: Temperature Change - Hydrochloric Acid & Sodium Hydrogen Carbonate**	Investigate the variables which affect temperature change in a chemical reaction between hydrochloric acid and sodium hydrogen carbonate.
	RP10		**CH5.27**	**Required Practical 10: Temperature Change - Acid & Alkali**	Investigate the variables which affect temperature change in a chemical reaction between an acid and alkali.
	RP10		**CH5.28**	**Required Practical 10: Temperature Change - Copper(II) Sulfate & Magnesium**	Investigate the variables which affect temperature change in a chemical reaction between copper (II) sulfate and magnesium.
			CH5.46	**Topic 5 Review: Energy Changes - Set A**	Chemistry Topic 5 Review for Combined Science AQA Trilogy Foundation Tier.
			CH5.47	**Topic 5 Review: Energy Changes - Set B**	Chemistry Topic 5 Review for Combined Science AQA Trilogy Foundation Tier.
			CH5.54	**Paper 1 Review: Chemistry - Set A**	Chemistry Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.
			CH5.55	**Paper 1 Review: Chemistry - Set B**	Chemistry Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.

CENTURY

Combined Science GCSE: AQA Trilogy (F) - Physics

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 1 - Energy	Prior	Diagnostic: Energy Stores & Transfers [PH0.001]	PH1.01	Energy Stores	Recall and describe the different energy stores.
	6.1.1.1		PH1.02	Systems in Physics	Describe the different systems used for models.
	6.1.1.1		PH1.03	Changing Energy Stores	Identify the conservation of energy and changes in energy stores.
	6.1.1.1		PH1.04	Energy Pathways	Identify and describe the different methods of energy transfer between stores.
	6.1.1.1		PH1.05	Energy Pathways in a System	Evaluate energy pathways within different system models.
	6.1.1.1	Diagnostic: Calculating Energy Transfers I [PH0.003]	PH1.06	Using W=Fd to Calculate Work I	Calculate work done using the equation W=Fd. Includes some application of knowledge but no unit conversions.
	6.1.1.2		PH1.09	Using E=1/2mv^2 to Calculate Kinetic Energy I	Calculate kinetic energy using the equation E=1/2mv^2. Includes some application of knowledge but no unit conversions.
	6.1.1.2		PH1.13	Using E=mgh to Calculate Gravitational Potential Energy I	Calculate gravitational potential energy using the equation E=mgh. Includes some application of knowledge but no unit conversions.
	6.1.1.2		PH1.21	Using $E=\frac{1}{2}ke^2$ to Calculate Elastic Potential Energy I	Calculate elastic potential energy using the equation E=1/2ke^2. Includes some application of knowledge but no unit conversions.
	6.1.1.2		PH1.25	Energy Transfers: KE to EPE	Describe energy transfers between kinetic and elastic potential energy stores. Includes some application of knowledge.
	6.1.1.2		PH1.18	Energy Transfers: KE to GPE	Describe energy transfers between kinetic and gravitational potential energy stores. Includes some application of knowledge but no unit conversions.
	6.1.1.2		PH1.27	Calculating Energy Transfers: A Bouncing Ball I	Describe and explain the energy transfers involved in a bouncing ball (KE/GPE/EPE & Thermal). Calculations, no unit conversions or rearranging.
	6.1.1.1	Diagnostic: Calculating Energy Transfers II [PH0.005]	PH1.07	Using W=Fd to Calculate Work II	Calculate work done using the equation W=Fd. Includes application and unit conversions.
	6.1.1.2		PH1.10	Using E=1/2mv^2 to Calculate Kinetic Energy II	Calculate kinetic energy using the equation E=1/2mv^2. Includes application and unit conversions.
	6.1.1.2		PH1.14	Using E=mgh to Calculate Gravitational Potential Energy II	Calculate gravitational potential energy using the equation E=mgh. Includes application and unit conversions.
	6.1.1.2		PH1.22	Using $E=\frac{1}{2}ke^2$ to Calculate Elastic Potential Energy II	Calculate elastic potential energy using the equation E=1/2ke^2. Includes application and unit conversions.

cont. next page

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.1.1.2	Diagnostic: Calculating Energy Transfers III [PH0.007]	PH1.08	Rearranging the W=Fd Equation	Rearrange W=Fd to find force and distance, includes unit conversions.
	6.1.1.2		PH1.11	Rearranging the E=½mv^2 Equation I	Rearrange E=1/2mv^2 to find mass, includes unit conversions.
	6.1.1.2		PH1.15	Rearranging the E=mgh Equation I	Rearrange E=mgh to find mass, includes unit conversions.
	6.1.1.2		PH1.16	Rearranging the E=mgh Equation II	Rearrange E=mgh to find height, includes unit conversions.
	6.1.1.2		PH1.17	Rearranging the E=mgh Equation III	Rearrange E=mgh to find gravitational field strength, includes unit conversions.
	6.1.1.2		PH1.23	Rearranging the E=½ke^2 Equation I	Rearrange E=1/2ke^2 to find spring constant, includes unit conversions.
	6.1.1.2		PH1.19	Calculating Energy Transfers: KE to GPE	Describe and explain energy transfers between kinetic and gravitational potential energy stores. Includes application, unit conversions and calculations.
	6.1.1.2		PH1.26	Calculating Energy Transfers: KE to EPE	Describe and explain energy transfers between kinetic and elastic potential energy stores. Includes application, unit conversions and calculations.
	6.1.1.2		PH1.28	Calculating Energy Transfers: A Bouncing Ball II	Describe and explain the energy transfers involved in a bouncing ball (KE/GPE/EPE & Thermal). Includes multistep calculations, unit conversions and rearranging.
Topic 1 - Energy	6.1.1.4	Diagnostic: Power [PH0.011]	PH1.30	Power	Define power in relation to energy and time.
	6.1.1.4		PH1.31	Using P=E/t to Calculate Power I	Calculate power using the equation P=E/t. Includes some application of knowledge but no unit conversions.
	6.1.1.4		PH1.32	Using P=E/t to Calculate Power II	Calculate power using the equation P=E/t. Includes application and unit conversions.
	6.1.1.4		PH1.33	Rearranging the P=E/t Equation	Rearrange P=E/t to find energy transferred and time, includes unit conversions.
	6.1.1.4		PH1.34	Using P=W/t to Calculate Power I	Calculate power combining the equations P=W/t and W=Fd. Includes some application of knowledge but no unit conversions.
	6.1.1.4		PH1.35	Using P=W/t to Calculate Power II	Calculate power combining the equations P=W/t and W=Fd. Includes application and unit conversions.
	6.1.1.4		PH1.36	Rearranging the P=W/t Equation	Rearrange P=W/t to find work done and time, includes unit conversions.
	Prior	Diagnostic: SHC [PH0.013]	PH1.37	Thermal Energy & Temperature	Identify the difference between thermal energy and temperature.
cont. next page	Prior	cont. next page	PH1.39	Direction of Thermal Energy Transfer	Describe the direction of thermal energy transfer.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.1.1.3	cont. from previous page	PH1.40	Specific Heat Capacity	Describe the specific heat capacity of a material.
	6.1.1.3	Diagnostic: Specific Heat Capacity [PH0.013]	PH1.41	Using the Specific Heat Capacity Equation I	Use the specific heat capacity equation E=mcθ. Includes some application of knowledge but no unit conversions.
	6.1.1.3		PH1.42	Using the Specific Heat Capacity Equation II	Use the equation involving specific heat capacity E=mcθ. Includes unit conversions.
