



# Science Curriculum

# Science at Maltby Academy

## Introduction

The Maltby Academy curriculum is designed to deliver exceptional learning experiences that enable all young people to thrive academically, personally, and socially. Each subject curriculum is ambitious, coherently planned, and carefully sequenced to ensure that all students develop the knowledge, skills, and character required to succeed in a competitive world. Our key drivers: Teaching & Learning, Personal Development, Careers & CEIAG, Enrichment, and Behaviour & Attitudes underpin every aspect of our curriculum design.

## Science - intent statement

The Science curriculum at Maltby Academy nurtures curiosity about the natural world and equips students with the knowledge and practical skills to investigate, test, and evaluate scientific ideas. Students study a broad and coherent body of knowledge across biology, chemistry, and physics, developing both disciplinary skills and an understanding of the role of science in society. The curriculum fosters critical thinking, problem-solving, and an appreciation of how science contributes to technological progress and everyday life. Our key drivers are embedded through high-quality Teaching & Learning, a strong focus on Careers and pathways into STEM, and Enrichment opportunities such as practical investigations, clubs, and trips. Science also supports Personal Development by promoting resilience, collaboration, and ethical consideration of scientific issues. Students leave Maltby Academy as confident, informed, and ambitious young scientists ready to succeed in further study and the world of work.

## Why do we study Science?

Science develops curiosity, critical thinking, and an evidence-based understanding of the natural world. It empowers students to question, explore, and innovate—preparing them to engage with scientific challenges and opportunities in modern society.

## Qualification

Our Key Stage 4 exam board for this subject is AQA for all of our Science GCSE courses.

## Biology

### Key Tier 2 Vocabulary

analyse, interpret, evaluate, justify, compare, synthesise, process, variable, correlation, adaptation, evidence, accuracy, reliability, proportion, relationship

## Disciplinary Requirements

- Students must apply scientific ideas, skills, and knowledge to explain biological processes and systems.
- Analyse and interpret data from practical investigations to draw valid conclusions using appropriate scientific terminology.
- Evaluate experimental design, reliability, and sources of error using quantitative and qualitative reasoning.
- Communicate findings logically through accurate use of key terminology, symbols, and conventions.

## Chemistry

### Key Tier 2 Vocabulary

analyse, calculate, interpret, evaluate, compare, proportion, bond, concentration, variable, equilibrium, justify, synthesise, predict, accuracy, correlation

### Disciplinary Requirements

Students must demonstrate understanding of atomic, chemical, and quantitative principles across multiple scales.

- Apply knowledge to interpret data and explain observed changes using models and balanced equations.
- Evaluate experimental results for accuracy and reliability, drawing logical conclusions supported by evidence.
- Use scientific and mathematical conventions precisely when presenting reasoning and data.

## Physics

### Key Tier 2 Vocabulary

calculate, interpret, evaluate, analyse, compare, proportion, vector, resultant, equilibrium, motion, resistance, energy, justify, derive, predict

### Disciplinary Requirements

- Students must demonstrate quantitative reasoning and application of mathematical models to explain physical phenomena.
- Analyse and interpret data, using graphs and equations to describe relationships between variables.
- Evaluate experimental design and accuracy, identifying systematic and random errors.
- Communicate reasoning and results using precise terminology, symbols, and scientific units.

## Science – Trilogy (Combined Science)

### Key Tier 2 Vocabulary

analyse, interpret, evaluate, variable, correlation, proportion, evidence, justify, reliability, relationship, accuracy, hypothesis, conclusion, prediction, synthesis

### Disciplinary Requirements

Students must integrate knowledge from biology, chemistry, and physics to explain key scientific ideas.

- Apply investigative and analytical skills to interpret and evaluate experimental data from multiple disciplines.
- Communicate findings clearly, using consistent scientific conventions and mathematical reasoning.
- Demonstrate understanding of how evidence and enquiry underpin scientific knowledge and application.



## Vocabulary and Substantive Knowledge Summary

The Science curriculum at Maltby Academy nurtures curiosity, precision, and critical thinking. From foundational enquiry in Key Stage 3 to advanced experimental analysis in Key Stage 5, students build a coherent understanding of how scientific ideas develop and interconnect. They leave as confident, ethical, and inquisitive young scientists ready to shape the future through evidence-based reasoning and innovation.

### Key Stage 3 – Science

Vocabulary focus:

Students build a foundational scientific vocabulary across biology, chemistry, and physics, including cell, nucleus, variable, atom, element, compound, energy, force, friction, gravity, photosynthesis, respiration, diffusion, and ecosystem. Students learn how to use these terms precisely when describing processes, interpreting data, and drawing conclusions.

Substantive knowledge themes:

- Working scientifically – developing skills of enquiry, observation, prediction, and evaluation.
- Biology – studying cells, the human body, ecosystems, and inheritance.
- Chemistry – exploring particles, materials, reactions, and the periodic table.
- Physics – understanding forces, motion, waves, energy, and space.
- Data and evidence – interpreting graphs, analysing results, and identifying anomalies.
- Practical science – designing fair tests, using equipment safely, and evaluating methods.

Progression goal:

By the end of Key Stage 3, students can describe and explain key scientific concepts using appropriate vocabulary, apply investigative methods to test hypotheses, and evaluate results using data and evidence.

### Key Stage 4 – Science

Vocabulary focus:

Students expand their scientific lexicon to include hypothesis, equilibrium, molecule, oxidation, displacement, velocity, efficiency, electricity, reaction rate, photosynthesis, respiration, conservation of mass, and energy transfer. They use terminology fluently across disciplines and apply it in extended responses and data analysis.

Substantive knowledge themes:

- Biology – cells, systems, inheritance, variation, evolution, and ecology.
- Chemistry – atomic structure, bonding, reactions, rates, and environmental chemistry.
- Physics – energy, electricity, forces, waves, and atomic models.
- Scientific method – forming hypotheses, analysing experimental design, and evaluating reliability and validity.
- Quantitative reasoning – applying mathematics in scientific contexts using formulae, graphs, and units.
- Societal context – understanding how science informs sustainability, health, and technology.

Progression goal:

By the end of Key Stage 4, students demonstrate mastery of disciplinary knowledge across the sciences, confidently apply mathematical reasoning, and communicate scientific ideas with precision. They analyse and evaluate evidence to reach reasoned conclusions, preparing for further study or vocational application in STEM pathways.

## Key Stage 5 – Science

### Vocabulary focus:

Students master advanced specialist terms such as homeostasis, mitosis, speciation, stoichiometry, titration, enthalpy, equilibrium constant, resultant force, refraction, potential difference, and quantum. They use scientific language fluently to justify reasoning and critique evidence in written, oral, and practical contexts.

### Substantive knowledge themes:

- Biology – molecular biology, genetics, physiology, ecology, and biochemistry.
- Chemistry – organic, inorganic, and physical chemistry, structure, and energetics.
- Physics – forces, motion, energy, electricity, waves, and nuclear and quantum physics.
- Disciplinary skills – designing and conducting experiments, processing complex data, and evaluating uncertainty.
- Scientific literacy – applying conceptual understanding to contemporary issues and real-world applications.
- Critical evaluation – analysing primary sources and experimental data to form independent judgements.

### Progression goal:

By the end of Key Stage 5, students think and communicate like scientists – questioning, analysing, and evaluating evidence to explain natural phenomena. They apply theoretical understanding and practical skill with accuracy, independence, and confidence.




# Appendix


39-week plans


Tier 3 vocabulary





 <b>Science</b> Year 7							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
M&M1: Modelling matter: 1. Introduction 2. Variable	3&4. Particle model	5. State changes 6. Pure substances and mixtures	7. Dissolving and diffusion 8. Solubility practical	9. Separating solids 10. Separating liquids	11. Chromotography	TMH1: The Modern Human: 1. The discovery of fire 2. The invention of the wheel	3. Balanced and unbalanced forces 4. Energy transfers
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
5. Power 6. Efficiency	7. Generating electricity 8. Circuit symbols	9. Measurements in electricity 10. Measuring and changing P.D. and current	11. Communication using sound 12. Frequency and hearing range	13. Light and sound, how we see 14. EMS and its properties	Test point 1: Revision	Test point 1: Test and CTG	TMH1: The Modern Human: 15. Genetic engineering and Science in society.
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
TMH1: The Modern Human: 15. Genetic engineering and Science in society.	L&H1a: Life and living: 1. Common life processes 2. Preparing cell slides for microscopes	3. Animal and plant cells 4. Unicellular and multicellular organisms	5. Specialised cells 6. The human skeleton	7. Muscles and movement 8. Biomechanics	9. The digestive system 10. Digestion and enzymes	11. Food tests 12. Bacteria in the digestive system	L&H1b: Living in a population 1. Food chains and photosynthesis 2. Predator-prey relationships
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Test point 2: Revision	Test point 2: Test and CTG	L&H1b: Living in a population 3. Adaptations to an environment 4. Food webs	5. Pollination and food security 6. Chemicals in farming and bioaccumulation	7. Ecosystems and habitats 8. Interdependence	9. Ecological sampling 10. Conserving biodiversity	S&T1a: The Earth in the Universe: 1. Story of the universe 2. Gravity	3. Solar system 4. Movement of sun and stars
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
5. Seasons 6. Phases of the moon	S&T1b: The Earth itself: 1. Structure of the Earth 2. Rocks and minerals	3. Physical weathering 4. Rock cycle	5. formation of fossil fuels 6. Gases in the atmosphere	7. Carbon cycle	Test point 3: Revision	Test point 3: Test and CTG	





 <b>Science</b> Year 8							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
TMH2 L1: Measuring and Calculating Speed. TMH2 L2: Calculating Speed Practical	TMH2 L3: Distance–Time Graphs. TMH2 L4: Newton’s First Law of Motion	TMH2 L5: Air Resistance & Terminal Velocity. TMH2 L6: Friction and Pressure	TMH2 L7: Levers & Turning Forces. TMH2 L8: The Electromagnetic Spectrum	TMH2 L9: Visible Light. TMH2 L10: Pinhole Cameras	TMH2 L11: Magnets & Magnetic Fields. TMH2 L12: Induced Magnets & Electromagnets	TMH2 L13: Uses of Electromagnets. TMH2 L14: Acids, Alkalis & pH Scale	Catch up
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
TMH2 L15: Metals & Acids. TMH2 L16: Neutralisation	L&H2a L1: The Body and Disease. L&H2a L2: Diet	L&H2a L3: Food for Fuel. L&H2a L4: Calorie Tax	L&H2a L5: Absorption and Transport. L&H2a L6: Medicines and Drugs	L&H2b L1: The Reaction of Life. L&H2b L2: Using Respiration	Assessment Point 1	Assessment Point 1	L&H2b L3: Breathing. L&H2b L4: —
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
L&H2b L5: —. L&H2b L6: —	L&H2b L7: —. M&M2 L1: States of Matter Review & Properties	M&M2 L2: Metals, Non-Metals & Bonding. M&M2 L3: Polymers	M&M2 L4: Composites & Alloys. M&M2 L5: Extraction of Metals	Catch-up	M&M2 L6: Recycling & Sustainability. M&M2 L7: Ceramics & Glass	M&M2 L8: Review & Application. S&T2 L1: First Life on Earth & Evolutionary Timeline	S&T2 L2: Charles Darwin & Natural Selection. S&T2 L3: Evolution in Action
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Assessment Point 2	Assessment Point 2	S&T2 L4: Classification. S&T2 L5: DNA, Genes & Chromosomes	S&T2 L6: Inheritance. S&T2 L7: Genetic Crosses	S&T2 L8: Variation. S&T2 L9: Human Reproduction	S&T2 L10: Fertilisation & Pregnancy. S&T2 L11: Birth & Development	S&T2 L12: Puberty & Hormones. S&T2 L13: Contraception	Catch-up
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
S&T2 L14: IVF & Fertility Treatments. S&T2 L15: Ethics in Reproduction	S&T2 L16: Unit Review & Assessment	Catch-up	Catch-up	Assessment Point 2	Assessment Point 2	CTG	


 <b>Science</b> Year 9 - Teacher 1							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Biology Topic 4.1 Types of cells	Organelles & Microscopes	Magnification and microscope practical	Stem cells & differentiation	Specialised cells	Mitosis	Diffusion theory	Diffusion practical
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Osmosis theory and practical	Osmosis practical analyse results	Active Transport	Adaptations for increased movement of substances	Revision	End of topic Assessment	CTG	Chemistry Topic 5.4 Atomic Structure & formula recap
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
Metal reactions	Naming salts	Making a salt required practical	Acids & Bases	Neutralisation curve	Electrolysis	Electrolysis	Revision & End of topic assessment
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Biology Topic 4.2 Principles of Organisation	Food types & the digestive system	Food tests practical	Enzymes theory	Amylase practical	Blood & the blood vessels	Coronary heart disease & health issues	The heart
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
The respiratory system	Lifestyle & cancer	Plant tissues	Plant transpiration	Revision & End of topic assessment	Topic Review	Topic Review	


