








# Content

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-  In Production





























































# Combined Science






## AQA Combined Science: Trilogy



































































### Getting Ready for KS4 (GCSE)

#### Getting Ready for KS4 (GCSE) Combined Science






Getting Ready for KS4 (GCSE)	GRF-01-001		
Importance of Diet	BIOL-2001		
The Periodic Table	CHEM-2008		
Representing Chemical Reactions	CHEM-2017		
Photosynthesis	BIOL-2087		 
Diffusion and Active Transport	BIOL-2105		 
Cell Differentiation	BIOL-2191		 
Menstruation	BIOL-2249		
Reproduction in plants	BIOL-2236		 
Aerobic Respiration	BIOL-2167		 
Anaerobic Respiration	BIOL-2168		 
Cell Structures and Microscopes	BIOL-2192		 
Speciation	BIOL-2229		 
Variation	BIOL-2050		 
Competition	BIOL-2011		 
The Digestive System	BIOL-2188		
Carbon Cycle	BIOL-2084		 
Products of Photosynthesis	BIOL-2089		 
Human reproduction	BIOL-2234		 
Fertilisation and germination	BIOL-2238		 
Solubility	CHEM-2126		
Gas Exchange in Humans	BIOL-2172		 
States of matter	CHEM-2150		
Separation Methods	CHEM-2089		
Chromatography	CHEM-2086		
Combining Elements	CHEM-2013		

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Diffusion	CHEM-2153		
Elements in the Periodic Table	CHEM-2007		
Atomic Structure	CHEM-2010		
Acid metal reactions	CHEM-2145		
Making Salts	CHEM-2104		
The Atmosphere: Past and Present	CHEM-2054		
Chemical Reactions	CHEM-2016		
Gas Exchange In Plants	BIOL-2110		 
Acids and Bases	CHEM-2101		
Processes that Change the Atmosphere	CHEM-2057		
Speed	PHYS-2110		
Traditional Extraction Methods	CHEM-2025		
Displacement	CHEM-2031		
Distance/Time Graphs	PHYS-2105		
Climate Change	CHEM-2039		
Magnetic Fields	PHYS-2053		
Newton's Second Law	PHYS-2106		
Acceleration	PHYS-2104		
Lab measurements	CHEM-2155		
Hooke's Law	PHYS-2099		
Series & Parallel Circuits	PHYS-2025		
Gas Pressure	PHYS-2098		
Circuit symbols	PHYS-2030		
Resultant Forces	PHYS-2109		
Investigating the Factors Affecting the Rate of Photosynthesis	BIOL-40-003		
Investigating the Densities of Solids and Liquids	PHYS-28-002		
History of the Periodic Table	CHEM-2014		
Evidence for Human Evolution	BIOL-2021		 
Discovery of the Structure of the Atom	CHEM-2009		
Investigation into Variation in Organisms	BIOL-40-017		
Scientific Method	SCI-MAT-001		
Elements and compounds	CHEM-2151		

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## 4.1/Cell biology

### 4.1.2/Cell division

Growth and Multicellular Organisms	BIOL-2194			
Stem Cell Technology	BIOL-2212			
Stem Cells (Part 2)	BIOL-2015			
The Cell Cycle	BIOL-2003			
Mitosis	BIOL-2004			
Stem Cells	BIOL-2014			

### 4.1.3/Transport in cells

Diffusion and Active Transport	BIOL-2105			
Gas Exchange in Humans	BIOL-2172			
Osmosis	BIOL-2092			
Surface-Area-To-Volume Ratio	BIOL-2109			

### 4.1.1/Cell structure

Cell Differentiation	BIOL-2191			
Unspecialised Plant Cells	BIOL-2113			
Cell Structures and Microscopes	BIOL-2192			

## 4.2/Organisation

### 4.2.2/Animal tissues, organs and organ systems


Importance of Diet	BIOL-2001			
Digestive Enzymes	BIOL-2176			
What is Blood?	BIOL-2180			
Lock-and-Key Hypothesis	BIOL-2175			
Enzymes	BIOL-2174			
The Circulatory System	BIOL-2184			
Heart Disease and Risk Factors	BIOL-2183			
Pacemaker	BIOL-2186			
Disease Transmission	BIOL-2044			
Infection	BIOL-2073			
Smoking	BIOL-2063			
Alcohol Abuse	BIOL-2064			