	6.1.1.3		PH1.43	Rearranging the Specific Heat Capacity Equation	Rearrange E=mcθ to find mass, temperature change and specific heat capacity. Includes unit conversions.
	RP14		PH1.46	Required Practical 14: Specific Heat Capacity of Solids	Investigate the specific heat capacity of solids for required practical 14. This version of the practical uses a joulemeter to measure the energy transferred.
	RP14		PH1.47	Required Practical 14: Specific Heat Capacity of Liquids	Investigate the specific heat capacity of liquids for required practical 14. This version of the practical uses a joulemeter to measure the energy transferred.
Topic 1 - Energy	Prior	Diagnostic: Energy Transfers & Efficiency [PH0.017]	PH1.48	Energy Transfers by Heating: Conduction	Describe energy transfers in solids by conduction
	Prior		PH1.49	Energy Transfers by Heating: Convection	Describe energy transfers in fluids by convection.
	Prior		PH1.50	Energy Transfers by Heating: Radiation	Describe energy transfers by infrared radiation.
	Supplementary		PH1.53	Calculating Payback Time I	Calculate the payback time of appliances and other investments. Includes some application of knowledge but no unit conversions.
	Supplementary		PH1.54	Calculating Payback Time II	Calculate the payback time of appliances and other investments. Includes application and unit conversions.
	RP21		PH1.52	Required Practical 21: Radiation and Absorption	Investigate radiation using a Lesley cube for required practical 21.
	6.1.2.1		PH1.55	Reducing Unwanted Energy Transfers: Thermal Insulation	Compare methods of reducing thermal energy transfer around the home considering conduction, convection and radiation
	6.1.2.1		PH1.56	Reducing Unwanted Energy Transfers: Vacuum Flask	Compare methods of reducing thermal energy transfer with a vacuum flask considering conduction, convection and radiation
	6.1.2.1		PH1.58	Reducing Unwanted Energy Transfers: Lubrication	Explore methods of reducing energy transfers through lubrication.
	6.1.2.2		PH1.59	Calculating Efficiency I	Calculate the efficiency of an object based on the input and output. Includes some application of knowledge but no unit conversions.
cont. next page	6.1.2.2	cont. next page	PH1.60	Calculating Efficiency II	Calculate the efficiency of an object based on the input and output. Includes application and unit conversions.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.1.2.2	cont. from previous page	PH1.61	Rearranging the Efficiency Equation	Rearrange the efficiency equation to find the input and output, includes unit conversions.
	6.1.2.1	[PH0.017]	PH1.62	Energy Dissipation	Describe the dissipation of energy to the surroundings.
	6.1.2.2		PH1.63	How to Draw a Sankey Diagram	Illustrate the efficiency of an object using Sankey diagrams.
Topic 1 - Energy	6.1.3	Diagnostic: Energy Resources [PH0.021]	PH1.65	Renewable & Non-Renewable Energy Resources	Identify a range of renewable and non-renewable energy resources.
	6.1.3		PH1.66	Wind Power	Describe how wind turbines can generate electricity.
	6.1.3		PH1.67	Solar Power	Describe how solar cells can generate electricity.
	6.1.3		PH1.68	Geothermal Power	Describe how geothermal power stations can generate electricity.
	6.1.3		PH1.69	Hydroelectric Power	Describe how hydroelectric dams can generate electricity.
	6.1.3		PH1.70	Pumped Storage	Describe how hydroelectric dams and other systems can be used as pumped storage systems.
	6.1.3		PH1.71	Wave Power	Describe how waves can generate electricity on and offshore.
	6.1.3		PH1.72	Tidal Barrages	Describe how tidal barrages can generate electricity.
	6.1.3		PH1.73	Bio-Fuels	Describe how bio-fuels can generate electricity.
	6.1.3		PH1.74	Fossil Fuels	Describe how fossil fuels can generate electricity.
	6.1.3		PH1.75	Nuclear Power	Describe how nuclear fission reactors can generate electricity.
	6.1.3		PH1.76	Summary of Energy Generation	Summarise different methods of energy generation.
	6.1.3		PH1.77	Use of Energy Resources	Consider the issues regarding energy generation and usage.
cont. next page	6.1.3	cont. next page	PH1.78	Interpreting Energy Resource Use	Evaluate trends in energy demand including the use of graphs.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 1**	6.1.3	[PH0.021]	PH1.79	Trends in Use of Energy Resources	Analyse current trends in energy use away from carbon dioxide emitting sources.
			PH1.80	Topic 1 Review: Energy (Set A)	Physics Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.
			PH1.81	Topic 1 Review: Energy (Set B)	Physics Topic 1 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	Prior	Diagnostic: Introduction to Electricity [PH0.023]	PH2.01	Modelling Electricity	Identify models to help understand the concept of electrical circuits.
	Prior		PH2.02	Conductors & Insulators	Identify materials as either electrical conductors or insulators.
	6.2.1.1		PH2.03	Circuit Symbols	Identify and describe the uses of the main circuit symbols used to represent components in circuits.
	6.2.1.1		PH2.04	Series & Parallel Circuits	Recognise and describe the difference between series and parallel circuits in terms of routes for electrons and loops.
	Supplementary		PH2.05	Conventional Current vs Electron Flow	Distinguish the difference between the direction of conventional current and electron flow.
	6.2.1.1		PH2.06	Drawing Circuits	Drawing series and parallel circuit diagrams.
	6.2.1.1		PH2.07	Interpreting Circuits I	Interpreting how circuits work using circuit diagrams.
	6.2.1.1		PH2.08	Interpreting Circuits II	Interpreting how circuits work using circuit diagrams, requiring greater logical thinking.
	6.2.1.2	Diagnostic: Electrical Charge [PH0.025]	PH2.09	Electrical Charge & Current	Describe the difference between charge and current in electrical circuits.
	6.2.1.2		PH2.10	Using Q=It to Calculate Charge I	Calculate charge using the equation Q=It. Includes some application of knowledge questions, but no unit conversions.
	6.2.1.2		PH2.11	Using Q=It with Circuit Diagrams I	Calculate charge using the equation Q=It. Includes application of knowledge questions using circuit diagrams, but no unit conversions.
	6.2.1.2		PH2.12	Using Q=It to Calculate Charge II	Calculate charge using the equation Q=It. Includes application and unit conversions.
	6.2.1.2		PH2.13	Using Q=It with Circuit Diagrams II	Calculate charge using the equation Q=It. Includes application of knowledge questions using circuit diagrams, including unit conversions.
	6.2.1.2		PH2.14	Rearranging Q=It	Rearrange Q=It to find current and time. Includes unit conversions.
	6.2.1.2		PH2.15	Rearranging Q=It with Circuit Diagrams	Rearrange Q=It to find current and time. Includes application of circuit diagrams and unit conversions.
	6.2.1.3	Diagnostic: p.d. [PH0.027]	PH2.16	Potential Difference	Describe potential difference and how to measure it within a circuit.
	6.2.1.3		PH2.17	Resistance	Describe resistance in term of electrons and different factors that can impact resistance, such as thickness and length.
cont. next page	6.2.1.3	cont. next page	PH2.18	Using V=IR to Calculate pd I	Calculate potential difference using the equation V=IR. Includes some application of knowledge questions, but no unit conversions.