 <b>Science</b> Year 9 - Teacher 2							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Chemistry Topic 5.1 - Atoms, Elements & Compounds	Symbols & Equations	Separating Mixtures	Distillation	Chromatography	Theories of the atom	Atoms and the periodic table arrangement	Group 1
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Group 7	Group 0	Metals vs Non-metals	Development of the periodic table	Revision	Revision & End of topic Assessment	CTG	Physics Topic 6.3 Density formula
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
Density Required Practical	Reactions and Conservation of mass	Specific Heat Capacity theory	Specific Heat Capacity Practical	Internal Energy	Specific Latent heat	Gases	Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
End of topic assessment	CTG	Chemistry Topic 5.5 Metal & acid temperature change	Exothermic and Endothermic theory	Reaction profiles	Temperature Change required practical	Calculating energy changes	Revision & End of topic Assessment
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Physics Topic 6.4 Theories of the atom & atomic no.s	Radiation types	Ionisation & Radioactive Decay	Half-life and decay equations	Contamination & Irradiation	Revision & End of topic Assessment	Practical review	


 <b>Science - Biology</b> Year 10 Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
B4.3 - Communicable diseases	B4.3 - Type of pathogens	B4.3 - Primary defences	B4.3 - Secondary defences	B4.3 - Antibiotics & Resistance	B4.3 - Vaccinations	B4.3 - Drug Development	B4.3 - Drug Testing
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
B4.3 - Revision & End of Topic Assessment	B4.4 - Photosynthesis & Structure of the leaf	B4.4 Photosynthesis Required Practical	B4.4 Testing A Leaf fo Starch	B4.4 Aerobic Respiration	B4.4 Anaerobic respiration in animals & yeast/plants	B4.4 Exercise, metabolism & Respiration	B4.4 - Revision & End of topic assessment
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
B4.5 - Nervous System	B4.5 - Reflex Arc	B4.5 - Reaction time required practical	B4.5 - Homeostasis Outline	B4.5 - Glucose control & Diabetes	B4.5 - Reproductive Hormones & The Menstrual Cycle	B4.5 Contraception & Fertility	B4.5 (H) Adrenaline & Thyroxine
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
B4.5 Contraception & Fertility	B4.5 (H) Adrenaline & Thyroxine	B4.5 Revision & End of topic assessment	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Revision	Paper 1 Revision	Y10 MOCKS and CTG	Y10 MOCKS and CTG	Content review	Content review	Content review	


 <b>Science - Biology</b> Year 11 Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
B4.7 - Ecosystems/Abiotic and biotic factors.	B4.7 - Food chains & Adaptations	B4.7 Water & Carbon Cycle	B4.7 Quadrat Sampling	B4.7 Transect Sampling	B4.7 Humans Effects	B4.7 Revision & End of topic assessment	Paper 1 Revision
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	B4.6 Types of Reproduction	B4.6 Types of cell division	B4.6 Genetic disorders	B4.6 Embryo Screening	B4.6 Genetic Engineering & Selective Breeding
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
B4.6 Evolution & Extinction	B4.6 Classification	Paper 2 Revision	Paper 2 MOCKS & CTG	Paper 2 MOCKS & CTG	Paper 2 CTG	Paper 2 CTG	Paper 1 Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Content review
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Content review	Content review	Content review					


 <b>Science - Chemistry</b> Year 10 - Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
C5.2 Forming Ions	C5.2 Ionic Bondings	C5.2 Ionic Structures & Properties	C5.2 Covalent Bonding	C5.2 Giant Covalent Structures	C5.2 Polymers Practical	C5.2 Fullerenes	C5.2 Metallic Bonding & Alloys
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
C5.2 Changes of state and properties of materials	C5.2 Revision and end of topic assessment	C5.3 Relative Formula Mass	C5.3 Balancing Equations & Conservation of mass	C5.3 Mass Changes	C5.3 (H) Moles	C5.3 (H) Reacting Masses	C5.3 Concentration
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
C5.3 Revision & End of topic assessment	C5.6 Collision theory	C5.6 Rates of reaction graphs	C5.6 Calculates with rates of reaction	C5.6 Required Practical Concentration & Gas	C5.6 Required Practical Concentration & Turbidity	C5.6 Equilibrium & Catalysts	C5.6 Revision & End of topic assessment
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
C5.7 Crude oil & hydrocarbons	C5.7 Uses of crude oil	C5.7 Combustion	C5.7 Cracking & polymerisation	C5.7 Revision & End of topic assessment	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Content review	Content review	Content review	


 <b>Science - Chemistry</b> Year 11 - Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
C5.10 - Resources & LCAs	C5.10 - Water and Required Practical	C5.10 - Waste Water and RRR	C5.10 - Mining for metals	C5.7 - Organic chemistry Crude oil and hydrocarbons	C5.7 - Fractional distillation	C5.7 - Combustion	Paper 1 Revision
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 mocks	Paper 1 mocks	C5.7 Cracking and polymerisation	C5.8 - Formulations & Chromatography	C5.8 - Chromatography Required Practical	C5.8 - Chemical analysis Gas Tests	C5.9 - Atmosphere pollutants
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
C5.9 - Evolution of the atmosphere	Paper 2 Revision	Paper 2 Revision	Paper 2 MOCKS & CTG	Paper 2 MOCKS & CTG	Paper 2 CTG	Paper 2 CTG	Paper 1 Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Content review
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Content review	Content review	Content review					


 <b>Science - Physics</b> Year 10 - Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
P6.1 Energy Stores	P6.1 Efficiency & Work Done	P6.1 Kinetic Energy	P6.1 Gravitational Potential energy	P6.1 Specific Heat Capacity Required Practical	P6.1 Specific Heat Capacity	P6.1 Thermal Energy Stores & transfers	P6.1 Electrical Energy
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
P6.1 Elastic Potential Energy	P6.1 Revision & End of topic assessment	P6.2 Circuit Symbols	P6.2 Series & parallel circuits	P6.2 Current, p.d. & resistance	P6.2 Introduction the maths in electricity	P6.2 Resistance Required Practical	P6.2 Ohm's Law Required Practical
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
P6.2 National Grid	P6.2 Mains electricity & plugs & why you get a shock	P6.2 Power	P6.2 Revision & End of topic assessment	P6.6 Waves Formula and standard form	P6.6 Waves Required Practical	P6.6 Waves Required Practical	P6.6 EMS
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
P6.6 EMS uses and dangers	P6.6 Refraction	P6.6 Infrared and Colour Required practical	P6.6 Revision and End of topic assessment	Paper 1 revision	Paper 1 revision	Paper 1 revision	Paper 1 revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Content Review	Content Review	Content Review	


 <b>Science - Physics</b> Year 11 - Trilogy							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
P6.5 Forces, contact and non	P6.5 Forces, Newton's Laws, resultant forces	P6.5 Vector Diagrams and forces at angles	P6.5 Weight & Hooke's Law Required Practical	P6.5 Vector & Scalar quantities	P6.5 Time Distance Graphs	P6.5 Time Velocity Graphs	P6.5 Acceleration
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 Revision	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	P6.5 Acceleration Required Practical	P6.5 Stopping Distances	P6.5 Momentum (H)
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
P6.5 End of topic test	P6.7 Magnets	P6.7 Magnetic fields	P6.7 Electromagnets	P6.7 (H) Motor Effect & why a motor spins	Paper 2 Revision	Paper 2 Revision	Paper 2 CTG
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 2 CTG	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Revision specific to exam coming up
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Revision specific to exam coming up	Revision specific to exam coming up	Revision specific to exam coming up					


 <b>Science - Biology</b> Year 10 Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
B4.3 - Communicable diseases & Types of pathogen	B4.3 TRIPLE - Plant diseases & Defences	B4.3 - Primary defences & Secondary defences	B4.3 TRIPLE - Monoclonal antibodies	B4.3 - Antibiotics & Resistance	B4.3 TRIPLE - Aseptic technique & Cultures	B4.3 - Vaccinations	B4.3 - Drug Development & Drug testing
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
B4.3 - Revision & End of Topic Assessment	B4.4 - Photosynthesis & Structure of the leaf	B4.4 Photosynthesis Required Practical	B4.4 Testing A Leaf for Starch	B4.4 Aerobic Respiration & Anaerobic respiration	B4.4 Exercise, metabolism & Respiration	B4.4 - Revision & End of topic assessment	B4.5 - Nervous System & Reflex arc
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
B4.5 - Reaction time required practical	B4.5 TRIPLE The Eye & The Brain	B4.5 - Homeostasis Outline	B4.5 - Glucose control & Diabetes	B4.5 - Reproductive Hormones & The Menstrual Cycle	B4.5 Contraception & Fertility	B4.5 (H) Adrenaline & Thyroxine	B4.5 TRIPLE Water Control, Dialysis & Transplants
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
B4.5 TRIPLE Plant Hormones & Their Uses	B4.5 TRIPLE Germination Required Practical	B4.5 Revision & End of topic assessment	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Revision	Paper 1 Revision	Y10 MOCKS and CTG	Y10 MOCKS and CTG	Content review	Content review	Content review	


 <b>Science - Biology</b> Year 11 Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
B4.7 Ecosystems/Abiotic & biotic factors	B4.7 Adaptations & Foodchains & Cycles	B4.7 TRIPLE Trophic levels & Food security	B4.7 Sampling Techniques	B4.7 Human Effects with TRIPLE content	B4.7 TRIPLE Decay & Required Practical	B4.7 Revision & End of topic assessment	Paper 1 Revision
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	B4.6 Types of reproduction with TRIPLE Evaluation	B4.6 Cell Division	B4.6 TRIPLE DNA Structure & Protein Synthesis	B4.6 Genetic disorders & Embryo Screening	B4.6 Genetic Engineering & Selective Breeding
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
B4.6 TRIPLE Cloning	B4.6 Evolution , Extinction & Classification	B4.6 Classification & TRIPLE Speciation	Paper 2 MOCKS & CTG	Paper 2 MOCKS & CTG	Paper 2 CTG	Paper 2 CTG	Paper 1 Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Content review
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Content review	Content review	Content review					


 <b>Science - Chemistry</b> Year 10 - Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
C5.2 Forming Ions	C5.2 Ionic Bondings	C5.2 Ionic Structures & Properties	C5.2 Covalent Bonding	C5.2 Giant Covalent Structures	C5.2 Polymers Practical	C5.2 Fullerenes & TRIPLE Nanoscience	C5.2 Metallic Bonding & Alloys
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
C5.2 Changes of state and properties of materials	C5.2 Revision and end of topic assessment	C5.3 Relative Formula Mass	C5.3 Balancing Equations & Conservation of mass	C5.3 Mass Changes	C5.3 (H) Moles	C5.3 (H) Reacting Masses	C5.3 TRIPLE Atom Economy & Yield
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
C5.3 Concentration	C5.3 TRIPLE Titrations	C5.3 TRIPLE Volume of gas	C5.3 Revision & End of topic assessment	C5.6 Collision theory	C5.6 Rates of reaction graphs	C5.6 Calculates with rates of reaction	C5.6 Required Practical Concentration & Gas
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
C5.6 Required Practical Concentration & Turbidity	C5.6 Equilibrium & Catalysts	C5.6 Revision & End of topic assessment	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Paper 1 Mocks & CTG	Content review	Content review	Content review	


 <b>Science - Chemistry</b> Year 11 - Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
C5.8 Chromatography & Gas tests	C5.8 Gas tests & TRIPLE flame tests	C5.8 TRIPLE Ion Tests Required Practical	C5.8 TRIPLE Instrumental analysis	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 mocks	Paper 1 mocks	C5.7 Crude oil and hydrocarbons	C5.7 Fractional distillation and cracking	C5.7 TRIPLE organic chemistry	C5.7 TRIPLE organic chemistry	Paper 2 Revision
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
Paper 2 Revision	Paper 2 Revision	Paper 2 Revision	Paper 2 MOCKS & CTG	Paper 2 MOCKS & CTG	Paper 2 CTG	Paper 2 CTG	Paper 1 Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Content review
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Content review	Content review	Content review					

 <b>Science - Physics</b> Year 10 - Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
P6.1 Energy Stores	P6.1 Efficiency & Work Done	P6.1 Kinetic Energy	P6.1 Gravitational Potential energy	P6.1 Specific Heat Capacity Required Practical	P6.1 Thermal Energy Stores & transfers	P6.1 TRIPLE Insulation Required Practical	P6.1 Electrical Energy
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
P6.1 Elastic Potential Energy	P6.1 Revision & End of topic assessment	P6.2 Circuit Symbols	P6.2 Current & P.d., series & parallel circuits	P6.2 Introduction the maths in electricity	P6.2 Resistance Required Practical	P6.2 Ohm's Law Required Practical	P6.2 National Grid
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
P6.2 Mains electricity & plugs & why you get a shock	P6.2 TRIPLE Static Electricity	P6.2 Power	P6.2 Revision & End of topic assessment	P6.6 Waves & Their Properties	P6.6 Waves Required Practical	P6.6 EMS	P6.6 Infrared & Colour Required Practical
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
P6.6 Reflection & Refraction Required Practical	P6.6 TRIPLE Uses of waves	P6.6 TRIPLE Colour	P6.6 TRIPLE Lenses	P6.6 Revision and End of topic assessment	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Paper 1 Mocks and CTG	Content review	Content review	Content review	