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Cancer	BIOL-2217			
The Circulatory System (Part 2)	BIOL-2185			

### 4.2.3/Plant tissues, organs and systems

Plant Organs	BIOL-2106			
Transpiration	BIOL-2091			
Plant Structures	BIOL-2111			
Plant Minerals	BIOL-2126			
















## 4.3/Infection and response

### 4.3.1/Communicable diseases

Viruses	BIOL-2043			
Disease Prevention	BIOL-2045			
The Immune Response	BIOL-2069			
Sexually transmitted infections	BIOL-2250			
Body Defence	BIOL-2068			
Vaccines	BIOL-2072			
Immunisation	BIOL-2016			
Immunisation Programmes	BIOL-2017			
Antimicrobials and Antibiotics	BIOL-2070			
Resistance	BIOL-2071			
Developing New Drugs	BIOL-2066			
Drug Trials	BIOL-2038			

## 4.4/Bioenergetics






### 4.4.1/Photosynthesis

Photosynthesis	BIOL-2087			
Plant growth	BIOL-2252			
Products of Photosynthesis	BIOL-2089			
Limiting Factors	BIOL-2090			
Gas Exchange In Plants	BIOL-2110			

### 4.4.2/Respiration

Respiration	BIOL-2166			
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Aerobic Respiration	BIOL-2167			
Anaerobic Respiration	BIOL-2168			
Using Energy from Respiration	BIOL-2170			
Cell Metabolism	BIOL-2159			

## 4.5/Homeostasis and response

### 4.5.1/Homeostasis

Homeostasis	BIOL-2006		
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### 4.5.3/Hormonal coordination in humans

Type 1 Diabetes	BIOL-2008			
Type 2 Diabetes	BIOL-2009			
Hormones	BIOL-2139			
Controlling Fertility	BIOL-2141			
Human reproduction	BIOL-2234			

### 4.5.2/The human nervous system

The Central Nervous System	BIOL-2148			
Synapses	BIOL-2151			
Receptors and Effectors	BIOL-2157			
The Reflex Arc	BIOL-2149			
Reflexes	BIOL-2154			

## 4.6/Inheritance, variation and evolution

### 4.6.3/The development of understanding of genetics and evolution

Darwin's Theory of Evolution (Part 2)	BIOL-2048		
Evidence for Human Evolution	BIOL-2021		
The Fossil Record	BIOL-2051		
Extinction	BIOL-2012		
Bacteria	BIOL-2041		
Darwin's Theory of Evolution	BIOL-2047		
Natural Selection	BIOL-2049		

### 4.6.1/Reproduction

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Genes	BIOL-2052			
Reproduction in plants	BIOL-2236			
Sperm and egg	BIOL-2235			
Pollination	BIOL-2237			
Meiosis	BIOL-2005			
Alleles	BIOL-2053			
Sex Inheritance	BIOL-2055			
Genetic Disorders	BIOL-2031			
Genetic Testing	BIOL-2036			
Fetal Screening	BIOL-2147			
Monohybrid Inheritance	BIOL-2057			
Fertilisation and germination	BIOL-2238			

#### 4.6.2/Variation and evolution

Genetic Engineering	BIOL-2027			
Selective breeding	BIOL-2242			
Arguments For and Against GM	BIOL-2028			
Cloning (Animals)	BIOL-2030			
Speciation	BIOL-2229			
Variation	BIOL-2050			

#### 4.6.4/Classification of living organisms

The Five Kingdoms	BIOL-2135			
Why do we Classify? And what is a Species?	BIOL-2137			

### 4.7/Ecology

#### 4.7.1/Adaptations, interdependence and competition

Maintaining Ecosystems and Preventing Ecosystem Loss	BIOL-2115			
Extreme Conditions	BIOL-2103			
Adaptations	BIOL-2046			
Competition	BIOL-2011			

#### 4.7.3/Biodiversity and the effect of human interaction on ecosystems

Global Population Change	BIOL-2013			
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What Is Biodiversity?	BIOL-2075			
Waste from Human Activities	BIOL-2118			
Deforestation & Peat Removal	BIOL-2119			
Global Pollution	BIOL-2123			
The greenhouse effect	BIOL-2243			