Topic 2 - Electricity

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page Topic 2 - Electricity cont. next page	6.2.1.3	cont. from previous page Diagnostic: Potential Difference [PH0.027]	PH2.19	Using V=IR with Circuit Diagrams I	Calculate potential difference using the equation V=IR. Includes application of knowledge questions using circuit diagrams, but no unit conversions.
	6.2.1.3		PH2.20	Using V=IR to Calculate pd II	Calculate potential difference using the equation V=IR. Includes application and unit conversions.
	6.2.1.3		PH2.21	Using V=IR with Circuit Diagrams II	Calculate potential difference using the equation V=IR. Includes application of knowledge questions using circuit diagrams, including unit conversions.
	6.2.1.3		PH2.22	Rearranging V=IR	Rearrange V=IR to find current and resistance. Includes unit conversions.
	6.2.1.3		PH2.23	Rearranging V=IR with Circuit Diagrams	Rearrange V=IR to find current and resistance. Includes application of circuit diagrams and unit conversions.
	6.2.1.4	Diagnostic: Ohmic & Non-ohmic Conductors [PH0.029]	PH2.24	Ohm's Law: Resistance & Temperature	Describe the impact of temperature on resistance in terms of electron collisions. Identify Ohm's Law and classify components as ohmic or non-ohmic conductors.
	RP15		PH2.25	Required Practical 15: Resistance & Length	Investigate how the resistance of a wire varies with its length.
	6.2.1.4		PH2.27	Ohmic Conductors: Fixed Resistors	Describe the resistance of fixed resistors as ohmic conductors. Including to identify the corresponding IV graph.
	RP16		PH2.28	Required Practical 16: I-V Resistor	Investigate the current-potential difference relationships of a fixed resistor.
	6.2.1.4		PH2.30	Non-ohmic Conductors: Filament Bulbs	Describe the resistance of filament bulbs as non-ohmic conductors. Including to identify the corresponding IV graph.
	RP16		PH2.31	Required Practical 16: I-V Filament Bulb	Investigate the current-potential difference relationships of a filament bulb.
	6.2.1.4		PH2.33	Non-ohmic Conductors: Diodes	Describe the resistance of diodes as non-ohmic conductors. Including to identify the corresponding IV graph.
	RP16		PH2.34	Required Practical 16: I-V Diode	Investigate the current-potential difference relationships of a diode.
	6.2.1.4		PH2.36	Non-ohmic Conductors: Thermistors	Describe the resistance of thermistors as non-ohmic conductors. Including to identify the corresponding IV graph.
	6.2.1.4		PH2.37	Practical: Resistance of Thermistors	Investigate the relationship between resistance and temperature of a thermistor.
	6.2.1.4		PH2.38	Non-ohmic Conductors: LDRs	Describe the resistance of light dependent resistors (LDRs) as non-ohmic conductors. Including to identify the corresponding IV graph.
	6.2.1.4		PH2.39	Practical: Resistance of LDRs	Investigate the relationship between resistance and light intensity of an LDR.
	6.2.1.4		PH2.40	Applications of Non-ohmic Conductors	Describe applications of diodes, thermistors and LDRs in different settings.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.2.2	Diagnostic: Series & Parallel Circuits [PH0.031]	PH2.41	Current in Series & Parallel Circuits	Describe the behaviour of current in series and parallel circuits.
	6.2.2		PH2.42	Potential Difference in Series & Parallel Circuits	Describe the behaviour of potential difference in series and parallel circuits.
	6.2.2		PH2.43	Resistance in Series & Parallel Circuits	Describe the behaviour of resistance in series and parallel circuits. Does not include calculating resistance in parallel circuits.
	RP15		PH2.44	Required Practical 15: Resistance in Series & Parallel	Investigate the resistance within series and parallel circuits.
	6.2.2		PH2.46	Series & Parallel Circuit Comparisons	Compare and identify how current, potential difference and resistance behaves in series and parallel circuits.
	6.2.2		PH2.47	Circuit Problem Solving with V=IR Equation I	Solve circuit problems using the V=IR relationship, while applying how current, potential difference and resistance behaves in series and parallel circuits. Problems require up to two steps to answer.
Topic 2 - Electricity	6.2.3.1	Diagnostic: Mains Electricity [PH0.035]	PH2.49	AC vs DC	Describe the difference between direct and alternating currents.
	6.2.3.1		PH2.50	UK Electricity Supply	Identify the properties of the UK electricity supply.
	Supplementary		PH2.51	Calculating Frequency I	Describe and calculate frequency in various contexts, including AC electricity. Includes some application of knowledge questions, but no unit conversions.
	Supplementary		PH2.52	Calculating Frequency II	Describe and calculate frequency in various contexts, including AC electricity. Includes some application of knowledge questions involving unit conversions.
	Supplementary		PH2.53	Oscilloscope Traces to Calculate Frequency	Use an oscilloscope trace to calculate the frequency of a signal. Includes unit conversions between milliseconds and seconds.
	Supplementary		PH2.54	Oscilloscope Traces to Calculate Peak Pd	Use an oscilloscope trace to calculate the peak potential difference of a signal.
	6.2.3.2		PH2.55	Wiring a Plug: Type G/UK	Identify the structure of a type G (UK) plug. Describe the concept of grounding devices with earth wire and the potential differences between wires.
	6.2.3.2		PH2.56	Choosing a Fuse	Describe the function of a fuse and how to select the correct rating of fuse for an appliance.
	6.2.3.2		PH2.57	Electricity Supply Safety	Describe the safety features of electrical appliances to protect their users. Includes fuses, circuit breakers, materials and the concept of grounding and double insulation.
	6.2.3.2		PH2.58	Dangers of Electricity	Describing the dangers of domestic electricity supplies.
cont. next page	6.2.4.3		PH2.59	The National Grid	Explain the purpose of the National Grid and how it improves efficiencies using transformers.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.2.4.2	Diagnostic: Power & Electrical Circuits I [PH0.038]	PH2.63	Work Done in a Circuit	Describe the work done in an electrical circuits and appliances. Introducing the E=QV equation.
	6.2.4.2		PH2.64	Using E=QV to Calculate Energy I	Calculate work done by electrical appliances using E=QV. Includes some application of knowledge questions, but no unit conversions.
	6.2.4.2		PH2.65	Using E=QV with Circuit Diagrams I	Calculate work done in electrical circuits using E=QV. Includes some application of circuit diagrams, but no unit conversions.
	6.2.4.2		PH2.70	Energy Transfers in Everyday Appliances	Describe the process of energy transfer in electrical devices. Define 1 W.
	6.2.4.2		PH2.71	Using E=Pt to Calculate Energy I	Calculate the energy transferred by electrical appliances using E=Pt. Includes some application of knowledge questions, but no unit conversions.
	6.2.4.1		PH2.74	Power in Electrical Devices	Identify that power is related to the potential difference across it and the current through it with the equation P=IV.
	6.2.4.1		PH2.75	Using P=IV to Calculate Power I	Calculate power of electrical devices using the P=IV equation. Includes some application of knowledge questions, but no unit conversions.
	6.2.4.1		PH2.76	Using P=IV with Circuit Diagrams I	Calculate power of electrical components using the P=IV equation. Includes some application of circuit diagrams, but no unit conversions.
	6.2.4.1		PH2.81	Using $P=I^2R$ to Calculate Power I	Calculate power of electrical devices using the $P=I^2R$ equation. Assumes knowledge of P=IV. Includes some application of knowledge questions, but no unit conversions.
	6.2.4.1		PH2.82	Using $P=I^2R$ with Circuit Diagrams I	Calculate power of electrical components using the $P=I^2R$ equation. Assumes knowledge of P=IV. Includes some application of circuit diagrams, but no unit conversions.
	6.2.4.2	Diagnostic: Power & Electrical Circuits II [PH0.040]	PH2.66	Using E=QV to Calculate Energy II	Calculate work done by electrical appliances using E=QV. Includes application and unit conversions questions.
	6.2.4.2		PH2.67	Using E=QV with Circuit Diagrams II	Calculate work done in electrical circuits using E=QV. Includes application of circuit diagrams and unit conversions.
	6.2.4.2		PH2.72	Using E=Pt to Calculate Energy II	Calculate the energy transferred by electrical appliances using E=Pt. Includes application and unit conversions questions.
	6.2.4.1		PH2.77	Using P=IV to Calculate Power II	Calculate power of electrical devices using the P=IV equation. Includes application and unit conversions questions.
	6.2.4.1		PH2.78	Using P=IV with Circuit Diagrams II	Calculate power of electrical components using the P=IV equation. Includes application of circuit diagrams and unit conversions.
	6.2.4.1		PH2.83	Using $P=I^2R$ to Calculate Power II	Calculate power of electrical devices using the $P=I^2R$ equation. Assumes knowledge of P=IV. Includes application and unit conversions questions.
cont. next page	6.2.4.1		PH2.84	Using $P=I^2R$ with Circuit Diagrams II	Calculate power of electrical components using the $P=I^2R$ equation. Assumes knowledge of P=IV. Includes application of circuit diagrams and unit conversions.