 <b>Science - Physics</b> Year 11 - Triple							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
P6.5 Forces, contact and non	P6.5 Forces, Newton's Laws, resultant forces	P6.5 Vector Diagrams and forces at angles	P6.5 Weight & Hooke's Law Required Practical	P6.5 Vector & Scalar quantities	P6.5 Time Distance Graphs	P6.5 Time Velocity Graphs	P6.5 Acceleration & Required Practical
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Paper 1 Revision	Paper 1 Revision	Paper 1 CTG	Paper 1 CTG	P6.5 TRIPLE TV and factors affecting it	P6.5 Momentum (H) & Factors affecting it	P6.5 Pressure	P6.5 Moments
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
P6.7 Magnets & magnetic fields	P6.7 Electromagnets and how they are used	P6.7 (H) Fleming's Left hand rule & motors	P6.7 TRIPLE Generator Effect, Alternator & Dynamo	P6.7 TRIPLE Transformer	Paper 2 Revision	Paper 2 Revision	Paper 2 CTG
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Paper 2 CTG	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	Paper 1 Revision	EXAMS BEGIN	Revision specific to exam coming up
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Revision specific to exam coming up	Revision specific to exam coming up	Revision specific to exam coming up					

 <b>Science - Biology</b> <b>Year 12 (Teacher 1)</b>							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
T1 Biological molecules - carbohydrates ( mono / di and polysaccharides) and chemical tests	T1 Biological molecules - lipids, amino acids and protein structure and chemical tests)	T1 Biological molecules - enzyme models and factors affecting enzyme action	T1 Biological molecules - RP1 Enzymes and write up	T1 Midpoint Recap assessment and CTG	T1 Biological molecules - structure of DNA / RNA and DNA replication	T1 Biological molecules - ATP, water and inorganic ions	T1 End of topic recap assessment and CTG
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
T3 Exchange - SA:Vol, lung structure function and measuring ventilation	T3 Exchange - Lung disease and data, Insects	T3 Exchange - Fish and RP 5 dissection / write up	T3 Exchange - plant leaves and xerophytes	T3 Midpoint Recap assessment and CTG	T3 Exchange - digestion and absorption in humans	T3 Exchange - haemoglobin and Bohr effect	T3 Exchange - heart structure and circulation - RP5 dissection
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
T3 Exchange - heart cardiac cycle and pressure and volume changes	T3 Exchange - blood vessels and tissue fluid	T3 Exchange - plants, xylem, cohesion tension theory and evidence	T3 Exchange - plants phloem, mass transport and evidence experiments	T3 Endpoint recap assessment and CTG	Revision	Revision	Exam technique
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Year 12 trial exams AS paper 1	Year 12 trial exams AS paper 1	Review and CTG	T5 Energy transfers - Respiration Glycolysis, link reaction and Krebs Cycle	T5 Energy transfers - Respiration Glycolysis, link reaction and Krebs Cycle	T5 Energy transfers - Respiration Oxidative phosphorylation	T5 Energy transfers - Respiration review and summary	T5 Anaerobic respiration and RP9 and write up
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
Topic 5 midpoint review and assessment / CTG	Revision	Revision	Trial Exams - A level Paper 1	Trial Exams - A level Paper 1	Review and CTG	Topic 5 - RP 7 Chromatography and write up	

 <b>Science - Biology</b> <b>Year 12 (Teacher 2)</b>							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
T2 Cells - organelles, prokaryotes and viruses	T2 Cells - types of microscopes and microscopy calculations	T2 Cells fractionation and ultrafugation, cell cycle and mitosis	T2 Cells RP2 mitotic index and write up	T2 Cells - phospholipid bilayer, diffusion and osmosis	T2 Cells RP3 water potential and write up	T2 Cells active transport and co transport	T2 Cells RP4 Permeability of membranes and write up
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
T2 midpoint recap assessment and CTG	T2 Cell recognition and immune system - phagocytosis, B cells and T cells	T2 Cells vaccines active and passive immunity	T2 Cells HIV, monoclonal antibodies and ELSA	T2 Endpoint recap assessment and CTG	T4 Genetics - DNA structure recap, transcription and splicing	T4 Genetics - translation and recap	T4 Genetics - mutations and their effects
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
T4 Genetics mitosis, meiosis and variation	T4 midpoint review assessment and CTG	T4 Genetic diversity and natural selection	T4 Genetics - directional and stabilising selection	T4 RP6 Antimicrobial and write up	T4 Genetics - classification methods and naming	T4 Genetics - species richness, diversity index and methods of measuring diversity	T4 Genetics - impact of farming methods
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Year 12 trial exams	Year 12 trial exams	Review and CTG	CTG	T5 Photosynthesis - recap chloroplasts and LD reaction	T5 Photosynthesis - LD reaction / calvin cycle	T5 Photosynthesis - Limiting factors and data interpretation	T5 Photosynthesis RP8 Dehydrogenase in chloroplasts
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	
T5 midpoint review assessment and CTG	T5 Biomass calculations and farming practices	T5 Phosphorous cycle and nitrogen cycle	Trial exams	Trial exams	T5 Fertilisers and their effects	Review and CTG	

 <b>Science - Biology</b> <b>Year 13 (Teacher 1)</b>							
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
T6 Taxis and Kinesis	T6 Simple reflex arcs	RP10 Animal Movement and write up	T6 Pacinian Corpuscles and Retinal Cells	T6 Control of Heart Rate	T6 Nervous Impulses	T6 Synaptic Transmission	Recap / Test
Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Closing the gap	T6 Skeletal Muscles	T6 Principles of Homeostasis	T6 Control of Blood Glucose	T6 Adrenalin and 2nd messenger model	RP11 - Dilution series & calibration curve and write up	T6 Diabetes	T6 Osmoregulation
Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
T6 Review	Test and CTG	Paper 3 introduction	Paper 3 Guided Practice	Essay Introduction	Essay plan and Practice	Essay plan and Practice	Revision
Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32
Year 13 Trial Exams	Year 13 Trial Exams	Review and CTG	Paper 3 RP exam question practice	Revision	Exam period	Exam Period	
Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	

## Key Stage 3 – Tier 3 Vocabulary and Definitions

### Year 7

#### Science – Year 7

Week	Curriculum Component	Tier 3 Vocabulary	Definition
1	Modelling Matter – Introduction	<b>Hypothesis</b>	A testable statement or prediction based on observations or prior knowledge.
1	Modelling Matter – Variables	<b>Variable</b>	A factor that can be changed, measured, or controlled in an experiment.
2	Particle Model	<b>Particle</b>	A tiny unit that makes up matter.
2	Particle Model	<b>Diffusion</b>	The spreading of particles from an area of high concentration to low concentration.
3	State Changes	<b>Melting</b>	The change of state from solid to liquid.
3	Pure Substances and Mixtures	<b>Mixture</b>	Two or more substances physically combined but not chemically bonded.
4	Dissolving and Diffusion	<b>Solute</b>	A substance that dissolves in a liquid.
4	Solubility Practical	<b>Solvent</b>	A liquid that dissolves another substance.
5	Separating Solids	<b>Filtration</b>	A method used to separate insoluble solids from liquids.
5	Separating Liquids	<b>Distillation</b>	A technique used to separate liquids based on boiling points.
6	Chromatography	<b>Chromatography</b>	A technique used to separate mixtures of dissolved substances.
7	The Modern Human	<b>Evolution</b>	The process by which organisms gradually change over time.
8	Balanced and Unbalanced Forces	<b>Balanced Forces</b>	Forces that are equal in size and opposite in direction, causing no change in motion.
8	Energy Transfers	<b>Energy</b>	The ability to do work or cause change.
9	Power and Efficiency	<b>Power</b>	The rate at which energy is transferred or work is done.
9	Efficiency	<b>Efficiency</b>	How much useful energy is produced compared to the total energy input.
10	Generating Electricity	<b>Electric Circuit</b>	A complete path through which electric current flows.
10	Circuit Symbols	<b>Current</b>	The flow of electric charge through a conductor.
11	Measurements in Electricity	<b>Potential Difference (Voltage)</b>	The difference in energy between two points in a circuit.
11	Measuring Current	<b>Ammeter</b>	A device used to measure electric current.
12	Communication Using Sound	<b>Frequency</b>	The number of waves passing a point per second.
12	Hearing Range	<b>Pitch</b>	How high or low a sound is perceived to be.

Week	Curriculum Component	Tier 3 Vocabulary	Definition
13	Light and Sound	<b>Reflection</b>	The bouncing of light or sound waves off a surface.
13	Electromagnetic Spectrum	<b>Electromagnetic Waves</b>	Waves that transfer energy through oscillating electric and magnetic fields.
14	Test Point Revision	<b>Revision</b>	Reviewing previously learned knowledge to strengthen understanding.
15	Test Point Assessment	<b>Assessment</b>	Evaluating knowledge and understanding through testing.
16	Genetic Engineering and Science in Society	<b>Genetic Engineering</b>	The deliberate modification of an organism's DNA.
17	Genetic Engineering and Society	<b>Ethics</b>	Moral principles guiding decisions about science and technology.
18	Common Life Processes	<b>Respiration</b>	The chemical process releasing energy from glucose.
18	Microscopy	<b>Microscope</b>	A device used to magnify small objects such as cells.
19	Animal and Plant Cells	<b>Cell</b>	The basic structural and functional unit of living organisms.
19	Unicellular Organism	<b>Unicellular</b>	An organism made of a single cell.
20	Specialised Cells	<b>Specialised Cell</b>	A cell adapted to perform a particular function.
20	Human Skeleton	<b>Skeleton</b>	The framework of bones supporting and protecting the body.
21	Muscles and Movement	<b>Muscle</b>	Tissue that contracts to produce movement.
21	Biomechanics	<b>Joint</b>	The point where two bones meet allowing movement.
22	Digestive System	<b>Digestion</b>	The breakdown of food into smaller molecules that can be absorbed.
22	Enzymes	<b>Enzyme</b>	A protein that speeds up chemical reactions in living organisms.
23	Food Tests	<b>Nutrient</b>	A substance required for growth, repair, and energy.
23	Bacteria	<b>Bacteria</b>	Microscopic single-celled organisms.
24	Living in a Population	<b>Food Chain</b>	A sequence showing how energy passes from one organism to another.
24	Predator–Prey Relationship	<b>Predator</b>	An animal that hunts and eats other animals.
25	Test Point Revision	<b>Revision</b>	Reviewing key knowledge before assessment.
26	Test Point Assessment	<b>Assessment</b>	Evaluating knowledge through formal testing.
27	Adaptations to an Environment	<b>Adaptation</b>	A feature that helps an organism survive in its environment.
27	Food Webs	<b>Food Web</b>	A network of interconnected food chains.

<b>Week</b>	<b>Curriculum Component</b>	<b>Tier 3 Vocabulary</b>	<b>Definition</b>
28	Pollination	<b>Pollination</b>	The transfer of pollen from the male part of a flower to the female part.
28	Bioaccumulation	<b>Bioaccumulation</b>	The build-up of chemicals in living organisms over time.
29	Ecosystems and Habitats	<b>Ecosystem</b>	A community of organisms interacting with their environment.
29	Interdependence	<b>Interdependence</b>	The reliance of organisms on each other for survival.
30	Ecological Sampling	<b>Biodiversity</b>	The variety of living organisms in an ecosystem.
30	Conservation	<b>Conservation</b>	Protecting and preserving natural environments.
31	Story of the Universe	<b>Universe</b>	All space, matter and energy that exist.
31	Gravity	<b>Gravity</b>	The force attracting objects with mass toward each other.
32	Solar System	<b>Solar System</b>	The Sun and all objects that orbit it.
32	Stars	<b>Star</b>	A massive ball of hot gas producing light and heat through nuclear fusion.
33	Seasons	<b>Axis</b>	An imaginary line through the centre of a planet around which it rotates.
33	Phases of the Moon	<b>Orbit</b>	The curved path of an object around another in space.
34	Structure of the Earth	<b>Crust</b>	The thin outer layer of the Earth.
34	Rocks and Minerals	<b>Mineral</b>	A naturally occurring inorganic substance with a specific composition.
35	Weathering	<b>Weathering</b>	The breakdown of rocks by physical or chemical processes.
35	Rock Cycle	<b>Rock Cycle</b>	The processes that transform rocks from one type to another.
36	Fossil Fuels	<b>Fossil Fuel</b>	Fuel formed from the remains of ancient plants and animals.
36	Atmospheric Gases	<b>Atmosphere</b>	The layer of gases surrounding the Earth.
37	Carbon Cycle	<b>Carbon Cycle</b>	The movement of carbon between living organisms and the environment.
38	Test Point Revision	<b>Revision</b>	Reviewing scientific knowledge before assessment.
39	Test Point Assessment	<b>Assessment</b>	Evaluating understanding of scientific concepts through testing.