#### 4.7.2/Organisation of an ecosystem

Carbon Cycle	BIOL-2084			
Food chains and webs	BIOL-2251			
The water cycle	BIOL-2233			
How to do Fieldwork	BIOL-2107			

### 5.1/Atomic structure and the periodic table

#### 5.1.2/The periodic table

The Periodic Table	CHEM-2008		
History of the Periodic Table	CHEM-2014		
Group 1: Alkali Metals	CHEM-2001		
Reactivity in Group 1	CHEM-2002		
Group 7: The Halogens	CHEM-2004		
Reactivity in Group 7	CHEM-2005		
The Noble Gases	CHEM-2006		

#### 5.1.1/A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes

Atomic Structure	CHEM-2010			
Representing Chemical Reactions	CHEM-2017			
Elements and compounds	CHEM-2151			
Combining Elements	CHEM-2013			
Electronic Structure	CHEM-2012			
Separation Methods	CHEM-2089			
Isotopes and Relative Atomic Mass	CHEM-2070			
Discovery of the Structure of the Atom	CHEM-2009			
Subatomic Particles	CHEM-2011			
Elements in the Periodic Table	CHEM-2007			



















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## 5.2/Bonding, structure, and the properties of matter


### 5.2.1/Chemical bonds, ionic, covalent and metallic

Ionic bonding	CHEM-2060			
Ionic Compounds	CHEM-2062			
Formula of Ionic Compounds	CHEM-2061			
Covalent Bonding	CHEM-2063			
Metallic Bonding	CHEM-2064			
Simple & Giant Covalent Substances	CHEM-2065			

### 5.2.3/Structure and bonding of carbon





Allotropes of Carbon	CHEM-2066		
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### 5.2.2/How bonding and structure are related to the properties of substances
















States of matter	CHEM-2150			
Properties of metals	CHEM-2158			

## 5.3/Quantitative chemistry

### 5.3.1/Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations

Atoms and Formula	CHEM-2015		
Relative Formula Mass and Percentage By Mass	CHEM-2071		

### 5.3.2/Use of amount of substance in relation to masses of pure substances






Reacting Masses	CHEM-2139			
Moles	CHEM-2073			
Empirical Formulae	CHEM-2072			
Concentration and Solutions	CHEM-2074			
Chemical Reactions	CHEM-2016			

## 5.4/Chemical changes

### 5.4.2/Reactions of acids

Acids and Bases	CHEM-2101			
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Neutralisation	CHEM-2103			
Making Salts	CHEM-2104			
Salt	CHEM-2018			
Alkalis	CHEM-2102			
Strong & Weak Acids	CHEM-2124			
Acid metal reactions	CHEM-2145			

### 5.4.3/Electrolysis

Electrolysis	CHEM-2095			
Events at the Electrodes	CHEM-2096			
Uses Of Electrolysis	CHEM-2100			

### 5.4.1/Reactivity of metals

Metals & Ores	CHEM-2024			
Oxides	CHEM-2148			
Traditional Extraction Methods	CHEM-2025			
Displacement	CHEM-2031			
Redox	CHEM-2128			

## 5.5/Energy changes

### 5.5.1/Exothermic and endothermic reactions

Exothermic & Endothermic Reactions	CHEM-2081			
Measuring Energy Changes	CHEM-2083			
Bond breaking & bond making	CHEM-2082			
Calculations Using Bond Energies	CHEM-2137			

## 5.6/The rate and extent of chemical change

### 5.6.1/Rate of reaction

Effect of Concentration and Pressure	CHEM-2078			
Interpreting Rate Graphs	CHEM-2136			
Effect of Temperature & Surface Area	CHEM-2079			
Measuring Reaction Rates	CHEM-2138			
Rates Of Reaction & Collision Theory	CHEM-2077			
Catalysts	CHEM-2080			

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## 5.6.2/Reversible reactions and dynamic equilibrium