Topic 2 - Electricity

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 2 - Electricity**	6.2.4.2	**Diagnostic: Power & Electrical Circuits III [PH0.042]**	**PH2.68**	**Rearranging E=QV**	Rearrange the E=QV equation to calculate charge and potential difference. Includes unit conversions.
	6.2.4.2		**PH2.69**	**Rearranging E=QV with Circuit Diagrams**	Rearrange the E=QV equation to calculate charge and potential difference. Includes application of circuit diagrams and unit conversions.
	6.2.4.2		**PH2.73**	**Rearranging E=Pt**	Rearrange the E=Pt equation to calculate power and time. Includes application and unit conversions questions.
	6.2.4.1		**PH2.79**	**Rearranging P=IV**	Rearrange the P=IV equation to calculate current and potential difference. Includes application and unit conversions questions.
	6.2.4.1		**PH2.80**	**Rearranging P=IV with Circuit Diagrams**	Rearrange the P=IV equation to calculate current and potential difference. Includes application of circuit diagrams and unit conversions.
	6.2.4.1		**PH2.85**	**Rearranging $P=I^2R$**	Rearrange the $P=I^2R$ equation to calculate resistance and current. Assumes knowledge of P=IV. Includes application and unit conversions questions.
	6.2.4.1		**PH2.86**	**Rearranging $P=I^2R$ with Circuit Diagrams**	Rearrange the $P=I^2R$ equation to calculate resistance and current. Assumes knowledge of P=IV. Includes application of circuit diagrams and unit conversions.
			PH2.94	**Topic 2 Review: Electricity (Set A)**	Physics Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.
			PH2.95	**Topic 2 Review: Electricity (Set B)**	Physics Topic 2 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 3 - Particle Model of Matter	6.3	Diagnostic: Fundamental States of Matter [PH0.045]	PH3.01	Fundamental States of Matter: Characteristics	Identify the four fundamental states of matter and their basic properties.
	6.3.1.1		PH3.02	Fundamental States of Matter: Particle Model	Describe the arrangement, movement and the relative energy of particles in the fundamental states of matter using the particle model.
	6.3.1.1		PH3.03	Density	Identify the meaning of density and comparing the density of different objects.
	6.3.1.1		PH3.04	Density of Fundamental States of Matter	Describe density and make comparisons using the particle model.
	6.3.1.2		PH3.20	Phase Transitions	Describe phase transition between the different fundamental states of matter.
	6.3.1.2		PH3.21	Phase Transitions: Particle Model	Describe the phase transition between the different fundamental states of matter using the particle model.
	Supplementary		PH3.22	Evaporation vs Boiling	Describe and compare the different forms of vaporisation that can occur.
	6.3.1.2		PH3.23	Physical vs Chemical Changes: The Particle Model	Identify the difference between chemical and physical changes.
	6.3.1.1		PH3.24	Phase Transitions: Melting & Boiling Points	Predict the physical state of a substance under specified conditions, given suitable data.
	6.3.1.1	Diagnostic: Calculating Density [PH0.049]	PH3.05	Using ρ=m/V to Calculate Density I	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes application questions, but no unit conversions.
	6.3.1.1		PH3.06	Using ρ=m/V to Calculate Density II	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes application questions and unit conversions.
	6.3.1.1		PH3.07	Rearranging ρ=m/V	Rearrange the ρ=m/V equation to calculate mass and volume. Includes application and unit conversions questions.
	RP17		PH3.08	Required Practical 17: Density of Regular Shapes	Investigate the density of regular shaped objects using a top pan balance and either a ruler or vernier callipers.
	6.3.1.1		PH3.10	Calculating Density of Regular Shapes I	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes application questions requiring calculating volumes of simple regular shapes (cubes, cuboids & spheres).
	6.3.1.1		PH3.11	Calculating Density of Regular Shapes II	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes application questions requiring calculating volumes of regular shapes (including cones and cylinders).
cont. next page	RP17	cont. next page	PH3.12	Required Practical 17: Density of Irregular Shapes	Investigate the density of irregular shaped objects using eureka displacement cans and measuring cylinders.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.3.1.1	cont. from previous page	PH3.14	Calculating Density of Irregular Shapes I	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes practical related questions without the need for unit conversions.
Topic 3 - Particle Model of Matter	6.3.1.1	Diagnostic: Calculating Density [PH0.049]	PH3.15	Calculating Density of Irregular Shapes II	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes practical related questions with the need for unit conversions.
	RP17		PH3.16	Required Practical 17: Density of Liquids	Investigate the density of liquids using a top pan balance and measuring cylinder.
	6.3.1.1		PH3.18	Calculating Density of Liquids I	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes practical related questions without the need for unit conversions.
	6.3.1.1		PH3.19	Calculating Density of Liquids II	Calculate density in kg/m^3 and g/cm^3 using the ρ=m/V equation. Includes practical related questions with the need for unit conversions.
	6.3.2.1	Diagnostic: Specific Latent Heat [PH0.051]	PH3.26	Internal Energy	Identify the internal energy of a system and related changes due to the heating of the system.
	6.3.2.2 & RP14		PH3.29	Required Practical 14: Specific Heat Capacity of Solids II	Investigate the specific heat capacity of solids for required practical 14. This version of the practical uses ammeters and voltmeters to measure the energy transferred, requiring an understanding of P=IV and E=Pt.
	6.3.2.2 & RP14		PH3.30	Required Practical 14: Specific Heat Capacity of Liquids II	Investigate the specific heat capacity of liquids for required practical 14. This version of the practical uses ammeters and voltmeters to measure the energy transferred, requiring an understanding of P=IV and E=Pt.
	6.3.2.3		PH3.31	Specific Latent Heat	Describe the specific latent heat of a material. Identify the difference between the latent heat of fusion and the latent heat of vaporisation.
	6.3.2.3		PH3.32	Heating & Cooling Graphs I	Interpret heating and cooling graphs showing a change of state. Graphs remain within the same graph quadrant.
	6.3.2.3		PH3.33	Heating & Cooling Graphs II	Interpret heating and cooling graphs showing a change of state. Graphs include negative numbers and span two graph quadrants.
	6.3.2.3		PH3.34	Using E=mL to Calculate Energy I	Calculating the energy required for a substance to change state using the E=mL equation. Includes application questions, but no unit conversions.
	6.3.2.3		PH3.35	Using E=mL to Calculate Energy II	Calculating the energy required for a substance to change state using the E=mL equation. Includes application questions and requires unit conversions.
	6.3.2.3		PH3.36	Rearranging E=mL	Rearrange the E=mL equation to calculate mass and the specific latent heat of a substance. Includes application questions and requires unit conversions.
	6.3.2.3		PH3.37	Practical: Latent Heat of Fusion	Investigate the latent heat of fusion of ice using an immersion heater and funnel.
cont. next page	6.3.2.3		PH3.38	Specific Heat Capacity vs Specific Latent Heat	Distinguish between specific heat capacity and specific latent heat.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page **Topic 3 - Particle Model of Matter**	6.3.3.1	Diagnostic: Pressure in Gases [PH0.053]	**PH3.39**	**Particle Motion in Gases**	State that the particles of a gas are in constant random motion and that increasing temperature of the gas increases the average kinetic energy of the particles.
	6.3.3.1		**PH3.41**	**Gas Pressure**	Explain how the collision of gas particles with an object exerts a force on that object.
	6.3.3.1		**PH3.42**	**Temperature & Gas Pressure**	Explain how changing the temperature of a gas, held at constant volume, changes the pressure exerted by the gas.
			PH3.51	**Diagnostic: Topic 3 - Particle Model of Matter (Set A)**	Physics Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.
			PH3.52	**Diagnostic: Topic 3 - Particle Model of Matter (Set B)**	Physics Topic 3 Review for Combined Science AQA Trilogy Foundation Tier.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 4 - Particle Model of Matter	6.4.1.1	Diagnostic: Structure of Atoms [PH0.056]	CH1.08	Atomic Structure	Describe the structure of the atom.
	6.4.1.1		CH1.09	Size of Atoms	Recall the radius of an atom/nucleus and relate size and scale of atoms to objects.
	6.4.1.2		CH1.10	Atomic Number and Mass Number	Use the atomic number and mass number to calculate the numbers of subatomic particles.
	6.4.1.2		CH1.11	Isotopes	Recall the definition of an isotope and apply it to familiar situations.
	6.4.1.2		CH1.12	What is Relative? Mass & Charges	Recall the relative masses/charges of subatomic particles and define relative atomic mass.
	6.4.1.1		CH1.14	Electronic Structure	Recall the 2, 8, 8 structure and apply this to the first 20 elements.
	6.4.1.1		CH1.15	Changing Energy Levels	Recall that electron arrangements may change with the absorption/emission of electromagnetic radiation and apply this to familiar situations.
	6.4.1.2		CH1.46	Forming Ions	Describe how ions form, draw and write the electronic structure of ions and identify ion formed using the periodic table.
	6.4.1.3	Diagnostic: History of the Atom [CH0.06]	CH1.32	Developing Scientific Models	Describe the scientific method and identify different types of model.
	6.4.1.3		CH1.33	Dalton's Atomic Theory of Matter	Describe and use early models of the atom.
	6.4.1.3		CH1.34	Thomson's Plum Pudding Model	Describe and use the Plum Pudding Model, and explain how the model was developed.
	6.4.1.3		CH1.35	Rutherford's Nuclear Model	Describe and use the Nuclear Model, and explain how the model was developed.
	6.4.1.3		CH1.36	Bohr's Planetary Model	Describe and use the Planetary Model, and explain how the model was developed.
	6.4.1.3		CH1.37	Discovery of Protons	Recall the discovery of protons and explain how this added to the model of the atom.
	6.4.1.3		CH1.38	Chadwick and the Discovery of the Neutron	Recall the discovery of neutrons and explain how this added to the model of the atom.
	6.4.1.3		CH1.39	History of the Atom - a timeline	Recall the timeline of the development of the atomic model and identify the different models from diagrams.
	6.4.1.3		CH1.40	Plum Pudding vs the Nuclear Model	Compare the Plum Pudding Model to the Nuclear Model of the atom.

cont. next page

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
cont. from previous page	6.4.2.1	Diagnostic:Nuclear Decay [PH0.058]	PH4.01	Discovery of Radioactivity	Identify how radioactivity was discovered and why it is measured in becquerels (Bq).
Topic 4 - Particle Model of Matter	6.4.2.1		PH4.02	Nuclear Decay: α (Alpha)	Identify and describe the emission of alpha decay.
	6.4.2.1		PH4.03	Nuclear Decay: β- (Beta minus)	Identify and describe the emission of beta minus decay.
	6.4.2.1/2		PH4.04	Nuclear Decay: γ (Gamma)	Identify and describe the emission of gamma decay.
	6.4.2.1		PH4.05	Nuclear Decay: n (Neutron)	Identify and describe the emission of neutron decay.
	6.4.2.1		PH4.06	Nuclear Decay: Summary	Identify and describe the different types of nuclear decay. This includes alpha, beta minus, gamma and neutron decay.
	6.4.2.1		PH4.07	Ionising Radiation	Identify the relative ionising properties of alpha, beta and gamma decay.
	6.4.2.1		PH4.08	Detecting Radiation	Describe how to detect ionising radiation using spark plates and a Geiger–Müller tube.
	6.4.2.1		PH4.09	Penetrating Properties of Radiation	Identify the penetration properties of nuclear decay through materials and their range in air.
	6.4.2.2		PH4.10	Nuclear Equations: α Decay	Write balanced alpha decay equations using the names and symbols of common nuclei and particles.
	6.4.2.2		PH4.11	Nuclear Equations: β- Decay	Write balanced beta decay equations using the names and symbols of common nuclei and particles.
	6.4.2.2		PH4.12	Nuclear Equations: Summary	Write balanced alpha and beta decay equations using the names and symbols of common nuclei and particles.
	6.4.2.2		PH4.13	Nuclear Equations: Identify Decay	Identify the daughter elements from alpha and beta decay equations.
	6.4.2.3	Diagnostic: Half-life & Dangers of Radiation [PH0.060]	PH4.14	Half-life	Describe the concept of half-life and the random nature of radioactive decay.
	6.4.2.3		PH4.15	Half-lives from Graphs 1	Determine the half-life of a radioactive isotope from a graph.
	6.4.2.3		PH4.15	Half-lives from Graphs 2	Determine the half-life of a radioactive isotope from a graph.
cont. next page	6.4.2.3	cont. next page	PH4.15	Half-lives from Graphs 3	Determine the half-life of a radioactive isotope from a graph.

Topic	Spec Code	Diagnostic	Nugget Code	Nugget Name	Nugget Summary
Topic 4 - Particle Model of Matter	cont. from previous page	cont. from previous page	PH4.16	Calculating Half-lives I	Calculate the half-life of a radioactive isotope from the information provided.
	6.4.2.4	Diagnostic: Half-life & Dangers of Radiation [PH0.060]	PH4.19	Radioactive Contamination	Identify the hazards associated with radioactive contamination.
	6.4.2.4		PH4.20	Irradiation	Describe the process of irradiation and suitable precautions to protect against it.
	6.4.2.4		PH4.20	Irradiation Matching	Describe the process of irradiation and suitable precautions to protect against it.
	6.4.2.4		PH4.21	Comparing Contamination & Irradiation	Compare the hazards associated with contamination and irradiation.
	6.4.2.4		PH4.22	Effect of Radiation on Animals	Describe the dangers of ionising radiation in terms of tissue damage and possible mutations for animals.
	6.4.2.1		PH4.23	Uses of Radiation	Describe the uses of nuclear radiation and evaluate the best sources of radiation to use in a given situation.
	6.4.2.6		PH4.24	Radiation: Peer Review	Describe the importance of peer review of research into the effects of radiation on humans.
			PH4.35	Topic 4 Review: Atomic Structure - Set A	Physics Topic 4 Review for Combined Science AQA Trilogy Foundation Tier.
			PH4.36	Topic 4 Review: Atomic Structure - Set B	Physics Topic 4 Review for Combined Science AQA Trilogy Foundation Tier.
			PH4.43	Paper 1 Review: Physics - Set A	Physics Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.
			PH4.44	Paper 1 Review: Physics - Set B	Physics Paper 1 Review for Combined Science AQA Trilogy Foundation Tier.