**Science – Year 8**



Week	Unit	Tier 3 Vocabulary	Definition
1	Measuring and Calculating Speed	<b>Speed</b>	The distance travelled per unit of time.
1	Calculating Speed Practical	<b>Distance</b>	The total length of the path travelled by an object.
2	Distance–Time Graphs	<b>Gradient</b>	The steepness of a graph line representing rate of change.
2	Newton's First Law	<b>Inertia</b>	The tendency of an object to remain at rest or in uniform motion unless acted upon by a force.
3	Air Resistance & Terminal Velocity	<b>Terminal Velocity</b>	The constant speed reached when the force of gravity equals air resistance.
3	Friction and Pressure	<b>Friction</b>	A force that opposes motion between two surfaces in contact.
4	Levers and Turning Forces	<b>Moment</b>	The turning effect of a force around a pivot.
4	Electromagnetic Spectrum	<b>Electromagnetic Spectrum</b>	The full range of electromagnetic waves arranged by wavelength or frequency.
5	Visible Light	<b>Visible Light</b>	The portion of the electromagnetic spectrum detectable by the human eye.
5	Pinhole Cameras	<b>Image</b>	A representation of an object formed by reflected or refracted light.
6	Magnets and Magnetic Fields	<b>Magnetic Field</b>	The region around a magnet where magnetic forces act.
6	Electromagnets	<b>Electromagnet</b>	A magnet produced by electric current flowing through a coil.
7	Uses of Electromagnets	<b>Induced Magnetism</b>	Temporary magnetism created when a material is placed in a magnetic field.
7	Acids, Alkalis and pH Scale	<b>pH Scale</b>	A scale used to measure how acidic or alkaline a solution is.
8	Catch Up	<b>Indicator</b>	A chemical that changes colour to show acidity or alkalinity.
9	Metals and Acids	<b>Neutralisation</b>	A chemical reaction between an acid and an alkali forming salt and water.
9	Metals and Acids	<b>Hydrogen</b>	A gas produced when metals react with acids.
10	The Body and Disease	<b>Pathogen</b>	A microorganism that causes disease.
10	Diet	<b>Balanced Diet</b>	A diet containing appropriate proportions of nutrients required for health.
11	Food for Fuel	<b>Calories</b>	Units used to measure the energy content of food.
11	Calorie Tax	<b>Obesity</b>	A medical condition involving excessive body fat that may impair health.
12	Absorption and Transport	<b>Absorption</b>	The movement of digested nutrients into the bloodstream.

Week	Unit	Tier 3 Vocabulary	Definition
12	Medicines and Drugs	<b>Addiction</b>	A physical or psychological dependence on a substance.
13	The Reaction of Life	<b>Respiration</b>	The chemical process that releases energy from glucose in cells.
13	Using Respiration	<b>Glucose</b>	A simple sugar used by cells as a source of energy.
14	Assessment Point 1	<b>Assessment</b>	A process used to evaluate knowledge and understanding.
15	Assessment Point 1	<b>Evaluation</b>	Assessing results and identifying strengths and limitations.
16	Breathing	<b>Lung Capacity</b>	The maximum volume of air the lungs can hold.
17	Respiration Continued	<b>Aerobic Respiration</b>	Respiration that uses oxygen to release energy from glucose.
18	States of Matter	<b>Atom</b>	The smallest unit of an element that retains its chemical properties.
18	States of Matter	<b>Element</b>	A substance made of only one type of atom.
19	Metals and Non-Metals	<b>Periodic Table</b>	A table arranging chemical elements by atomic structure and properties.
19	Bonding	<b>Compound</b>	A substance formed when atoms of different elements chemically bond.
20	Composites and Alloys	<b>Alloy</b>	A mixture of metals designed to improve properties such as strength.
20	Extraction of Metals	<b>Extraction</b>	The process of removing a metal from its ore.
21	Catch-Up	<b>Reactivity</b>	How easily a substance undergoes a chemical reaction.
22	Recycling and Sustainability	<b>Sustainability</b>	Meeting current needs without compromising future resources.
22	Ceramics and Glass	<b>Ceramic</b>	A hard material formed by heating clay or minerals at high temperatures.
23	Review and Application	<b>Application</b>	Using scientific knowledge to solve problems.
23	Evolutionary Timeline	<b>Evolution</b>	The gradual change of species over time.
24	Natural Selection	<b>Natural Selection</b>	The process where organisms best adapted to their environment survive and reproduce.
25	Assessment Point 2	<b>Assessment</b>	Evaluating knowledge and understanding through testing.
26	Assessment Point 2	<b>Data</b>	Information collected through observation or measurement.
27	Classification	<b>Classification</b>	Organising living things into groups based on shared characteristics.
27	DNA, Genes and Chromosomes	<b>DNA</b>	The molecule carrying genetic information in living organisms.
28	Inheritance	<b>Gene</b>	A section of DNA controlling a specific trait.
28	Genetic Crosses	<b>Inheritance</b>	The passing of traits from parents to offspring.

Week	Unit	Tier 3 Vocabulary	Definition
29	Variation	<b>Variation</b>	Differences between individuals within a species.
29	Human Reproduction	<b>Reproduction</b>	The biological process of producing offspring.
30	Fertilisation and Pregnancy	<b>Fertilisation</b>	The fusion of male and female gametes.
30	Birth and Development	<b>Embryo</b>	The early developmental stage of an organism after fertilisation.
31	Puberty and Hormones	<b>Hormone</b>	A chemical messenger produced by glands to regulate body processes.
31	Contraception	<b>Contraception</b>	Methods used to prevent pregnancy.
32	Catch-Up	<b>Ethics</b>	Moral principles guiding decisions about scientific practice.
33	IVF and Fertility Treatments	<b>IVF (In Vitro Fertilisation)</b>	Fertilisation of eggs outside the body in a laboratory.
33	Ethics in Reproduction	<b>Ethics</b>	Moral principles used to judge scientific practices.
34	Unit Review	<b>Revision</b>	Reviewing previously learned knowledge to strengthen understanding.
35	Catch-Up	<b>Consolidation</b>	Reinforcing knowledge through further practice and study.
36	Catch-Up	<b>Understanding</b>	Grasping the meaning of scientific concepts.
37	Assessment Point 2	<b>Assessment</b>	Measuring student learning through tests or tasks.
38	Assessment Point 2	<b>Evaluation</b>	Reflecting on results to identify improvements.
39	CTG	<b>Reflection</b>	Considering learning progress and identifying next steps.

### Science – Year 9 (Combined Teacher 1 & Teacher 2 Plan)

Week	Unit	Tier 3 Vocabulary	Definition
1	Types of Cells / Atoms, Elements & Compounds	<b>Cell</b>	The basic structural and functional unit of all living organisms.
1	Types of Cells / Atoms, Elements & Compounds	<b>Atom</b>	The smallest particle of an element that retains its chemical properties.
2	Organelles & Microscopes / Symbols & Equations	<b>Organelle</b>	A specialised structure within a cell that carries out a specific function.
2	Organelles & Microscopes / Symbols & Equations	<b>Symbol Equation</b>	A chemical equation written using element symbols and formulae.
3	Magnification Practical / Separating Mixtures	<b>Magnification</b>	The number of times larger an image appears than the real object.
3	Magnification Practical / Separating Mixtures	<b>Mixture</b>	Two or more substances physically combined but not chemically bonded.
4	Stem Cells & Differentiation / Distillation	<b>Stem Cell</b>	An undifferentiated cell capable of developing into specialised cells.

Week	Unit	Tier 3 Vocabulary	Definition
4	Stem Cells & Differentiation / Distillation	<b>Distillation</b>	A method used to separate liquids with different boiling points.
5	Specialised Cells / Chromatography	<b>Specialised Cell</b>	A cell adapted to perform a specific function.
5	Specialised Cells / Chromatography	<b>Chromatography</b>	A technique used to separate dissolved substances.
6	Mitosis / Theories of the Atom	<b>Mitosis</b>	Cell division producing two genetically identical daughter cells.
6	Mitosis / Theories of the Atom	<b>Atomic Model</b>	A scientific representation explaining the structure of atoms.
7	Diffusion Theory / Periodic Table Arrangement	<b>Diffusion</b>	Movement of particles from high concentration to low concentration.
7	Diffusion Theory / Periodic Table Arrangement	<b>Periodic Table</b>	A chart organising elements by atomic number and chemical properties.
8	Diffusion Practical / Group 1	<b>Alkali Metals</b>	Highly reactive metals found in Group 1 of the periodic table.
9	Osmosis Theory / Group 7	<b>Osmosis</b>	Movement of water across a partially permeable membrane.
9	Osmosis Theory / Group 7	<b>Halogens</b>	Reactive non-metals found in Group 7 of the periodic table.
10	Osmosis Practical / Group 0	<b>Noble Gases</b>	Unreactive gases with full outer electron shells.
11	Active Transport / Metals vs Non-Metals	<b>Active Transport</b>	Movement of substances against the concentration gradient using energy.
11	Active Transport / Metals vs Non-Metals	<b>Metal</b>	An element that conducts heat and electricity well.
12	Adaptations for Exchange / Development of the Periodic Table	<b>Surface Area to Volume Ratio</b>	A measure affecting how efficiently substances move in and out of cells.
12	Adaptations for Exchange / Development of the Periodic Table	<b>Atomic Number</b>	The number of protons in the nucleus of an atom.
13	Revision	<b>Evaluation</b>	Assessing the reliability and validity of scientific work.
14	End of Topic Assessment	<b>Assessment</b>	A method used to evaluate knowledge and understanding.
16	Atomic Structure Recap / Density Formula	<b>Density</b>	Mass per unit volume of a substance.
17	Metal Reactions / Density Practical	<b>Reactivity</b>	How easily a substance undergoes a chemical reaction.
18	Naming Salts / Conservation of Mass	<b>Conservation of Mass</b>	The principle that mass is neither created nor destroyed in reactions.

Week	Unit	Tier 3 Vocabulary	Definition
19	Making a Salt Practical / Specific Heat Capacity	<b>Salt</b>	A compound formed when an acid reacts with a base or metal.
20	Acids & Bases / Specific Heat Capacity Practical	<b>Acid</b>	A substance that produces hydrogen ions in solution.
20	Acids & Bases / Specific Heat Capacity Practical	<b>Specific Heat Capacity</b>	The energy needed to raise the temperature of 1kg of a substance by 1°C.
21	Neutralisation Curve / Internal Energy	<b>Neutralisation</b>	Reaction between an acid and a base forming salt and water.
21	Neutralisation Curve / Internal Energy	<b>Internal Energy</b>	The total kinetic and potential energy of particles in a substance.
22	Electrolysis / Specific Latent Heat	<b>Electrolysis</b>	Decomposition of a compound using electrical energy.
22	Electrolysis / Specific Latent Heat	<b>Latent Heat</b>	Energy absorbed or released during a change of state.
23	Electrolysis / Gases	<b>Electrode</b>	A conductor through which electricity enters or leaves an electrolyte.
23	Electrolysis / Gases	<b>Pressure</b>	The force exerted per unit area by particles in a gas or liquid.
25	Principles of Organisation	<b>Organ System</b>	A group of organs working together to perform a specific function.
26	Digestive System	<b>Digestion</b>	The breakdown of large food molecules into smaller soluble ones.
27	Food Tests Practical	<b>Benedict's Test</b>	A chemical test used to detect reducing sugars.
28	Enzymes Theory	<b>Enzyme</b>	A biological catalyst that speeds up chemical reactions.
29	Amylase Practical	<b>Amylase</b>	An enzyme that breaks down starch into sugars.
30	Blood and Blood Vessels	<b>Artery</b>	A blood vessel carrying blood away from the heart.
31	Coronary Heart Disease	<b>Coronary Artery</b>	Arteries supplying oxygenated blood to the heart muscle.
32	The Heart	<b>Heart</b>	A muscular organ that pumps blood around the body.
33	Respiratory System	<b>Alveoli</b>	Tiny air sacs in the lungs where gas exchange occurs.
34	Lifestyle and Cancer	<b>Carcinogen</b>	A substance capable of causing cancer.
35	Plant Tissues	<b>Xylem</b>	Tissue that transports water and minerals in plants.

Week	Unit	Tier 3 Vocabulary	Definition
35	Plant Tissues	<b>Phloem</b>	Tissue transporting sugars in plants.
36	Plant Transpiration	<b>Transpiration</b>	Loss of water vapour from leaves through stomata.
37	Topic Assessment	<b>Revision</b>	Reviewing knowledge to strengthen understanding.
38	Topic Review	<b>Analysis</b>	Examining results to identify patterns or trends.
39	Topic Review	<b>Conclusion</b>	A judgement based on evidence from investigation.

## Key Stage 4 – Tier 3 Vocabulary and Definitions

### Science – Biology – Year 10 (Trilogy)

Week	Unit	Tier 3 Vocabulary	Definition
1	Communicable Diseases	<b>Communicable Disease</b>	A disease that can be transmitted from one organism to another.
1	Communicable Diseases	<b>Pathogen</b>	A microorganism that causes disease.
2	Types of Pathogens	<b>Bacteria</b>	Single-celled microorganisms that can reproduce rapidly and cause disease.
2	Types of Pathogens	<b>Virus</b>	A microscopic infectious agent that replicates only inside living cells.
3	Primary Defences	<b>Barrier Defence</b>	The body's first line of defence preventing pathogens entering the body.
3	Primary Defences	<b>Mucus</b>	A sticky secretion trapping pathogens in the respiratory system.
4	Secondary Defences	<b>White Blood Cell</b>	Cells in the immune system that destroy pathogens.
4	Secondary Defences	<b>Antibody</b>	A protein produced by white blood cells that binds to specific antigens.
5	Antibiotics and Resistance	<b>Antibiotic</b>	A drug used to kill or inhibit the growth of bacteria.
5	Antibiotics and Resistance	<b>Antibiotic Resistance</b>	When bacteria evolve so that antibiotics are no longer effective.
6	Vaccination	<b>Vaccine</b>	A preparation that stimulates the immune system to produce immunity.
6	Vaccination	<b>Immunity</b>	The ability of the body to resist infection.
7	Drug Development	<b>Clinical Trial</b>	A controlled medical test of a new drug on human volunteers.
7	Drug Development	<b>Placebo</b>	A harmless substance used as a control in drug testing.
8	Drug Testing	<b>Double Blind Trial</b>	A trial where neither participants nor researchers know who receives the drug.