Reversible Reactions & Equilibria

CHEM-2084   




Choosing the Reaction Conditions

CHEM-2106   




## 5.7/Organic chemistry

### 5.7.1/Carbon compounds as fuels and feedstock




Crude Oil

CHEM-2032   

Alkanes

CHEM-2033   

Fuels

CHEM-2034   



Complete and Incomplete Combustion

CHEM-2035   

## 5.8/Chemical analysis

### 5.8.1/Purity, formulations and chromatography



Chromatography

CHEM-2086  



## 5.9/Chemistry of the atmosphere

### 5.9.3/Common atmospheric pollutants and their sources

Pollution


CHEM-2037  

Environmental Impact of Burning Hydrocarbons




CHEM-2036  

### 5.9.2/Carbon dioxide and methane as greenhouse gases

Processes that Change the Atmosphere

CHEM-2057   

Climate Change

CHEM-2039   

### 5.9.1/The composition and evolution of the Earth's atmosphere



The Atmosphere: Past and Present

CHEM-2054   



## 5.10/Using resources

### 5.10.1/Using the Earth's resources and obtaining potable water

Testing for water

CHEM-2146  

Purifying Water

CHEM-2120  

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New Ways of Extracting Copper CHEM-2026   

### 5.10.2/Life cycle assessment and recycling

Reducing Pollution CHEM-2038 


Recycling metals CHEM-2160  

## 6.1/Energy

### 6.1.2/Conservation and dissipation of energy


Energy Stores and Transfers PHYS-29-001   


Efficiency PHYS-29-002   

Insulation PHYS-2091   

### 6.1.1/Energy changes in a system, and the ways energy is stored before and after such changes

What is Energy? PHYS-29-005   

Elastic Potential Energy PHYS-29-003   


Gravitational Potential Energy PHYS-2083   

Power PHYS-29-004   

## 6.2/Electricity

### 6.2.4/Energy transfers

Power of an Electrical Device PHYS-2064   


Energy Transfers in the Home PHYS-2074   

Power in the National Grid PHYS-2063   

Transformers in the National Grid PHYS-2056   


### 6.2.1/Current, potential difference and resistance

Circuit symbols PHYS-2030   

Ohm's Law PHYS-2023   

Voltage PHYS-2027   

I & V Graphs PHYS-2026   

Resistors PHYS-2035   

Factors Affecting Resistance PHYS-2022   

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Thermistors	PHYS-2036			
Light-Dependent Resistors	PHYS-2031			
LEDs & Diodes	PHYS-2032			
Bulbs	PHYS-2028			

### 6.2.2/Series and parallel circuits

Series & Parallel Circuits	PHYS-2025			
Resistor Combinations	PHYS-2024			

### 6.2.3/Domestic uses and safety

AC/DC and Rectifiers	PHYS-2057		
Residual Current Devices	PHYS-2065		
Batteries & cells	PHYS-2058		
Plugs	PHYS-2062		
Fuses	PHYS-2061		
Insulation	PHYS-2060		

## 6.3/Particle model of matter

### 6.3.2/Internal energy and energy transfers

Heat & Temperature	PHYS-2090			
Specific Heat Capacity	PHYS-2093			
Specific Latent Heat	PHYS-2095			

### 6.3.3/Particle model and pressure

Kinetic Theory	PHYS-2092	
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### 6.3.1/Changes of state and the particle model

Density	PHYS-2210		
Changes of state	PHYS-2211		
States of matter	PHYS-2214		

## 6.4/Atomic structure

### 6.4.2/Atoms and nuclear radiation

Alpha Particles	PHYS-2143			
Beta Particles	PHYS-2145			

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Ionising & Detecting Radiation	PHYS-2149			
Gamma Rays	PHYS-2147			
Nuclear Reactions	PHYS-2154			
Half-life	PHYS-2148			
Radioactive Decay, Transmutation & Randomness	PHYS-2150			
Dangers of Radioactivity	PHYS-2146			

### 6.4.1/Atoms and isotopes

The Atom	PHYS-2161			
Protons, Neutrons & Quarks	PHYS-2160			
Isotopes and the Periodic Table	PHYS-2158			
History	PHYS-2157			

## 6.5/Forces

### 6.5.3/Forces and elasticity

Elastic Potential Energy	PHYS-2097			
Hooke's Law	PHYS-2099			

### 6.5.4/Forces and motion

Acceleration	PHYS-2104			
Newton's Second Law	PHYS-2106			
Newton's Second Law in Impacts	PHYS-2120			
Stopping Distance	PHYS-2126			
Thinking Distance	PHYS-2128			
Braking Distance	PHYS-2122			
Speed	PHYS-2110			
Distance/Time Graphs	PHYS-2105			