CENTURY

Nuggets included in Biology - IGCSE (Edexcel)

You can edit this course to match your specification.

Strand	Nugget Names
Cell Biology	Eukaryotic Cells [BH1.01]
	Prokaryotic Cells [BH1.02]
	Microscopy [BH1.03]
	Orders of Magnitude [BH1.04]
	Microorganisms: Aseptic Technique [BH1.05]
	Analysing Bacterial Cultures [BH1.06]
	Specialised Cells [BH1.07]
	Cell Division: Mitosis [BH1.08]
	Cell Division: Cancer [BH1.09]
	Cell Division: Meiosis [BH1.10]
	Cell Differentiation & Stem Cells [BH1.11]
	Stem Cells in Medicine [BH1.12]
Biological Molecules	Biological Molecules [BH2.01]
	Enzyme Action [BH2.04]
	Factors Affecting Rate of Enzyme Activities [BH2.05]
Respiration	Respiration and ATP [BIE2.06]
	Anaerobic Respiration [BIE2.07]
	Respiration: Effects of Exercise [BH2.03]
Photosynthesis & Plant Responses	Structure of a Leaf [BIE2.08]
	Photosynthesis [BH6.01]
	Limiting Factors of Photosynthesis [BH6.02]
	Controlling Photosynthesis [BH6.03]
	Plant Tropisms: Auxin [BH6.04]
	Using Plant Hormones: Auxin, Gibberellins & Ethene [BH6.05]
Transport Systems	Cells, Tissues and Organs [BH3.01]
	Transport in Cells: Diffusion [BH3.02]
	Transport in Cells: Osmosis [BH3.03]
	Transport in Cells: Active Transport [BH3.04]
	Exchange Surfaces & SA:V [BH3.05]
Digestion	Healthy Diet [PSc2.02]
	Physical Digestion [BIE3.14]
	Enzymes: Digestion [BIE3.15]
Communicable Disease & Medicine	Circulatory System: Blood Components [BH3.06]
	Circulatory System: Blood Vessels [BH3.07]
	Circulatory System: The Heart [BH3.08]
	Circulatory System: Breathing & Gaseous Exchange [BH3.09]
	Cardiovascular Disease [BH4.05]

Transport Systems in Plants	Plant Tissues and Organs [BH3.10]
	Transport in Plants: Xylem and Phloem [BH3.11]
	Transpiration: Stomata and Factors Affecting Rate [BH3.12]
Non-Communicable Disease	Health & Disease [BH4.01]
	Diet, Exercise & Disease [BH4.02]
	Smoking and Disease [BH4.03]
	Alcohol & Disease [BH4.04]
Communicable Disease & Medicine	Pathogens: Spread & Prevention [BH5.01]
	Bacterial Diseases [BH5.02]
	Viral Diseases [BH5.03]
	Fungal Diseases [BH5.04]
	Protist Diseases: Malaria [BH5.05]
	Plant Disease: Detection & Defence [BH5.06]
	Human Defence System [BH5.07]
	Vaccines & Drugs [BH5.08]
	Developing Drugs [BH5.09]
	Monoclonal Antibodies [BH5.10]
Reproduction	Pollination and Fertilisation [PSc1.05]
	Asexual Reproduction [PS3.08]
	Asexual & Sexual Reproduction [BH7.01]
	Puberty & the Menstrual Cycle [BH11.03]
	Hormones & the Menstrual Cycle [BH11.04]
	Contraception Methods [BH11.05]
	Infertility Treaments [BH11.06]
Inheritance	DNA & The Genome [BH7.02]
	DNA Structure & Protein Synthesis [BH7.03]
	Gene Expression & Mutation [BH7.04]
	Inheritance & Genetic Diagrams [BH7.05]
	Inherited Disorders, Codominance & Sex Determination [BH7.06]
	History of Inheritance: Mendel & Variation [BH7.07]
	Theory of Natural Selection [BH8.01]
	Evidence for Evolution [BH8.02]
	Darwin, Wallace & Speciation [BH8.03]
	Classification Systems [BH8.04]
Human Nervous System	The Nervous System [BH10.01]
	Reflex Arcs [BH10.02]
	The Eye: Structure and Function [BH10.03]
	The Eye: Common Defects and Treatment [BH10.04]
	The Brain [BH10.05]

Homeostasis	The Endocrine System [BH11.01]
	Removing Waste Products [BH12.02]
	Negative Feedback, Thyroxine & Adrenaline [BH11.02]
	Kidneys [BIE11.09]
	Dialysis and Kidney Transplant [BH12.04]
	ADH & Water Balance [BH12.05]
	Thermoregulation [BH12.01]
	Role of Glucagon [BH11.08]
	Insulin & Diabetes [BH11.07]
Ecosystems	Levels of Organisation [BH9.01]
	Competition in Animals and Plants [BH9.02]
	Feeding Relationships and Trophic Levels [BH9.03]
	Biomass: Pyramids and Transfers [BH9.04]
	Distribution & Abundance of Organisms [BH9.05]
	The Decay Cycle [BH9.06]
	The Carbon Cycle [BH9.07]
	The Nitrogen Cycle [BH9.08]
	The Water Cycle [BH9.09]
Human Effect on the Environment	The Impact of Environmental Changes [BH13.01]
	Climate Change and Habitat Loss [BH13.02]
	Pollution [BH13.03]
	Maintaining Biodiversity [BH13.04]
Use of Biological Resources	Food Production [BIE13.06]
	Micro-organisms [BIE13.07]
	Food Security [BH13.05]
	Selective Breeding [BH8.05]
	Cloning Methods [BH8.06]
	Genetic Engineering & Gene Technologies [BH8.07]

CENTURY

Nuggets included in Chemistry - IGCSE (Edexcel)

You can edit this course to match your specification.

Strand	Nugget Names
Principles of Chem: Elements, Mixtures and Compounds	States of Matter: Particle Model & Limitations [CHH2.01]
	Atoms, Elements & Compounds [CHH1.03]
	Pure Substances and Mixtures [CHH7.01]
	Separation Techniques: Chromatography [CHH7.04]
	Chromatography Practical [SP2.08]
	Separation Techniques: Filtration and Crystallisation [CHH7.02]
	Separation Techniques: Simple and Fractional Distillation [CHH7.03]
	Fractional Distillation of Crude Oil [CHH9.04]
	Distillation Practical [SP2.07]
	Solubility [CI7.10]
Principles of Chem: Atomic Structure and the Periodic Table	Atomic Structure [CHH1.01]
	The Atomic Model [CHH1.02]
	Atomic Number, Mass Number & Isotopes [CHH1.04]
	Electronic Structure of Atoms [CHH1.05]
	Conservation of Mass [CHH1.06]
	Development of the Periodic Table [CHH1.07]
	Electronic Structure & The Periodic Table [CHH1.08]
	Metals, Non-metals & Transition Metals [CHH1.11]
Principles of Chem: Chemical Formulae, Equations and Calculations	Chemical Formulae & Empirical Formulae [CHH3.01]
	Balancing Chemical Equations [CHH3.02]
	Mole: Mass and Molar Mass [CHH8.01]
	Avogadro's Constant & Mole [CHH8.02]
	Stoichiometry & Limiting Reactants [CHH8.03]
	Mole: Concentration & Volume of Solutions [CHH8.04]
	Mole: Volume of Gases [CHH8.06]
	Percentage Yield & Atom Economy [CHH9.08]
Principles of Chem: Structure, Bonding and the Properties of Matter	Chemical Bonds: Ionic Bonding [CHH2.02]
	Chemical Bonds: Covalent Bonding [CHH2.03]
	Chemical Bonds: Metallic Bonding [CHH2.04]
	Chemical Bonds: Changes of State [CHH2.05]
	Chemical Bonds: Types of Substances [CHH2.06]
	Carbon: Structure and Bonding [CHH2.07]
Inorganic Chem: Gases in the Atmosphere	Earth's Atmosphere: Formation and Development [CHH10.01]
	Greenhouse Effect and Climate Change [CHH10.02]
	Effects of Common Air Pollutants [CHH10.03]