Week	Unit	Tier 3 Vocabulary	Definition
9	Revision	<b>Evaluation</b>	Assessing results and identifying reliability and limitations.
10	Photosynthesis & Structure of the Leaf	<b>Photosynthesis</b>	The process by which plants convert light energy into chemical energy.
10	Photosynthesis & Structure of the Leaf	<b>Chloroplast</b>	The organelle where photosynthesis takes place.
11	Photosynthesis Required Practical	<b>Limiting Factor</b>	A variable that restricts the rate of photosynthesis.
12	Testing a Leaf for Starch	<b>Starch</b>	A carbohydrate produced and stored during photosynthesis.
13	Aerobic Respiration	<b>Respiration</b>	The chemical process releasing energy from glucose.
13	Aerobic Respiration	<b>Aerobic Respiration</b>	Respiration using oxygen to release energy from glucose.
14	Anaerobic Respiration	<b>Anaerobic Respiration</b>	Respiration without oxygen releasing less energy.
15	Exercise & Metabolism	<b>Metabolism</b>	The sum of all chemical reactions occurring in a cell or organism.
17	Nervous System	<b>Neuron</b>	A specialised nerve cell transmitting electrical impulses.
17	Nervous System	<b>Central Nervous System</b>	The brain and spinal cord controlling responses.
18	Reflex Arc	<b>Reflex Action</b>	A rapid automatic response to a stimulus.
18	Reflex Arc	<b>Synapse</b>	A junction between neurons where signals are transmitted.
19	Reaction Time Practical	<b>Stimulus</b>	A change detected by receptors that triggers a response.
20	Homeostasis	<b>Homeostasis</b>	Regulation of internal conditions within narrow limits.
21	Glucose Control & Diabetes	<b>Insulin</b>	A hormone that lowers blood glucose levels.
21	Glucose Control & Diabetes	<b>Diabetes</b>	A condition where the body cannot regulate blood glucose effectively.
22	Reproductive Hormones	<b>Hormone</b>	A chemical messenger transported in the bloodstream.
22	Menstrual Cycle	<b>Menstrual Cycle</b>	The monthly cycle regulating female reproduction.
23	Contraception & Fertility	<b>Contraception</b>	Methods used to prevent pregnancy.
23	Contraception & Fertility	<b>Fertility</b>	The natural capability to produce offspring.
24	Adrenaline & Thyroxine	<b>Adrenaline</b>	A hormone released in response to stress or danger.
24	Adrenaline & Thyroxine	<b>Thyroxine</b>	A hormone regulating metabolic rate.
25	Contraception & Fertility	<b>In Vitro Fertilisation (IVF)</b>	Fertilisation of eggs outside the body in a laboratory.
26	Hormonal Control	<b>Endocrine System</b>	A network of glands producing hormones.

Week	Unit	Tier 3 Vocabulary	Definition
27	Topic Assessment	<b>Assessment</b>	Evaluating understanding through tests or tasks.
28	Paper 1 Revision	<b>Revision</b>	Reviewing previously learned content to strengthen understanding.
33	Paper 1 Revision	<b>Analysis</b>	Examining scientific data to identify patterns.
37	Content Review	<b>Conclusion</b>	A judgement based on evidence collected during investigation.

**Science – Biology – Year 11 (Trilogy)**

Week	Unit	Tier 3 Vocabulary	Definition
1	Ecosystems – Abiotic & Biotic Factors	<b>Abiotic Factor</b>	A non-living environmental factor affecting organisms such as temperature or light.
1	Ecosystems – Abiotic & Biotic Factors	<b>Biotic Factor</b>	A living factor that influences organisms such as competition or predation.
2	Food Chains & Adaptations	<b>Food Chain</b>	A sequence showing how energy passes between organisms.
2	Food Chains & Adaptations	<b>Adaptation</b>	A feature that helps an organism survive in its environment.
3	Water & Carbon Cycles	<b>Carbon Cycle</b>	The movement of carbon between the atmosphere, living organisms, and Earth.
3	Water & Carbon Cycles	<b>Decomposition</b>	The breakdown of dead organic matter by microorganisms.
4	Quadrat Sampling	<b>Quadrat</b>	A square frame used to estimate population size in a habitat.
4	Quadrat Sampling	<b>Biodiversity</b>	The variety of different species within an ecosystem.
5	Transect Sampling	<b>Transect</b>	A sampling method used to study changes across an environmental gradient.
5	Transect Sampling	<b>Distribution</b>	The way organisms are spread across a habitat.
6	Human Effects on Ecosystems	<b>Deforestation</b>	The large-scale removal of forests.
6	Human Effects on Ecosystems	<b>Global Warming</b>	The increase in Earth's temperature due to greenhouse gases.
12	Types of Reproduction	<b>Asexual Reproduction</b>	Reproduction involving one parent producing genetically identical offspring.
12	Types of Reproduction	<b>Sexual Reproduction</b>	Reproduction involving the fusion of male and female gametes.
13	Types of Cell Division	<b>Mitosis</b>	Cell division producing two genetically identical daughter cells.
13	Types of Cell Division	<b>Meiosis</b>	Cell division producing gametes with half the normal chromosome number.
14	Genetic Disorders	<b>Genetic Disorder</b>	A disease caused by an abnormality in DNA.

Week	Unit	Tier 3 Vocabulary	Definition
14	Genetic Disorders	<b>Mutation</b>	A change in the DNA sequence of a gene.
15	Embryo Screening	<b>Embryo Screening</b>	Testing embryos for genetic disorders before implantation.
15	Embryo Screening	<b>Ethics</b>	Moral principles guiding decisions about scientific practice.
16	Genetic Engineering & Selective Breeding	<b>Genetic Engineering</b>	Direct modification of an organism's DNA.
16	Genetic Engineering & Selective Breeding	<b>Selective Breeding</b>	Choosing organisms with desirable traits to reproduce.
17	Evolution & Extinction	<b>Evolution</b>	The gradual change in species over time.
17	Evolution & Extinction	<b>Extinction</b>	The permanent disappearance of a species.
18	Classification	<b>Classification</b>	The organisation of living organisms into groups based on similarities.
18	Classification	<b>Binomial System</b>	The two-part scientific naming system for organisms.
19	Paper 2 Revision	<b>Variation</b>	Differences between individuals of the same species.
19	Paper 2 Revision	<b>Natural Selection</b>	The process where better-adapted organisms survive and reproduce.
20	Paper 2 Mocks	<b>Analysis</b>	Interpreting data to identify patterns or trends.
21	Paper 2 Mocks	<b>Evaluation</b>	Assessing the reliability and limitations of results.
22	Paper 2 CTG	<b>Hypothesis</b>	A testable explanation for a scientific observation.
23	Paper 2 CTG	<b>Evidence</b>	Information gathered through observation or experimentation.
24	Paper 1 Revision	<b>Theory</b>	A well-supported explanation based on scientific evidence.
32	Content Review	<b>Accuracy</b>	How close a measured value is to the true value.
33	Content Review	<b>Precision</b>	How close repeated measurements are to each other.
34	Content Review	<b>Reliability</b>	The consistency of results when experiments are repeated.
35	Content Review	<b>Scientific Model</b>	A simplified representation used to explain scientific ideas.

### Science – Chemistry – Year 10 (Trilogy)

Week	Unit	Tier 3 Vocabulary	Definition
1	Forming Ions	<b>Ion</b>	A charged particle formed when an atom gains or loses electrons.
1	Forming Ions	<b>Electron Configuration</b>	The arrangement of electrons in the energy levels of an atom.
2	Ionic Bonding	<b>Ionic Bond</b>	The electrostatic attraction between oppositely charged ions.
2	Ionic Bonding	<b>Cation</b>	A positively charged ion formed by loss of electrons.

Week	Unit	Tier 3 Vocabulary	Definition
3	Ionic Structures & Properties	<b>Giant Ionic Lattice</b>	A regular repeating structure of oppositely charged ions.
3	Ionic Structures & Properties	<b>Electrostatic Attraction</b>	The force of attraction between oppositely charged particles.
4	Covalent Bonding	<b>Covalent Bond</b>	A shared pair of electrons between two atoms.
4	Covalent Bonding	<b>Molecule</b>	A group of atoms joined by covalent bonds.
5	Giant Covalent Structures	<b>Giant Covalent Structure</b>	A large network of atoms joined by covalent bonds.
5	Giant Covalent Structures	<b>Graphite</b>	A form of carbon with layers of hexagonal rings allowing conductivity.
6	Polymers Practical	<b>Polymer</b>	A long chain molecule made from repeating monomers.
6	Polymers Practical	<b>Monomer</b>	A small molecule that joins to form a polymer.
7	Fullerenes	<b>Fullerene</b>	A molecule made of carbon atoms arranged in hollow shapes.
7	Fullerenes	<b>Nanoparticle</b>	A particle between 1–100 nanometres in size.
8	Metallic Bonding & Alloys	<b>Metallic Bonding</b>	Attraction between positive metal ions and delocalised electrons.
8	Metallic Bonding & Alloys	<b>Alloy</b>	A mixture of two or more metals or a metal and another element.
9	Changes of State	<b>State of Matter</b>	The physical form of a substance such as solid, liquid, or gas.
9	Changes of State	<b>Intermolecular Forces</b>	Weak forces of attraction between molecules.
10	End of Topic Assessment	<b>Assessment</b>	Evaluation of knowledge and understanding through testing.
11	Relative Formula Mass	<b>Relative Formula Mass (Mr)</b>	The sum of the relative atomic masses of atoms in a compound.
11	Relative Formula Mass	<b>Relative Atomic Mass (Ar)</b>	The weighted mean mass of an atom of an element.
12	Balancing Equations	<b>Balanced Equation</b>	A chemical equation showing equal atoms on both sides.
12	Conservation of Mass	<b>Conservation of Mass</b>	The principle that mass remains constant in a chemical reaction.
13	Mass Changes	<b>Closed System</b>	A reaction system where no substances enter or leave.
13	Mass Changes	<b>Precipitate</b>	An insoluble solid formed during a chemical reaction.
14	Moles	<b>Mole</b>	The amount of substance containing $6.02 \times 10^{23}$ particles.
14	Moles	<b>Avogadro's Constant</b>	The number of particles in one mole of a substance.
15	Reacting Masses	<b>Stoichiometry</b>	Calculating quantities of reactants and products in reactions.

Week	Unit	Tier 3 Vocabulary	Definition
16	Concentration	<b>Concentration</b>	The amount of solute dissolved in a given volume of solution.
16	Concentration	<b>Solution</b>	A mixture where a solute is dissolved in a solvent.
17	End of Topic Assessment	<b>Evaluation</b>	Assessing the accuracy and reliability of results.
18	Collision Theory	<b>Collision Theory</b>	Reactions occur when particles collide with sufficient energy.
18	Collision Theory	<b>Activation Energy</b>	The minimum energy needed for a reaction to occur.
19	Rates of Reaction Graphs	<b>Rate of Reaction</b>	The speed at which reactants are converted into products.
20	Calculations of Rates	<b>Reaction Rate</b>	Change in concentration of reactants or products per unit time.
21	Required Practical	<b>Concentration</b>	The quantity of solute per volume of solution.
22	Turbidity Practical	<b>Turbidity</b>	The cloudiness of a solution caused by suspended particles.
23	Equilibrium & Catalysts	<b>Catalyst</b>	A substance that increases reaction rate without being used up.
23	Equilibrium & Catalysts	<b>Dynamic Equilibrium</b>	When forward and reverse reactions occur at the same rate.
24	End of Topic Assessment	<b>Analysis</b>	Interpreting data to identify patterns or trends.
25	Crude Oil & Hydrocarbons	<b>Hydrocarbon</b>	A compound containing only hydrogen and carbon atoms.
25	Crude Oil & Hydrocarbons	<b>Fractional Distillation</b>	A process used to separate crude oil into fractions.
26	Uses of Crude Oil	<b>Petrochemical</b>	Chemicals obtained from crude oil used in manufacturing.
27	Combustion	<b>Combustion</b>	A reaction where a substance burns in oxygen releasing energy.
27	Combustion	<b>Oxidation</b>	A reaction involving the gain of oxygen.
28	Cracking & Polymerisation	<b>Cracking</b>	Breaking long-chain hydrocarbons into smaller molecules.
28	Cracking & Polymerisation	<b>Polymerisation</b>	The joining of many monomers to form a polymer.
29	End of Topic Assessment	<b>Conclusion</b>	A judgement based on scientific evidence.
30	Paper 1 Revision	<b>Revision</b>	Reviewing knowledge to strengthen understanding.
33	Paper 1 Mocks	<b>Prediction</b>	A statement suggesting the likely outcome of an experiment.
37	Content Review	<b>Theory</b>	A well-supported scientific explanation based on evidence.