### 6.5.1/Forces and their interactions

Vectors & Scalars	PHYS-2112			
Resultant Forces	PHYS-2109			

### 6.5.5/Momentum

Momentum	PHYS-2117		
Momentum & Collisions	PHYS-2119		

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## 6.5.2/Work done and energy transfer

Work Done	PHYS-2129			
Work Done (Part 2)	PHYS-2087			

## 6.6/Waves

### 6.6.2/Electromagnetic waves

Wireless Signals	PHYS-2167			
Infrared	PHYS-2169			
Radio Waves	PHYS-2172			
Ultraviolet Light	PHYS-2174			
X-rays	PHYS-2176			
Frequency of a Wave	PHYS-2202			
Microwaves	PHYS-2170			
Wavelength of a Wave	PHYS-2207			
Visible Light	PHYS-2175			
Gamma Radiation	PHYS-2168			
The Effect Of Wavelength	PHYS-2171			
Refraction	PHYS-2181			

### 6.6.1/Waves in air, fluids and solids

Wavelength and the Wave Formula	PHYS-2173			
Types of Wave	PHYS-2185			

## 6.7/Magnetism and electromagnetism

### 6.7.2/The motor effect

Electromagnets and Solenoids	PHYS-2049		
Left Hand Rule and Right Hand Rule	PHYS-2052		

### 6.7.1/Permanent and induced magnetism, magnetic forces and fields

Magnetic Fields	PHYS-2053			
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## Biology Practicals

### Biology Practicals

Investigate the Effect of a Range of Concentrations of Salt or Sugar Solutions on the Mass of Plant Tissue	BIOL-40-007		
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Investigate the Relationship Between Organisms and Their Environment using Field-Work Techniques	BIOL-40-004	▶	◆
Investigating the Factors Affecting the Rate of Photosynthesis (Higher)	BIOL-40-019	▶	◆
Rates of Enzyme-Controlled Reactions	BIOL-40-002	▶	◆
Using a Light Microscope to Observe, Draw and Label	BIOL-40-001	▶	◆
Using Qualitative Reagents to Test for a Range of Carbohydrates, Lipids and Proteins	BIOL-40-005	▶	◆
Investigate the Effect of a Factor on Human Reaction Time	BIOL-40-008	▶	◆
Investigating the Factors Affecting the Rate of Photosynthesis	BIOL-40-003	▶	◆

## Chemistry Practicals

### Chemistry Practicals

Investigate How Paper Chromatography Can Be Used to Separate and Tell the Difference Between Coloured Substances	CHEM-20-007	▶	
Investigate the Variables that Affect Temperature Changes in Reacting Solutions	CHEM-20-012	▶	
Investigate What Happens When Aqueous Solutions Are Electrolysed Using Inert Electrodes	CHEM-20-003	▶	
Investigation Into Factors Affecting the Rates of Reactions	CHEM-20-002	▶	
Preparation of a Pure, Dry Sample of Salt from an Insoluble Oxide or Carbonate	CHEM-20-001	▶	
Separation of Liquids by Distillation	CHEM-20-008	▶	◆

## Physics Practicals

### Physics Practicals



Investigating the Densities of Solids and Liquids	PHYS-28-002	▶	◆
An Investigation to Find the Wavelength, Frequency and Speed of Waves in a Solid and a Liquid	PHYS-28-003	▶	◆
Investigating the Current-Voltage (I-V) Characteristics of a Component	PHYS-28-004	▶	◆
An Investigation to Determine the Specific Heat Capacity of One or More Materials	PHYS-28-005	▶	
Investigate the Relationship Between Force, Mass and Acceleration by Varying the Masses Added to Trolleys and the Force Pulling the Trolley	PHYS-28-006	▶	◆



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Investigate How the Amount of Infrared Radiation Emitted or Absorbed by a Surface Depends on the Nature of that Surface  
Investigate the Relationship Between Force and Extension for a Spring  
Investigating Resistance

PHYS-28-010  

PHYS-28-018  

PHYS-28-020  

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