Inorganic Chemistry: Groups 1, 7 and Reactivity Series	Alkali Metals [CHH1.09]
	The Halogens [CHH1.10]
	Redox Reactions [CHH3.07]
	The Reactivity Series & Displacement Reactions [CHH3.08]
	Corrosion: Process & Prevention [CHH9.03]
Inorganic Chem: Metals	Extraction of Metals: Electrolysis [CHH9.05]
	Extraction of Metals: Reduction with Carbon [CHH9.06]
	Extraction Of Metals: Biological Methods [CHH9.07]
	Electrolysis: The Process [CHH3.09]
	Electrolysis: Predicting the Products [CHH3.10]
	Electrolysis Practical [SP2.02]
	Materials & Recycling [CHH9.01]
	Materials: Properties & Uses [CHH9.02]
Inorganic Chem: Acids, Bases and Salts	The pH Scale & Neutralisation [CHH3.04]
	Acids: Reactions with Metals and Carbonates [CHH3.05]
	Acids: Strength & Concentration [CHH3.06]
	Investigating pH [SP2.01]
	Carrying out Titration Reactions [SP2.12]
	Mole: Titration Calculation [CHH8.05]
	Titration Calculations from Experiments [SP2.13]
	Making Salts [SP2.06]
Inorganic Chem: Chemical Analysis	Testing for Gases [CHH3.03]
	Tests for Cations [CHH7.05]
	Identifying Cations: Flame Tests Practical [SP2.09]
	Identifying Cations: Precipitate Tests Practical [SP2.10]
	Tests for Anions [CHH7.06]
	Identifying ions: Testing for Non-Metals Practical [SP2.11]
	Instrumental Methods of Analysis [CHH7.07]
Energy Changes	Exothermic & Endothermic Reactions [CHH4.01]
	Reaction Profiles [CHH4.02]
	Bond Energy Calculations [CHH4.03]
	Calorimetry (Combustion) [CI4.04]
	Calorimetry (Solutions) [CI4.05]
Rates of Reaction	Rate of Reaction: Measuring & Analysing [CHH5.01]
	Collision Theory [CHH5.02]
	Rate of Reaction: The Effect of Catalysts [CHH5.03]
	Reversible Reactions & Dynamic Equilibrium [CHH5.04]
	Dynamic Equilibrium: The Effect of Reaction Conditions [CHH5.05]
	Rates of Reaction: Concentration (Cross Method) [SP2.05]
	Rates of Reaction: Surface Area (HCl and Marble) [SP2.03]
	Rates of Reaction: Temperature (HCl and Mg) [SP2.04]

Organic Chemistry	Organic Reactions: Alkanes [CHH6.01]
	Organic Reactions: Alkenes [CHH6.02]
	Organic Reactions: Alcohols [CHH6.03]
	Manufacture of Alcohols [CI6.08]
	Organic Reactions: Carboxylic Acids [CHH6.04]
	Esters [CI6.09]
	Addition Polymerisation [CHH6.05]
	Condensation Polymerisation [CHH6.06]

CENTURY

Nuggets included in Physics - IGCSE (Edexcel)

You can edit this course to match your specification.

Strand	Nugget Names
Movement and Position	Speed and Velocity [PI4.01]
	Acceleration and Deceleration [PI4.02]
	Motion Graphs: Distance-Time Graphs [PI4.03]
	Motion Graphs: Velocity-Time Graphs [PHH4.04]
	Motion Graphs: Enclosed Areas and Tangents [PHH4.05]
Forces, Movement, Shape and Momentum	Forces Between Objects: Forces, Vectors and Scalars [PHH3.01]
	Resultant Forces & Free Body Diagrams [PHH3.03]
	Forces & Motion: Newton's Second Law and Inertial Mass [PHH4.08]
	Weight, Mass and Gravitational Field Strength [PHH3.02]
	Reaction Time & Stopping Distance [PHH4.06]
	Terminal Velocity [PI3.05]
	Elasticity and Hooke's Law [PHH3.04]
	Forces & Motion: Momentum & Collisions [PHH4.09]
	Impact Forces in Car Crashes [PHH4.10]
	Forces Between Objects: Newton's Third Law [PHH4.07]
	Moments: Levers [PHH3.09]
	Moments and Equilibrium [PHH3.08]
	Moments: Forces along a Beam [PI3.10]
Electricity	Circuit Symbols [PHH10.04]
	Parallel and Series Circuits [PHH10.06]
	Introducing resistance, current and potential difference [PHH10.02]
	Calculating Current, Potential Difference and Resistance [PHH10.03]
	Resistance across different components [PHH10.09]
	Power and energy [PHH10.05]
	Domestic Electricity [PHH10.08]
	The National Grid [PHH10.07]
	Static Electricity & Electric Fields [PHH10.01]
Waves in Matter	Features of Waves [PHH5.01]
	Transverse and Longitudinal Waves [PHH5.02]
	Waves: Measuring Speed [PHH5.03]
	Waves: Reflection, Refraction, Transmission & Absorption [PHH5.04]
	Human Hearing [PHH5.05]
	Waves: Ultrasound [PHH5.06]
	Waves: Seismic Waves [PHH5.07]

Light and Electromagnetic Waves	Electromagnetic Waves [PHH6.01]
	Uses of Electromagnetic Waves [PHH6.02]
	Visible Light [PHH6.06]
	Refraction [PI6.03]
	Total Internal Reflection [PI6.04]
Energy Transfer	Energy Stores and Pathways [PHH1.01]
	Dissipation of Energy [PHH1.02]
	Calculating Efficiency [PI1.03]
	Increasing Efficiency [PHH2.07]
	Conduction [PHH2.04]
	Thermal Conduction in Metals: Free Electrons [PHH2.05]
	Convection [PI2.03]
	Infrared Radiation and Black Body Radiation [PHH6.07]
	Heating and Insulating Buildings [PHH2.08]
Work and Power	Work Done [PHH2.01]
	Power [PHH2.02]
	Kinetic Energy [PI2.04]
	Gravitational Potential Energy [PHH1.04]
Energy Resources	Energy Sources: Fossil Fuels and Nuclear Power [PHH1.06]
	Energy Sources: Biofuels, Wind, Solar and Geothermal [PHH1.07]
	Energy Sources: Hydroelectricity, Waves and Tides [PHH1.08]
	Energy Sources: Patterns & Trends [PHH1.09]
Solids, Liquids and Gases	Density and States of Matter [PHH8.01]
	Pressure: Surfaces [PHH3.05]
	Pressure: Fluids [PHH3.06]
	Pressure in gases and liquids [PHH8.07]
	Pressure: Atmosphere [PHH3.07]
	Physical and Chemical Changes [PHH8.02]
	Specific Latent Heat and Specific Heat Capacity [PHH8.03]
	Work Done on a gas [PHH8.04]
	Gas pressure and temperature [PHH8.05]
	Gas pressure and volume [PHH8.06]

Magnetism and Electromagnetism	Magnetism: Permanent and Induced Magnets [PHH11.01]
	Magnetic Fields [PHH11.02]
	Magnetic Fields of Electric Currents [PHH11.03]
	Uses of Electromagnets [PHH11.04]
	The Motor Effect and Fleming's Left Hand Rule [PHH11.05]
	The Motor Effect: Forces and Magnetic Flux Density [PHH11.06]
	Induced Potential: Alternators and Dynamos [PHH11.07]
	Transformers: How they work [PHH11.08]
	Transformers: Equations and Efficiency [PHH11.09]
	Microphones and Speakers [PHH11.10]
Radioactivity	The Atomic Model [PHH7.01]
	Atoms, Isotopes and Ions [PHH7.02]
	Radioactive Decay: Types of Radiation [PHH7.03]
	Radioactive Decay: Nuclear Equations [PHH7.04]
	Background Radiation [PHH7.05]
	Half Life [PHH7.06]
	Uses and Risks of Nuclear Radiation [PHH7.07]
	Nuclear Fission [PHH7.08]
	Nuclear Fusion [PHH7.09]
Astrophysics	The Solar System [PHH9.04]
	Orbits [PHH9.01]
	The Life Cycle of Stars [PHH9.03]
	Herzsprung-Russel and the Brightness of Stars [PI9.05]
	Red-Shift & the Expanding Universe [PHH9.02]
	The Doppler Effect [PI9.06]

CENTURY

Nuggets included in Edexcel IGCSE Science (Double Award) - Biology

Strand	Diagnostic	Nugget Names
Topic 1 - The Nature & Variety of Living Organisms	Diagnostic: Living Organisms [BIE0.20]	Life Processes [BK1.01]
		Grouping Living Things [PS3.01]
		Further Grouping Living Things [PS3.04]
		Unicellular and Multicellular Organisms [BK1.08]
	Diagnostic: Cell Structure [BIE0.21]	Introduction to Prokaryotic & Eukaryotic Cells [BI1.01]
		Animal Cells [BI1.02]
		Plant Cells [BI1.03]
		Comparing Animal & Plant Cells [BI1.04]
		Algae [BI1.08]
		Bacterial Cells [BI1.05]
		Comparing Prokaryotic & Eukaryotic Cells [BI1.07]
		Microscopes [BI1.10]
		Calculating Magnification I [BI1.11]
		Calculating Magnification II [BI1.12]
		Rearranging the Magnification Equation [BI1.13]
		Required Practical 1: Using a Light Microscope [BI1.14]
	Diagnostic: Pathogens & Disease [BIE0.22]	Pathogens: Spread & Prevention [BH5.01]
		Bacterial Diseases [BH5.02]
		Viral Diseases [BH5.03]
		Fungal Diseases [BH5.04]
		Protist Diseases: Malaria [BH5.05]
Topic 2a - Structure & Functions in Living Organisms	Diagnostic: Specialised Cells, Tissues & Organs [BIE0.23]	Differentiation [BI1.15]
		Specialised Cells in Animals [BI1.16]
		Specialised Cells in Plants [BI1.17]
		Animal Tissues [BI2.01]
		Human Organs [BI2.02]
		Human Organ Systems [BI2.03]
		Plant Tissues and Organs [BK9.01]
		Exchange Surfaces: Leaves [BI1.49]
	Diagnostic: The Chemistry of Food [BIE0.24]	Chemistry of Food: Carbohydrates [BI2.07]
		Chemistry of Food: Proteins [BI2.08]
		Chemistry of Food: Lipids [BI2.09]
		Required Practical 3: Qualitative Carbohydrate Tests [BI2.22]
		Required Practical 3: Qualitative Lipid Tests [BI2.24]
		Required Practical 3: Qualitative Protein Tests [BI2.23]
		Required Practical 3: Testing Foods for Biological Molecules [BI2.25]