Science – Chemistry – Year 11 (Trilogy)

Week	Unit	Tier 3 Vocabulary	Definition
1	Resources & Life Cycle Assessments	<b>Finite Resource</b>	A resource that will eventually run out because it is used faster than it forms.
1	Resources & Life Cycle Assessments	<b>Life Cycle Assessment (LCA)</b>	The assessment of environmental impact from raw material extraction to disposal.
2	Water Required Practical	<b>Potable Water</b>	Water that is safe for humans to drink.
2	Water Required Practical	<b>Desalination</b>	The process of removing salt from seawater to produce fresh water.
3	Waste Water & RRR	<b>Wastewater Treatment</b>	The process of removing contaminants from sewage before release.
3	Waste Water & RRR	<b>Reduce, Reuse, Recycle</b>	Strategies used to minimise waste and conserve resources.
4	Mining for Metals	<b>Ore</b>	A rock containing enough metal or compound to make extraction worthwhile.
4	Mining for Metals	<b>Extraction</b>	The process of removing a metal from its ore.
5	Organic Chemistry – Crude Oil	<b>Hydrocarbon</b>	A compound consisting only of hydrogen and carbon atoms.
5	Organic Chemistry – Crude Oil	<b>Alkane</b>	A saturated hydrocarbon containing only single bonds.
6	Fractional Distillation	<b>Fractional Distillation</b>	A process used to separate crude oil into fractions based on boiling points.
6	Fractional Distillation	<b>Boiling Point</b>	The temperature at which a substance changes from liquid to gas.
7	Combustion	<b>Combustion</b>	A reaction in which a substance reacts with oxygen releasing energy.
7	Combustion	<b>Complete Combustion</b>	Burning in excess oxygen producing carbon dioxide and water.
7	Combustion	<b>Incomplete Combustion</b>	Burning with limited oxygen producing carbon monoxide or soot.
12	Cracking & Polymerisation	<b>Cracking</b>	The thermal decomposition of long-chain hydrocarbons into smaller molecules.
12	Cracking & Polymerisation	<b>Polymerisation</b>	A reaction where small molecules join to form long chain polymers.
13	Formulations & Chromatography	<b>Formulation</b>	A useful mixture designed to produce a product with specific properties.
13	Formulations & Chromatography	<b>Chromatography</b>	A technique used to separate mixtures based on different solubilities.

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<b>Week</b>	<b>Unit</b>	<b>Tier 3 Vocabulary</b>	<b>Definition</b>
14	Chromatography Practical	<b>Rf Value</b>	The ratio used to identify substances separated by chromatography.
14	Chromatography Practical	<b>Solvent</b>	A liquid used to dissolve substances during chromatography.
15	Chemical Analysis – Gas Tests	<b>Hydrogen Test</b>	A test where hydrogen burns with a squeaky pop.
15	Chemical Analysis – Gas Tests	<b>Oxygen Test</b>	A test where a glowing splint relights in oxygen.
15	Chemical Analysis – Gas Tests	<b>Carbon Dioxide Test</b>	A test where CO <sub>2</sub> turns limewater cloudy.
16	Atmospheric Pollutants	<b>Atmospheric Pollutant</b>	A harmful substance released into the atmosphere.
16	Atmospheric Pollutants	<b>Sulfur Dioxide</b>	A pollutant produced when fossil fuels containing sulfur burn.
16	Atmospheric Pollutants	<b>Nitrogen Oxides</b>	Polluting gases formed during high-temperature combustion.
17	Evolution of the Atmosphere	<b>Primordial Atmosphere</b>	The early atmosphere formed by volcanic activity.
17	Evolution of the Atmosphere	<b>Photosynthesis</b>	The process by which plants convert carbon dioxide and water into glucose using light energy.
17	Evolution of the Atmosphere	<b>Greenhouse Gas</b>	A gas that traps heat in the Earth's atmosphere.
18	Paper 2 Revision	<b>Scientific Model</b>	A simplified representation used to explain scientific ideas.
19	Paper 2 Revision	<b>Evidence</b>	Data collected through observation or experimentation.
20	Paper 2 Mocks	<b>Analysis</b>	Interpreting data to identify patterns or trends.
21	Paper 2 Mocks	<b>Evaluation</b>	Assessing the reliability and accuracy of results.
22	Paper 2 CTG	<b>Hypothesis</b>	A testable explanation for an observation.
23	Paper 2 CTG	<b>Prediction</b>	A statement suggesting the expected outcome of an experiment.
32	Content Review	<b>Accuracy</b>	How close a measurement is to the true value.
33	Content Review	<b>Precision</b>	How close repeated measurements are to each other.
34	Content Review	<b>Reliability</b>	The consistency of results when repeated.
35	Content Review	<b>Conclusion</b>	A judgement based on scientific evidence.

Science – Physics – Year 10 (Trilogy)

Week	Unit	Tier 3 Vocabulary	Definition
1	Energy Stores	<b>Energy Store</b>	A way energy is stored in a system, such as kinetic or thermal energy.
1	Energy Stores	<b>Energy Transfer</b>	The movement of energy from one store to another.
2	Efficiency & Work Done	<b>Work Done</b>	Energy transferred when a force moves an object through a distance.
2	Efficiency & Work Done	<b>Efficiency</b>	The percentage of input energy that is usefully transferred.
3	Kinetic Energy	<b>Kinetic Energy</b>	The energy an object has due to its motion.
4	Gravitational Potential Energy	<b>Gravitational Potential Energy</b>	Energy stored due to an object's position in a gravitational field.
5	Specific Heat Capacity Practical	<b>Specific Heat Capacity</b>	The energy required to raise the temperature of 1 kg of a substance by 1°C.
6	Specific Heat Capacity	<b>Thermal Energy</b>	Energy transferred due to temperature differences.
7	Thermal Energy Stores & Transfers	<b>Conduction</b>	The transfer of heat through a solid by particle collisions.
7	Thermal Energy Stores & Transfers	<b>Convection</b>	Heat transfer through liquids or gases by movement of particles.
8	Electrical Energy	<b>Electric Current</b>	The flow of electric charge through a conductor.
8	Electrical Energy	<b>Potential Difference (Voltage)</b>	The energy transferred per unit charge.
9	Elastic Potential Energy	<b>Elastic Potential Energy</b>	Energy stored when objects are stretched or compressed.
9	Elastic Limit	<b>Elastic Limit</b>	The point beyond which an object will not return to its original shape.
11	Circuit Symbols	<b>Circuit Diagram</b>	A symbolic representation of an electrical circuit.
12	Series & Parallel Circuits	<b>Series Circuit</b>	A circuit where components are connected in a single loop.
12	Series & Parallel Circuits	<b>Parallel Circuit</b>	A circuit where components are connected across branches.
13	Current, Potential Difference & Resistance	<b>Resistance</b>	The opposition to the flow of electric current.
13	Current, Potential Difference & Resistance	<b>Ohm</b>	The unit used to measure electrical resistance.
14	Maths in Electricity	<b>Charge</b>	The quantity of electricity flowing through a circuit.
15	Resistance Practical	<b>Variable Resistor</b>	A component used to change resistance in a circuit.

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Week	Unit	Tier 3 Vocabulary	Definition
16	Ohm's Law Practical	<b>Ohm's Law</b>	The relationship between voltage, current, and resistance.
17	National Grid	<b>National Grid</b>	The system of cables and transformers distributing electricity.
18	Mains Electricity & Plugs	<b>Alternating Current (AC)</b>	An electric current that repeatedly changes direction.
18	Mains Electricity & Plugs	<b>Earth Wire</b>	A safety wire preventing electric shock in appliances.
19	Electrical Power	<b>Power</b>	The rate at which energy is transferred.
19	Electrical Power	<b>Watt</b>	The unit used to measure power.
21	Waves Formula	<b>Wave Speed</b>	The speed at which a wave travels through a medium.
21	Waves Formula	<b>Frequency</b>	The number of waves passing a point per second.
22	Waves Required Practical	<b>Wavelength</b>	The distance between identical points on consecutive waves.
23	Waves Practical	<b>Amplitude</b>	The maximum displacement from the equilibrium position.
24	Electromagnetic Spectrum	<b>Electromagnetic Spectrum</b>	The full range of electromagnetic waves arranged by wavelength.
25	EMS Uses & Dangers	<b>Ionising Radiation</b>	Radiation with enough energy to remove electrons from atoms.
26	Refraction	<b>Refraction</b>	The change in direction of waves as they pass between materials.
27	Infrared & Colour Practical	<b>Infrared Radiation</b>	Electromagnetic radiation associated with heat transfer.
28	End of Topic Assessment	<b>Evaluation</b>	Assessing the reliability and limitations of results.
37	Content Review	<b>Hypothesis</b>	A testable explanation for an observation.
38	Content Review	<b>Evidence</b>	Information gathered through scientific investigation.
39	Content Review	<b>Scientific Theory</b>	A well-supported explanation based on extensive evidence

### Science – Physics – Year 11 (Trilogy)

Week	Unit	Tier 3 Vocabulary	Definition
1	Forces – Contact & Non-contact	<b>Contact Force</b>	A force that acts when two objects physically touch.
1	Forces – Contact & Non-contact	<b>Non-Contact Force</b>	A force that acts at a distance such as gravity or magnetism.



Week	Unit	Tier 3 Vocabulary	Definition
2	Newton's Laws & Resultant Forces	<b>Resultant Force</b>	The overall force acting on an object after all forces are combined.
2	Newton's Laws & Resultant Forces	<b>Newton's First Law</b>	An object remains at rest or moving at constant velocity unless acted upon by a resultant force.
3	Vector Diagrams	<b>Vector Quantity</b>	A quantity that has both magnitude and direction.
3	Vector Diagrams	<b>Resolution of Forces</b>	Splitting a force into perpendicular components.
4	Weight & Hooke's Law	<b>Weight</b>	The force acting on an object due to gravity.
4	Weight & Hooke's Law	<b>Hooke's Law</b>	The extension of a spring is proportional to the force applied if the elastic limit is not exceeded.
5	Vector & Scalar Quantities	<b>Scalar Quantity</b>	A quantity with magnitude only and no direction.
5	Vector & Scalar Quantities	<b>Magnitude</b>	The size or value of a physical quantity.
6	Distance–Time Graphs	<b>Distance–Time Graph</b>	A graph showing how distance changes with time.
6	Distance–Time Graphs	<b>Gradient</b>	The slope of a graph representing rate of change.
7	Velocity–Time Graphs	<b>Velocity</b>	Speed in a particular direction.
7	Velocity–Time Graphs	<b>Acceleration</b>	The rate of change of velocity.
8	Acceleration	<b>Uniform Acceleration</b>	Acceleration that remains constant over time.
8	Acceleration	<b>Deceleration</b>	Negative acceleration where velocity decreases.
14	Acceleration Practical	<b>Average Acceleration</b>	The change in velocity divided by the time taken.
15	Stopping Distances	<b>Stopping Distance</b>	The total distance travelled after a driver begins braking.
15	Stopping Distances	<b>Thinking Distance</b>	Distance travelled while the driver reacts.
15	Stopping Distances	<b>Braking Distance</b>	Distance travelled while brakes are slowing the vehicle.
16	Momentum	<b>Momentum</b>	The quantity of motion of an object (mass × velocity).
16	Momentum	<b>Conservation of Momentum</b>	Total momentum before a collision equals total momentum after.
18	Magnets	<b>Magnetic Field</b>	The region around a magnet where magnetic forces act.
18	Magnets	<b>Magnetic Pole</b>	The ends of a magnet where magnetic forces are strongest.
19	Magnetic Fields	<b>Field Lines</b>	Imaginary lines showing the direction and strength of a magnetic field.
20	Electromagnets	<b>Electromagnet</b>	A magnet created by passing current through a coil of wire.
20	Electromagnets	<b>Solenoid</b>	A long coil of wire producing a magnetic field when current flows.



Week	Unit	Tier 3 Vocabulary	Definition
21	Motor Effect	<b>Motor Effect</b>	The force produced when a current flows through a conductor in a magnetic field.
21	Motor Effect	<b>Fleming's Left Hand Rule</b>	A rule used to predict the direction of force in a motor.
22	Paper 2 Revision	<b>Hypothesis</b>	A testable explanation for a scientific observation.
23	Paper 2 Revision	<b>Evidence</b>	Data collected to support or challenge a scientific claim.
24	Paper 2 CTG	<b>Scientific Theory</b>	A well-supported explanation based on extensive evidence.
25	Paper 2 CTG	<b>Prediction</b>	A statement describing the expected outcome of an experiment.
32	Content Review	<b>Accuracy</b>	How close a measured value is to the true value.
33	Content Review	<b>Precision</b>	How close repeated measurements are to each other.
34	Content Review	<b>Reliability</b>	The consistency of results when experiments are repeated.
35	Content Review	<b>Evaluation</b>	Assessing the reliability and limitations of experimental results

### Science – Biology – Year 10 (Triple)

Week	Unit	Tier 3 Vocabulary	Definition
1	Communicable Diseases & Pathogens	<b>Pathogen</b>	A microorganism that causes disease.
1	Communicable Diseases & Pathogens	<b>Communicable Disease</b>	A disease that can be transmitted between organisms.
2	Plant Diseases & Defences	<b>Vector</b>	An organism that carries pathogens from one host to another.
2	Plant Diseases & Defences	<b>Plant Defence</b>	Structural or chemical adaptations protecting plants from pathogens.
3	Primary & Secondary Defences	<b>Primary Defence</b>	The body's first barrier against infection such as skin or mucus.
3	Primary & Secondary Defences	<b>Secondary Defence</b>	Internal immune responses that destroy pathogens.
4	Monoclonal Antibodies	<b>Antibody</b>	A protein produced by white blood cells that binds to antigens.
4	Monoclonal Antibodies	<b>Monoclonal Antibody</b>	Identical antibodies produced from a single immune cell clone.
5	Antibiotics & Resistance	<b>Antibiotic</b>	A medicine used to kill or inhibit bacteria.
5	Antibiotics & Resistance	<b>Antibiotic Resistance</b>	When bacteria evolve to survive antibiotic treatment.
6	Aseptic Technique & Cultures	<b>Aseptic Technique</b>	Methods used to prevent contamination by microorganisms.
6	Aseptic Technique & Cultures	<b>Culture Medium</b>	A nutrient solution used to grow microorganisms.