Topic 2a - Structure & Functions in Living Organisms

Diagnostic: Enzymes [BIE0.25]	Enzymes: Structure & Function [BI2.10]
	Enzymes: Metabolism [BI2.11]
	Enzymes: Factors Affecting Activity [BI2.12]
	Enzymes: Collision Theory [BI2.13]
	Enzymes: Explaining Factors Affecting Activity [BI2.14]
	Enzymes: Rate Calculations I [BI2.15]
	Enzymes: Rate Calculations II [BI2.16]
	Enzymes: Rate Calculations III [BI2.17]
	Investigating Temperature and Enzyme Activity [SP3.15]
	Required Practical 4: Effect of pH on Amylase - Method [BI2.26]
	Required Practical 4: Effect of pH on Amylase - Analysis & Concl. [BI2.27]
Diagnostic: Transport in Cells [BIE0.26]	Exchanging Substances: Diffusion [BI1.34]
	Factors Affecting the Rate of Diffusion [BI1.35]
	Examples of Diffusion in Biology [BI1.36]
	Exchanging Substances: Osmosis [BI1.37]
	Required Practical 2: Osmosis - Method & Data Collection [BI1.38]
	Required Practical 2: Osmosis - Analysis & Conclusion [BI1.39]
	Exchanging Substances: Active Transport [BI1.42]
	Examples of Active Transport [BI1.43]
	Comparing Diffusion, Osmosis & Active Transport [BI1.44]
	Surface Area to Volume Ratio [BI1.45]
	The Need for Exchange Surfaces [BI1.46]
Diagnostic: Nutrition in Plants [BIE0.27]	Photosynthesis [BK9.02]
	Increasing Photosynthesis [BK9.04]
	Plant Minerals [BK9.05]
	Gas Exchange in Plants [BI2.78]
	Investigating Plants [BK9.10]
	Light Intensity & Photosynthesis [SP3.07]
Diagnostic: Nutrition in Humans [BIE0.28]	The Human Digestive System [BI2.04]
	The Functions of the Digestive Organs [BI2.05]
	Enzymes: Digestive Enzymes [BI2.18]
	The Production & Function of Bile [BI2.19]
	Enzymes: Describing Enzyme Activity Data [BI2.20]
	Enzymes: Interpreting Enzyme Activity Data [BI2.21]
	Exchange Surfaces: Villi [BI1.48]
	Physical Digestion [BIE3.14]

Topic 2a - Structure & Functions in Living Organisms	Diagnostic: Respiration [BIE0.29]	Aerobic Respiration [BK1.11]
		Anaerobic Respiration [BK1.12]
		Anaerobic respiration [SP3.13]
		Respiration and ATP [BIE2.06]
	Diagnostic: Gas Exchange in Humans [BIE0.30]	The Human Gas Exchange System [BI2.34]
		Mechanics of Breathing [BI2.35]
		How Lungs are Adapted for Gas Exchange [BI2.36]
		Calculating Breathing Rate I [BI2.37]
		Calculating Breathing Rate II [BI2.38]
		Physiology: Respiration [SP3.10]
		Exchange Surfaces: Alveoli [BI1.47]
		Smoking & Disease [BI2.58]
Topic 2b - Structure & Functions in Living Organisms	Diagnostic: Transport in Humans [BIE0.31]	The Need for Transport Systems [BI2.39]
		The Circulatory System [BI2.40]
		Structure of the Heart [BI2.41]
		Function of the Heart [BI2.42]
		Explaining the Structure of the Heart [BI2.43]
		Measuring Heart Rate [BI2.44]
		Calculating the Rate of Blood Flow I [BI2.52]
		Calculating the Rate of Blood Flow II [BI2.53]
		The Structure and Function of Blood Vessels [BI2.46]
		Explaining the Structure of Blood Vessels [BI2.47]
		Blood Components & their Functions [BI2.49]
		The Structure of Blood Components [BI2.50]
		Explaining the Structure of Blood Components [BI2.51]
		Human Defence System [BH5.07]
	Diagnostic: Cardiovascular Disease [BIE0.32]	Cardiovascular Disease [BI2.63]
		Coronary Heart Disease [BI2.65]
		Heart Attacks [BI2.66]
	Diagnostic: Plant Anatomy [BI0.18]	Plant Organs & Organ Systems [BI2.75]
		Describing the Structure & Function of Plant Tissues [BI2.76]
		Explaining the Structure of Plant Tissues [BI2.77]
		Estimating the Surface Area of a Leaf [BI2.79]
		Investigating Stomata [BI2.80]
		Stomata Calculations & Estimations [BI2.81]
		Plant Roots: Absorbing Water & Minerals [BI2.82]

Topic 2b - Structure & Functions in Living Organisms	Diagnostic: Transpiration & Translocation [BIE0.33]	Transpiration [BI2.83]
		Translocation [BI2.90]
		Comparing Transpiration & Translocation [BI2.91]
	Diagnostic: Plant Responses [BIE0.34]	Plant Tropisms: Auxin [BH6.04]
		Using Plant Hormones: Auxin, Gibberellins & Ethene [BH6.05]
		Plant Responses to Light [SP3.11]
	Diagnostic: Human Nervous System [BIE0.35]	The Nervous System [BH10.01]
		Reflex Arcs [BH10.02]
		The Eye: Structure and Function [BH10.03]
		The Eye: Common Defects and Treatment [BH10.04]
	Diagnostic: Homeostasis [BIE0.36]	Thermoregulation [BH12.01]
		Removing Waste Products [BH12.02]
		Kidneys [BIE11.09]
	Diagnostic: Human Hormones [BIE0.37]	The Endocrine System [BH11.01]
		Puberty & the Menstrual Cycle [BH11.03]
		Hormones & the Menstrual Cycle [BH11.04]
		Insulin & Diabetes [BH11.07]
Topic 3 - Reproduction & Inheritance	Diagnostic: Human Reproduction [BIE0.38]	Asexual & Sexual Reproduction [BH7.01]
		The Female Reproductive Organs [BK6.01]
		The Male Reproductive Organs [BK6.02]
		Sexual Reproduction in Humans [BK6.04]
		Pregnancy [BK6.05]
	Diagnostic: Plant Reproduction [BIE0.39]	Reproduction in Plants: Organs [BK9.06]
		Reproduction in Plants: Methods of Pollination [BK9.07]
		Reproduction in Plants: Fertilisation and Germination [BK9.08]
		Reproduction in Plants: Methods of Seed and Fruit Dispersal [BK9.09]
		Asexual Reproduction [PS3.08]
	Diagnostic: Inheritance & Cell Division [BIE0.40]	DNA & The Genome [BH7.02]
		Inheritance & Genetic Diagrams [BH7.05]
		Inherited Disorders, Codominance & Sex Determination [BH7.06]
		Mitosis [BI1.20]
		Cell Division: Meiosis [BH1.10]
	Diagnostic: Variation & Evolution [BIE0.41]	Nature vs Nurture [BK10.01]
		Species and Variation [BK10.02]
		Investigating Variation in Species [BK10.03]
		Natural Selection [BK10.07]
		Theory of Natural Selection [BH8.01]
		Evidence for Evolution [BH8.02]
		Darwin, Wallace & Speciation [BH8.03]

Topic 4 - Ecology & the Environment	Diagnostic: Ecosystems and Feeding Relationships [BIE0.42]	Types of Ecosystems [BK8.01]
		Roles in Ecosystems [BK8.02]
		Food Chains and Webs [BK8.03]
		Role of the Producer [BK8.04]
		Toxic Chemicals in Food Webs [BK8.06]
		Investigating Ecosystems [BK8.09]
		Ecological Sampling: Quadrats [SP3.05]
		Ecological Sampling: Transects [SP3.06]
	Diagnostic: Ecosystems and Feeding Relationships [BIE0.43]	The Carbon Cycle [BK8.10]
		Levels of Organisation [BH9.01]
		Feeding Relationships and Trophic Levels [BH9.03]
		Biomass: Pyramids and Transfers [BH9.04]
		Distribution & Abundance of Organisms [BH9.05]
	Diagnostic: Human Influences on the Environment [BIE0.44]	Human Impact on Ecosystems [BK8.05]
		Human Impact on Insect Pollination [BK8.07]
		Human Impact on the Atmosphere [BK8.08]
		Climate [CK12.07]
		Natural Climate Change [CK12.08]
		Atmospheric Pollution [CK12.09]
		Human Impact on Climate Change [CK12.10]
		Global Warming [PK16.04]
		The Impact of Environmental Changes [BH13.01]
		Climate Change and Habitat Loss [BH13.02]
		Pollution [BH13.03]
	Diagnostic: Uses of Biological Resources [BIE0.19]	Food Production [BIE13.06]
		Micro-organisms [BIE13.07]
		Food Security [BH13.05]
		Selective Breeding [BH8.05]
		Cloning Methods [BH8.06]
		Genetic Engineering & Gene Technologies [BH8.07]