## Our Classroom Curriculum | Maltby Academy

Week	Unit	Tier 3 Vocabulary	Definition
7	Vaccinations	<b>Vaccine</b>	A preparation used to stimulate immunity against disease.
7	Vaccinations	<b>Immunity</b>	The ability of the body to resist infection.
8	Drug Development & Testing	<b>Clinical Trial</b>	Testing new medicines on humans for safety and effectiveness.
8	Drug Development & Testing	<b>Placebo</b>	A substance with no active ingredient used for comparison in trials.
10	Photosynthesis & Leaf Structure	<b>Photosynthesis</b>	The process by which plants make glucose using light energy.
10	Photosynthesis & Leaf Structure	<b>Chloroplast</b>	The organelle where photosynthesis occurs.
11	Photosynthesis Required Practical	<b>Limiting Factor</b>	A factor that restricts the rate of a process.
11	Photosynthesis Required Practical	<b>Starch</b>	A carbohydrate used by plants to store glucose.
12	Testing a Leaf for Starch	<b>Iodine Solution</b>	A chemical indicator used to test for starch.
13	Aerobic & Anaerobic Respiration	<b>Aerobic Respiration</b>	Respiration using oxygen to release energy from glucose.
13	Aerobic & Anaerobic Respiration	<b>Anaerobic Respiration</b>	Respiration without oxygen releasing less energy.
14	Exercise & Metabolism	<b>Metabolism</b>	The sum of all chemical reactions in a cell or organism.
14	Exercise & Metabolism	<b>Oxygen Debt</b>	The extra oxygen required after exercise to break down lactic acid.
16	Nervous System & Reflex Arc	<b>Reflex Action</b>	An automatic and rapid response to a stimulus.
16	Nervous System & Reflex Arc	<b>Neuron</b>	A specialised nerve cell that transmits electrical impulses.
17	Reaction Time Practical	<b>Stimulus</b>	A change in the environment detected by receptors.
17	Reaction Time Practical	<b>Response</b>	The reaction of an organism to a stimulus.
18	The Eye & Brain	<b>Retina</b>	The light-sensitive layer at the back of the eye.
18	The Eye & Brain	<b>Optic Nerve</b>	The nerve carrying visual signals from the eye to the brain.
19	Homeostasis	<b>Homeostasis</b>	Regulation of internal conditions in the body.
20	Glucose Control & Diabetes	<b>Insulin</b>	A hormone that lowers blood glucose levels.
20	Glucose Control & Diabetes	<b>Glucagon</b>	A hormone that increases blood glucose levels.
21	Reproductive Hormones	<b>Hormone</b>	A chemical messenger carried in the bloodstream.
21	Reproductive Hormones	<b>Menstrual Cycle</b>	The monthly cycle preparing the female body for pregnancy.

## Our Classroom Curriculum | Maltby Academy

Week	Unit	Tier 3 Vocabulary	Definition
22	Contraception & Fertility	<b>Contraception</b>	Methods used to prevent pregnancy.
23	Adrenaline & Thyroxine	<b>Adrenaline</b>	A hormone that prepares the body for 'fight or flight'.
23	Adrenaline & Thyroxine	<b>Thyroxine</b>	A hormone that regulates metabolism.
24	Water Control & Dialysis	<b>Dialysis</b>	The process of filtering blood when kidneys fail.
24	Water Control & Dialysis	<b>Osmoregulation</b>	Control of water and salt balance in the body.
25	Plant Hormones	<b>Auxin</b>	A plant hormone controlling growth responses.
25	Plant Hormones	<b>Phototropism</b>	Growth of plants in response to light.
26	Germination Practical	<b>Germination</b>	The process by which a seed begins to grow.
37	Content Review	<b>Hypothesis</b>	A testable explanation for a scientific observation.
38	Content Review	<b>Evidence</b>	Data collected through observation or experimentation.
39	Content Review	<b>Scientific Theory</b>	A well-supported explanation based on extensive scientific evidence.

### Science – Biology – Year 11 (Triple)

Week	Unit	Tier 3 Vocabulary	Definition
1	Ecosystems – Abiotic & Biotic Factors	<b>Abiotic Factor</b>	A non-living environmental factor affecting organisms in an ecosystem.
1	Ecosystems – Abiotic & Biotic Factors	<b>Biotic Factor</b>	A living factor that affects organisms in an ecosystem.
2	Adaptations & Food Chains	<b>Adaptation</b>	A feature that enables an organism to survive in its environment.
2	Adaptations & Food Chains	<b>Food Chain</b>	A sequence showing the transfer of energy between organisms.
3	Trophic Levels & Food Security	<b>Trophic Level</b>	The position an organism occupies in a food chain.
3	Trophic Levels & Food Security	<b>Food Security</b>	The availability of sufficient, safe and nutritious food.
4	Sampling Techniques	<b>Quadrat</b>	A square frame used to sample organisms in a habitat.
4	Sampling Techniques	<b>Transect</b>	A line used to study changes in species distribution across an area.
5	Human Effects on Ecosystems	<b>Biodiversity</b>	The variety of different species in an ecosystem.
5	Human Effects on Ecosystems	<b>Deforestation</b>	The large-scale removal of forests.
6	Decay & Required Practical	<b>Decomposer</b>	An organism that breaks down dead material and waste.
6	Decay & Required Practical	<b>Decay</b>	The breakdown of organic matter by microorganisms.
7	Revision & Assessment	<b>Evaluation</b>	Assessing the reliability and validity of scientific results.
8	Paper 1 Revision	<b>Revision</b>	Reviewing previously learned knowledge.

Week	Unit	Tier 3 Vocabulary	Definition
12	Types of Reproduction	<b>Asexual Reproduction</b>	Reproduction involving one parent producing genetically identical offspring.
12	Types of Reproduction	<b>Sexual Reproduction</b>	Reproduction involving fusion of male and female gametes.
13	Cell Division	<b>Meiosis</b>	Cell division producing gametes with half the normal chromosome number.
13	Cell Division	<b>Gamete</b>	A reproductive cell such as sperm or egg.
14	DNA Structure & Protein Synthesis	<b>DNA</b>	The molecule carrying genetic instructions in living organisms.
14	DNA Structure & Protein Synthesis	<b>Protein Synthesis</b>	The process by which cells build proteins using genetic instructions.
15	Genetic Disorders & Embryo Screening	<b>Genetic Disorder</b>	A disease caused by abnormalities in genes or chromosomes.
15	Genetic Disorders & Embryo Screening	<b>Embryo Screening</b>	Testing embryos for genetic diseases before implantation.
16	Genetic Engineering & Selective Breeding	<b>Genetic Engineering</b>	The modification of an organism's DNA by technology.
16	Genetic Engineering & Selective Breeding	<b>Selective Breeding</b>	Choosing parents with desirable traits to produce offspring with those traits.
17	Cloning	<b>Cloning</b>	Producing genetically identical organisms or cells.
18	Evolution & Extinction	<b>Evolution</b>	The gradual change in species over time through natural selection.
18	Evolution & Extinction	<b>Extinction</b>	The permanent loss of a species from Earth.
19	Classification & Speciation	<b>Classification</b>	Organising living organisms into groups based on similarities.
19	Classification & Speciation	<b>Speciation</b>	The formation of new species through evolution.
24	Paper 1 Revision	<b>Analysis</b>	Examining data to identify patterns and relationships.
25	Paper 1 Revision	<b>Conclusion</b>	A judgement based on evidence gathered during investigation.
26	Paper 1 Revision	<b>Evidence</b>	Data used to support or refute a scientific idea.
27	Paper 1 Revision	<b>Hypothesis</b>	A testable explanation based on observations.
28	Paper 1 Revision	<b>Prediction</b>	A statement suggesting the likely outcome of an investigation.
29	Paper 1 Revision	<b>Reliability</b>	The consistency of results when an experiment is repeated.
30	Paper 1 Revision	<b>Accuracy</b>	How close a measurement is to the true value.

Week	Unit	Tier 3 Vocabulary	Definition
32	Content Review	<b>Scientific Model</b>	A representation used to explain scientific phenomena.
33	Content Review	<b>Theory</b>	A well-supported explanation based on evidence.
34	Content Review	<b>Peer Review</b>	Evaluation of scientific work by other experts.

**Science – Chemistry – Year 10 (Triple)**

Week	Unit	Tier 3 Vocabulary	Definition
1	Forming Ions	<b>Ion</b>	A charged particle formed when an atom gains or loses electrons.
1	Forming Ions	<b>Electron Configuration</b>	The arrangement of electrons in energy levels around an atom.
2	Ionic Bonding	<b>Ionic Bond</b>	A strong electrostatic attraction between oppositely charged ions.
2	Ionic Bonding	<b>Electrostatic Force</b>	The attraction between positively and negatively charged particles.
3	Ionic Structures & Properties	<b>Ionic Lattice</b>	A regular repeating arrangement of ions in a solid ionic compound.
3	Ionic Structures & Properties	<b>Melting Point</b>	The temperature at which a solid changes to a liquid.
4	Covalent Bonding	<b>Covalent Bond</b>	A bond formed when atoms share pairs of electrons.
4	Covalent Bonding	<b>Molecule</b>	A group of atoms bonded together by covalent bonds.
5	Giant Covalent Structures	<b>Giant Covalent Structure</b>	A structure where atoms are bonded in a continuous network.
5	Giant Covalent Structures	<b>Graphite</b>	A form of carbon with layers of atoms that can slide over each other.
6	Polymers	<b>Polymer</b>	A large molecule made from repeating monomer units.
6	Polymers	<b>Monomer</b>	A small molecule that joins together to form a polymer.
7	Fullerenes & Nanoscience	<b>Fullerene</b>	A molecule made entirely of carbon atoms arranged in hollow shapes.
7	Fullerenes & Nanoscience	<b>Nanoparticle</b>	A particle with dimensions between 1 and 100 nanometres.
8	Metallic Bonding & Alloys	<b>Metallic Bonding</b>	Attraction between positive metal ions and delocalised electrons.
8	Metallic Bonding & Alloys	<b>Alloy</b>	A mixture of metals or a metal with other elements.
9	Changes of State & Properties	<b>State of Matter</b>	The physical form of a substance: solid, liquid or gas.

Week	Unit	Tier 3 Vocabulary	Definition
9	Changes of State & Properties	<b>Boiling Point</b>	The temperature at which a liquid turns into a gas.
11	Relative Formula Mass	<b>Relative Formula Mass (Mr)</b>	The sum of the relative atomic masses of all atoms in a compound.
11	Relative Formula Mass	<b>Relative Atomic Mass (Ar)</b>	The average mass of an atom compared with carbon-12.
12	Balancing Equations	<b>Chemical Equation</b>	A representation of a chemical reaction using symbols and formulas.
12	Balancing Equations	<b>Conservation of Mass</b>	The principle that mass is neither created nor destroyed in reactions.
13	Mass Changes	<b>Closed System</b>	A reaction system where no substances can enter or leave.
13	Mass Changes	<b>Precipitate</b>	A solid formed from a solution during a chemical reaction.
14	Moles	<b>Mole</b>	The amount of substance containing $6.02 \times 10^{23}$ particles.
14	Moles	<b>Avogadro Constant</b>	The number of particles in one mole of a substance.
15	Reacting Masses	<b>Stoichiometry</b>	Calculations involving quantities of reactants and products.
16	Atom Economy & Yield	<b>Percentage Yield</b>	The amount of product obtained compared to the maximum possible.
16	Atom Economy & Yield	<b>Atom Economy</b>	A measure of how efficiently atoms are used in a chemical reaction.
17	Concentration	<b>Concentration</b>	The amount of solute dissolved in a given volume of solution.
18	Titration	<b>Titration</b>	A technique used to determine the concentration of a solution.
18	Titration	<b>Indicator</b>	A substance that changes colour depending on pH.
19	Volume of Gas	<b>Molar Volume</b>	The volume occupied by one mole of gas at room temperature.
21	Collision Theory	<b>Collision Theory</b>	A theory explaining that reactions occur when particles collide with enough energy.
21	Collision Theory	<b>Activation Energy</b>	The minimum energy required for a reaction to occur.
22	Rates of Reaction Graphs	<b>Rate of Reaction</b>	The speed at which reactants are converted into products.
22	Rates of Reaction Graphs	<b>Gradient</b>	The slope of a graph representing rate of change.
23	Calculating Rates of Reaction	<b>Catalyst</b>	A substance that increases reaction rate without being used up.
24	Required Practical – Gas	<b>Gas Syringe</b>	A device used to measure the volume of gas produced in a reaction.

Week	Unit	Tier 3 Vocabulary	Definition
25	Required Practical – Turbidity	<b>Turbidity</b>	The cloudiness of a solution caused by suspended particles.
26	Equilibrium & Catalysts	<b>Dynamic Equilibrium</b>	A state where forward and reverse reactions occur at equal rates.
26	Equilibrium & Catalysts	<b>Reversible Reaction</b>	A reaction that can proceed in both forward and backward directions.
37	Content Review	<b>Hypothesis</b>	A proposed explanation that can be tested scientifically.
38	Content Review	<b>Evidence</b>	Information gathered through observation or experimentation.
39	Content Review	<b>Scientific Model</b>	A simplified representation used to explain scientific ideas.