CENTURY

Nuggets included in Edexcel IGCSE Science (Double Award) - Chemistry

Strand	Diagnostic	Nugget Names
Topic 1a - Principles of Chemistry	Diagnostic: Fundamental States of Matter [CI0.13]	Fundamental States of Matter: Characteristics [PH3.01]
		Fundamental States of Matter: Particle Model [PH3.02]
		Phase Transitions [PH3.18]
		Phase Transitions: Particle Model [PH3.19]
		Evaporation vs Boiling [PH3.20]
		Physical vs Chemical Changes: The Particle Model [PH3.21]
		Phase Transitions: Melting & Boiling Points [PH3.22]
	Diagnostic: Pure Substances, Mixture & Separation Techniques [CH0.14]	Pure Substances & Mixtures [CH1.22]
		Separating Mixtures [CH1.23]
		Keywords Relating to Solutions [CH1.24]
		Filtration [CH1.25]
		Evaporation [CH1.26]
		Crystallisation [CH1.27]
		Required Practical 13: Simple Distillation [CH1.28]
		Fractional Distillation [CH1.29]
		Paper Chromatography [CH1.30]
		Chromatography Practical [SP2.08]
		Which Separation Technique? [CH1.31]
	Diagnostic: Atoms, Elements & Compounds [CH0.01]	Atoms, Elements, Compounds & Molecules [CH1.01]
		Element Symbols [CH1.02]
		Names & Symbols of the First 20 Elements [CH1.03]
		Formulae for Elemental Molecules & Compounds [CH1.04]
		Formulae for Compounds with Brackets [CH1.05]
		Naming Compounds [CH1.06]
		State Symbols [CH1.07]
	Diagnostic: Atomic Structure [CI0.15]	Atomic Structure [CH1.08]
		Atomic Number & Mass Number [CH1.10]
		Isotopes [CH1.11]
		What is Relative? Mass & Charges [CH1.12]
		Calculating Relative Atomic Mass [CH1.13]
		Electronic Structure [CH1.14]
	Diagnostic: The Periodic Table [CI0.16]	The Periodic Table [CH1.41]
		The Periodic Table: Metals & Non-metals [CH1.47]
		Forming Ions [CH1.46]
		Common Ions [CH1.48]
		Identifying Atoms & Ions from Electronic Structure [CH1.49]
		The Periodic Table: Group 0 [CH1.50]

Topic 1a - Principles of Chemistry	Diagnostic: Chemical Equations [CH0.03]	Chemical Reactions [CH1.16]
		Writing Word Equations [CH1.17]
		Writing Simple Formula Equations [CH1.18]
		Balancing Chemical Equations I [CH1.19]
		Balancing Chemical Equations II [CH1.20]
	Diagnostic: Quantitative Chemistry [CI0.17]	Relative Formula Mass [CK7.03]
		Mole: Mass and Molar Mass [CHH8.01]
		Avogadro's Constant & Mole [CHH8.02]
		Stoichiometry & Limiting Reactants [CHH8.03]
		Percentage Yield [CK7.05]
		Atom Economy [CK7.06]
		Chemical Formulae & Empirical Formulae [CHH3.01]
Topic 1b - Bonding	Diagnostic: Ionic Substances [CH0.10]	Ionic Bonding I [CH2.10]
		Ionic Bonding II [CH2.11]
		Predicting Formulae from Ions I [CH2.12]
		Ionic Compounds [CH2.18]
		Representing Ionic Compounds [CH2.19]
		Limitations of Representations of Ionic Compounds [CH2.20]
		Properties of Ionic Compounds [CH2.21]
		Explaining the Properties of Ionic Compounds [CH2.22]
		Deducing Formulae from Diagrams of Ionic Compounds [CH2.23]
	Diagnostic: Covalent Bonding [CH0.12]	Covalent Bonding I [CH2.24]
		Covalent Bonding II [CH2.25]
		Representing Covalent Bonds [CH2.26]
		Limitations of Representations of Covalent Bonds [CH2.27]
		Deducing Formulae from Diagrams of Covalent Compounds [CH2.28]
	Diagnostic: Small & Giant Covalent Substances [CH0.13]	Intermolecular & Intramolecular Forces [CH2.29]
		Small Molecular Substances [CH2.30]
		Properties of Small Molecular Substances [CH2.31]
		Explaining the Properties of Small Molecular Substances [CH2.32]
		Giant Covalent Structures & Their Properties [CH2.33]
		Comparing Small & Giant Covalent Substances [CH2.34]
	Diagnostic: Carbon Allotropes [CI0.18]	Structure & Properties of Diamond [CH2.40]
		Explaining the Properties of Diamond [CH2.41]
		Structure & Properties of Graphite [CH2.42]
	cont. next page	Explaining the Properties of Graphite [CH2.43]

Topic 1b - Bonding	cont. from previous page Diagnostic: Carbon Allotropes [CI0.18]	Comparing Graphite & Diamond [CH2.44]
		Structure & Properties of Fullerenes [CH2.48]
		Explaining the Properties of Fullerenes [CH2.49]
	Diagnostic: Writing Formula Equations [CI0.19]	Molecular Compounds vs Ionic Compounds [CH2.51]
		Valency & Number of Covalent Bonds Formed [CH2.57]
		Writing Balanced Formula Equations I [CH2.58]
		Writing Balanced Formula Equations II [CH2.59]
		What is a Crystal? [CH2.61]
Topic 2 - Inorganic Chemistry	Diagnostic: The Periodic Table: Groups [CI0.20]	The Periodic Table: Group 1 [CH1.51]
		The Periodic Table: Group 7 [CH1.52]
		The Periodic Table: Explaining Trends in Reactivity [CH1.53]
	Diagnostic: Earth & Atmosphere [CI0.21]	Earth's Atmosphere: Formation and Development [CHH10.01]
		Combustion [CK6.05]
		Thermal Decomposition [CK6.06]
		Greenhouse Effect and Climate Change [CHH10.02]
		Effects of Common Air Pollutants [CHH10.03]
	Diagnostic: Reactions [CI0.22]	Reactivity Series [CK9.01]
		Displacement Reactions [CK9.03]
		Corrosion: Process & Prevention [CHH9.03]
		Redox Reactions [CHH3.07]
		Acids and Metals [CK8.05]
		Acids and Metal Oxides [CK8.06]
		Acids and Metal Hydroxides [CK8.07]
		Acids and Metal Carbonates [CK8.08]
	Diagnostic: The pH Scale [CI0.23]	Indicators [CK8.03]
		The pH Scale & Neutralisation [CHH3.04]
		Concentration and Strength [CK8.02]
	Diagnostic: Anions & Cations [CI0.24]	Solubility [CI7.10]
		Making Salts [SP2.06]
		Testing for Gases [CHH3.03]
		Identifying Cations: Flame Tests Practical [SP2.09]
		Identifying Cations: Precipitate Tests Practical [SP2.10]
		Tests for Anions [CHH7.06]
		Potable Water & Purification [CHH10.04]
		Analysis and purification of water samples [SP2.17]

Topic 3 - Physical Chemistry	Diagnostic: Chemical Energy [CI0.25]	Exothermic Reactions [CK11.01]
		Endothermic Reactions [CK11.02]
		Reaction Profiles [CK11.03]
		Energy During State Changes [CK11.04]
	Diagnostic: Specific Heat Capacity [CI0.26]	Specific Heat Capacity [PH1.40]
		Using the Specific Heat Capacity Equation I [PH1.41]
		Using the Specific Heat Capacity Equation II [PH1.42]
		Rearranging the Specific Heat Capacity Equation [PH1.43]
	Diagnostic: Energy Changes [CI0.27]	Calorimetry (Combustion) [CI4.04]
		Calorimetry (Solutions) [CI4.05]
		Temperature Change in Combustion [SP2.14]
		Temperature Change in Exothermic Reactions [SP2.15]
	Diagnostic: Rates of Reaction [CI0.28]	Rates of Reaction [CK10.01]
		Factors Affecting the Rate of Reaction [CK10.02]
		Collision Theory [CK10.03]
		Measuring Rate of Reaction [CK10.04]
		Rate of Reaction: The Effect of Catalysts [CHH5.03]
		Rates of Reaction: Surface Area (HCl and Marble) [SP2.03]
		Rates of Reaction: Temperature (HCl and Mg) [SP2.04]
		Rates of Reaction: Concentration (Cross Method) [SP2.05]
		Reversible Reactions & Dynamic Equilibrium [CHH5.04]
Topic 2 - Organic Chemistry	Diagnostic: Hydrocarbons [CI0.29]	Hydrocarbons [CK14.01]
		Fractional Distillation of Crude Oil [CHH9.04]
		Cracking of Crude Oil [CK14.03]
	Diagnostic: Organic Chemistry [CI0.30]	Organic Reactions: Alkanes [CHH6.01]
		Organic Reactions: Alkenes [CHH6.02]
		Addition Polymerisation [CHH6.05]
		Condensation Polymerisation [CHH6.06]

CENTURY

Nuggets included in Edexcel IGCSE Science (Double Award) - Physics

Strand	Diagnostic	Nugget Names
Topic 1 - Forces & Motion	Diagnostic: Motion [PI0.13]	Speed [PK1.01]
		Speed and Velocity [PI4.01]
		Rearranging Speed [PK1.02]
		Calculating Acceleration [PK1.05]
		Acceleration and Deceleration [PI4.02]
		Rearranging the Acceleration Equation [PK1.06]
		Acceleration of a Trolley using Ticker Tape [SP4.07]
		Motion Graphs: Distance-Time Graphs [PI4.03]
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