### Science – Chemistry – Year 11 (Triple)

Week	Unit	Tier 3 Vocabulary	Definition
1	Chromatography & Gas Tests	<b>Chromatography</b>	A technique used to separate mixtures based on different solubilities.
1	Chromatography & Gas Tests	<b>Solvent</b>	The liquid used to dissolve substances in chromatography.
2	Gas Tests & Flame Tests	<b>Flame Test</b>	A chemical test used to identify metal ions by flame colour.
2	Gas Tests & Flame Tests	<b>Hydrogen Test</b>	A test where hydrogen produces a squeaky pop when lit.
3	Ion Tests Required Practical	<b>Precipitate</b>	An insoluble solid formed during a chemical reaction.
3	Ion Tests Required Practical	<b>Ion</b>	A charged particle formed when atoms gain or lose electrons.
4	Instrumental Analysis	<b>Instrumental Analysis</b>	Techniques using machines to identify chemical substances.
4	Instrumental Analysis	<b>Mass Spectrometry</b>	A method used to determine the mass and composition of molecules.
12	Crude Oil & Hydrocarbons	<b>Hydrocarbon</b>	A compound made only of hydrogen and carbon atoms.
12	Crude Oil & Hydrocarbons	<b>Alkane</b>	A saturated hydrocarbon with only single carbon bonds.
13	Fractional Distillation & Cracking	<b>Fractional Distillation</b>	The process used to separate crude oil into fractions.
13	Fractional Distillation & Cracking	<b>Cracking</b>	Breaking long hydrocarbon molecules into smaller ones.
14	Organic Chemistry	<b>Alkene</b>	An unsaturated hydrocarbon containing a carbon-carbon double bond.
14	Organic Chemistry	<b>Polymerisation</b>	The joining of many monomers to form a polymer.
15	Organic Chemistry	<b>Alcohol</b>	An organic compound containing the –OH functional group.
15	Organic Chemistry	<b>Carboxylic Acid</b>	An organic compound containing the –COOH functional group.

Week	Unit	Tier 3 Vocabulary	Definition
16	Paper 2 Revision	<b>Functional Group</b>	A group of atoms responsible for the chemical properties of organic compounds.
17	Paper 2 Revision	<b>Homologous Series</b>	A family of organic compounds with similar structures and properties.
18	Paper 2 Revision	<b>Isomer</b>	Compounds with the same molecular formula but different structures.
19	Paper 2 Revision	<b>Addition Reaction</b>	A reaction where atoms add across a double bond.
20	Paper 2 Mocks	<b>Evaluation</b>	Assessing the reliability and accuracy of scientific results.
21	Paper 2 Mocks	<b>Analysis</b>	Examining scientific data to identify patterns or relationships.
22	Paper 2 CTG	<b>Hypothesis</b>	A testable explanation for an observation.
23	Paper 2 CTG	<b>Prediction</b>	A statement suggesting the expected outcome of an experiment.
24	Paper 1 Revision	<b>Evidence</b>	Data used to support or refute a scientific idea.
25	Paper 1 Revision	<b>Theory</b>	A well-supported explanation based on scientific evidence.
26	Paper 1 Revision	<b>Accuracy</b>	How close a measured value is to the true value.
27	Paper 1 Revision	<b>Precision</b>	How close repeated measurements are to each other.
28	Paper 1 Revision	<b>Reliability</b>	The consistency of results when repeated.
29	Paper 1 Revision	<b>Conclusion</b>	A judgement based on evidence from investigation.
30	Paper 1 Revision	<b>Scientific Model</b>	A simplified representation used to explain scientific ideas.
32	Content Review	<b>Peer Review</b>	Evaluation of scientific work by other experts.
33	Content Review	<b>Replication</b>	Repeating experiments to confirm results.
34	Content Review	<b>Validity</b>	The extent to which an experiment measures what it intends to measure.
35	Content Review	<b>Control Variable</b>	A factor kept constant during an experiment.

### Science – Physics – Year 10 (Triple)

Week	Unit	Tier 3 Vocabulary	Definition
1	Energy Stores	<b>Energy Store</b>	A way energy is held in a system, such as kinetic or thermal energy.
1	Energy Stores	<b>Energy Transfer</b>	The movement of energy from one store to another.
2	Efficiency & Work Done	<b>Work Done</b>	Energy transferred when a force moves an object through a distance.
2	Efficiency & Work Done	<b>Efficiency</b>	The proportion of input energy converted into useful output energy.

Week Unit	Tier 3 Vocabulary	Definition
3 Kinetic Energy	<b>Kinetic Energy</b>	The energy an object has due to its motion.
4 Gravitational Potential Energy	<b>Gravitational Potential Energy</b>	Energy stored due to an object's height in a gravitational field.
4 Gravitational Field Strength	<b>Gravitational Field Strength</b>	The force acting on one kilogram of mass due to gravity.
5 Specific Heat Capacity	<b>Specific Heat Capacity</b>	The energy required to raise the temperature of 1 kg of a substance by 1°C.
5 Specific Heat Capacity	<b>Thermal Energy</b>	Energy associated with the temperature of an object.
6 Thermal Energy Transfers	<b>Conduction</b>	The transfer of heat through solids by particle vibrations.
6 Thermal Energy Transfers	<b>Convection</b>	Heat transfer through liquids or gases due to movement of particles.
7 Insulation	<b>Thermal Insulator</b>	A material that reduces heat transfer.
7 Insulation	<b>Thermal Conductivity</b>	A measure of how easily heat passes through a material.
8 Electrical Energy	<b>Electric Current</b>	The flow of electric charge in a circuit.
8 Electrical Energy	<b>Potential Difference (Voltage)</b>	The energy transferred per unit charge in a circuit.
9 Elastic Potential Energy	<b>Elastic Potential Energy</b>	Energy stored when an object is stretched or compressed.
9 Elastic Limit	<b>Elastic Limit</b>	The point beyond which a material does not return to its original shape.
11 Circuit Symbols	<b>Circuit Diagram</b>	A symbolic representation of an electrical circuit.
12 Current & Potential Difference	<b>Series Circuit</b>	A circuit where components are connected in a single loop.
12 Current & Potential Difference	<b>Parallel Circuit</b>	A circuit where components are connected across separate branches.
13 Maths in Electricity	<b>Charge</b>	A measure of the quantity of electricity flowing in a circuit.
14 Resistance Practical	<b>Resistance</b>	The opposition to current flow in a conductor.
15 Ohm's Law	<b>Ohm's Law</b>	The relationship between current, voltage, and resistance.
16 National Grid	<b>National Grid</b>	The network that distributes electricity from power stations to homes.
17 Mains Electricity	<b>Alternating Current (AC)</b>	An electric current that repeatedly changes direction.
17 Mains Electricity	<b>Direct Current (DC)</b>	An electric current that flows in one direction only.
18 Static Electricity	<b>Static Charge</b>	An imbalance of electric charges on an object's surface.
18 Static Electricity	<b>Electric Field</b>	The region around a charged object where forces act on other charges.
19 Electrical Power	<b>Power</b>	The rate at which energy is transferred.

## Our Classroom Curriculum | Maltby Academy

Week	Unit	Tier 3 Vocabulary	Definition
21	Waves & Their Properties	<b>Wave</b>	A vibration that transfers energy without transferring matter.
21	Waves & Their Properties	<b>Amplitude</b>	The maximum displacement from the rest position in a wave.
21	Waves & Their Properties	<b>Wavelength</b>	The distance between identical points on consecutive waves.
22	Waves Practical	<b>Wave Speed</b>	The speed at which a wave travels through a medium.
23	Electromagnetic Spectrum	<b>Electromagnetic Waves</b>	Waves that transfer energy through oscillating electric and magnetic fields.
23	Electromagnetic Spectrum	<b>Electromagnetic Spectrum</b>	The full range of electromagnetic waves arranged by wavelength or frequency.
24	Infrared & Colour	<b>Infrared Radiation</b>	Electromagnetic waves associated with heat transfer.
25	Reflection & Refraction	<b>Reflection</b>	The bouncing of waves from a surface.
25	Reflection & Refraction	<b>Refraction</b>	The bending of waves as they enter a different medium.
26	Uses of Waves	<b>Medical Imaging</b>	Using electromagnetic waves to create images of the inside of the body.
27	Colour	<b>Visible Light Spectrum</b>	The range of electromagnetic waves visible to the human eye.
28	Lenses	<b>Convex Lens</b>	A lens that converges light rays to a focal point.
28	Lenses	<b>Focal Point</b>	The point where parallel light rays meet after passing through a lens.
29	End of Topic Assessment	<b>Evaluation</b>	Judging the reliability and accuracy of scientific results.
37	Content Review	<b>Hypothesis</b>	A testable explanation for an observation.
38	Content Review	<b>Evidence</b>	Information collected to support or refute a scientific claim.
39	Content Review	<b>Theory</b>	A well-supported explanation based on extensive scientific evidence.

### Science – Physics – Year 11 (Triple)

Week	Unit	Tier 3 Vocabulary	Definition
1	Forces – Contact & Non-contact	<b>Contact Force</b>	A force that acts when two objects are touching.
1	Forces – Contact & Non-contact	<b>Non-Contact Force</b>	A force that acts at a distance without physical contact.
2	Newton's Laws & Resultant Forces	<b>Resultant Force</b>	The overall force acting on an object after all forces are combined.
2	Newton's Laws & Resultant Forces	<b>Newton's First Law</b>	An object remains at rest or moving at constant velocity unless acted on by a resultant force.
3	Vector Diagrams	<b>Vector Quantity</b>	A quantity that has both magnitude and direction.

Week	Unit	Tier 3 Vocabulary	Definition
3	Vector Diagrams	<b>Resolution of Forces</b>	Breaking a force into perpendicular components.
4	Weight & Hooke's Law	<b>Weight</b>	The force acting on an object due to gravity.
4	Weight & Hooke's Law	<b>Hooke's Law</b>	The extension of a spring is proportional to the force applied.
5	Vector & Scalar Quantities	<b>Scalar Quantity</b>	A quantity with magnitude but no direction.
5	Vector & Scalar Quantities	<b>Magnitude</b>	The size or value of a quantity.
6	Time–Distance Graphs	<b>Distance–Time Graph</b>	A graph showing how distance changes with time.
6	Time–Distance Graphs	<b>Gradient</b>	The slope of a graph representing rate of change.
7	Time–Velocity Graphs	<b>Velocity</b>	Speed in a given direction.
7	Time–Velocity Graphs	<b>Acceleration</b>	The rate of change of velocity.
8	Acceleration Practical	<b>Uniform Acceleration</b>	Acceleration that remains constant over time.
8	Acceleration Practical	<b>Deceleration</b>	Negative acceleration where velocity decreases.
13	Terminal Velocity	<b>Terminal Velocity</b>	The constant speed reached when drag equals weight.
14	Momentum	<b>Momentum</b>	The quantity of motion of an object (mass × velocity).
14	Momentum	<b>Conservation of Momentum</b>	Total momentum before a collision equals total momentum after.
15	Pressure	<b>Pressure</b>	Force acting per unit area.
15	Pressure	<b>Pascal</b>	The SI unit used to measure pressure.
16	Moments	<b>Moment</b>	The turning effect of a force around a pivot.
16	Moments	<b>Pivot</b>	The point around which an object rotates.
17	Magnetic Fields	<b>Magnetic Field</b>	The region around a magnet where magnetic forces act.
17	Magnetic Fields	<b>Magnetic Flux</b>	The amount of magnetic field passing through an area.
18	Electromagnets	<b>Electromagnet</b>	A magnet created by passing electric current through a coil.
18	Electromagnets	<b>Solenoid</b>	A coil of wire producing a magnetic field when current flows.
19	Fleming's Left Hand Rule	<b>Motor Effect</b>	The force produced when a current flows in a magnetic field.
19	Fleming's Left Hand Rule	<b>Fleming's Left Hand Rule</b>	A rule used to predict the direction of force in a motor.
20	Generator Effect	<b>Generator Effect</b>	The production of voltage when a conductor moves through a magnetic field.
20	Generator Effect	<b>Alternator</b>	A generator producing alternating current.
21	Transformer	<b>Transformer</b>	A device that changes the voltage of alternating current.
21	Transformer	<b>Step-Up Transformer</b>	A transformer that increases voltage.



<b>Week</b>	<b>Unit</b>	<b>Tier 3 Vocabulary</b>	<b>Definition</b>
21	Transformer	<b>Step-Down Transformer</b>	A transformer that decreases voltage.
22	Paper 2 Revision	<b>Hypothesis</b>	A testable explanation for a scientific observation.
23	Paper 2 Revision	<b>Evidence</b>	Data collected to support or challenge a scientific idea.
24	Paper 2 CTG	<b>Theory</b>	A well-supported explanation based on scientific evidence.
25	Paper 2 CTG	<b>Prediction</b>	A statement describing the expected outcome of an experiment.
26	Paper 1 Revision	<b>Accuracy</b>	How close a measurement is to the true value.
27	Paper 1 Revision	<b>Precision</b>	How similar repeated measurements are.
28	Paper 1 Revision	<b>Reliability</b>	The consistency of results when repeated.
29	Paper 1 Revision	<b>Evaluation</b>	Judging the quality and limitations of experimental results.
32	Revision for Exams	<b>Scientific Model</b>	A simplified representation used to explain scientific ideas.

