

## KS3 SCIENCE Curriculum Topics 2017-18

KMap	TOPIC	CONTENT OVERVIEW
<b>S1</b>	<b>Scientists &amp; Scientific Ideas</b>	Famous scientists and their contribution, development of scientific ideas
<b>S2</b>	<b>LITERACY</b>	Hazards & Risks, planning, methods, safety, conclusions, evaluations
<b>S3</b>	<b>NUMERACY</b>	Variables, graphs, tables, scaling, units.
<b>S4</b>	<b>PRACTICAL WORK</b>	Drawing & naming equipment, Working safely,
<b>Year 7</b>		
<b>B1</b>	<b>Cells</b>	Cell structure and function, organ systems,
<b>B2</b>	<b>Microbes &amp; Disease</b>	unicellular and multicellular, bacteria, virus, fungi, disease & immunisation
<b>B3</b>	<b>Plants</b>	Reproduction, importance, environmental impact
<b>B4</b>	<b>Reproduction</b>	Sexual reproduction, systems, pregnancy, birth, human development
<b>B5</b>	<b>Human Body</b>	Skeleton, muscles, blood, breathing
<b>B3</b>	<b>Ecology</b>	Sampling techniques, [food chains/webs, populations, pyramids – 8B3]
<b>C1</b>	<b>Acids &amp; Alkalis</b>	Uses and properties, indicators, strength vs. pH, neutralisation
<b>C2</b>	<b>Metals 1</b>	Uses, properties, elements vs. alloys, compounds, conductivity
<b>C3</b>	<b>Mixtures &amp; Separation</b>	Pure/mixture, filtration, evaporation, distillation, chromatography
<b>C4</b>	<b>Particles 1</b>	SLG, change of state, melting/boiling points water cycle, density, B.Motion
<b>P1</b>	<b>Circuits &amp; electricity</b>	Electrical circuits and components, series, parallel, measuring current, safety
<b>P2</b>	<b>Light</b>	reflection, refraction, eye vs. camera, colour/filters, dispersion
<b>P3</b>	<b>Space &amp; The Universe</b>	Earth, planets & stars, solar system models, gravity
<b>Year 8</b>		
<b>B1</b>	<b>Breathing &amp; Respiration</b>	Breathing system, Respiration, aerobic/anaerobic, effect of exercise
<b>B2</b>	<b>Digestion</b>	Digestive system, absorption, enzymes
<b>B3</b>	<b>Diversity</b>	Classification, diversity, food chains/webs, populations, pyramids
<b>B4</b>	<b>Nutrition &amp; Health</b>	Food groups, healthy diet, food tests
<b>C1</b>	<b>Atoms &amp; Elements</b>	Atomic structure, compound, elements, Periodic Table, molecules, bonding,
<b>C2</b>	<b>Chemical Reactions</b>	Thermal decomposition, oxidation, neutralisation, reactions of metals
<b>C3</b>	<b>Particles 2</b>	Diffusion, dissolving & solubility, expansion, pressure, density, Brownian Motion
<b>C4</b>	<b>Earth &amp; Climate</b>	Rock types, rock cycle
<b>P1</b>	<b>Energy 1</b>	Types and transfer of energy, heat transfer,
<b>P2</b>	<b>Energy 2</b>	Energy Resources & Fuels, Renewable
<b>P5</b>	<b>Sound</b>	Generation, transfer, waves, pitch/volume
<b>P3</b>	<b>Forces</b>	Pairs, vectors, types, resultant
<b>P4</b>	<b>Magnets &amp; Electromagnets</b>	Fields, effects, Earth, increasing strength, uses
<b>Year 9</b>		
<b>B10</b>	<b>Photosynthesis</b>	Respiration & photosynthesis, factors affecting rate, adaptation
<b>B11</b>	<b>Inheritance</b>	Genetics – genes/chromosomes/DNA, inherited diseases, genetic engineering
<b>B12</b>	<b>GCSE Cells</b>	Function & organisation, microscopy, cell division
<b>C10</b>	<b>Reactivity of Metals</b>	Oxidation & rusting, water, acid, displacement, reactivity series, extraction
<b>C11</b>	<b>New Materials</b>	Extraction of metals, recycling, ceramics, polymers.
<b>C12</b>	<b>GCSE Organic Chem</b>	Hydrocarbons, crude oil, fractional distillation, alkanes, alkenes, polymers
<b>P10</b>	<b>Electricity</b>	Static, Series, parallel, current, voltage and resistance, $V=IR$ , safety, electromagnets
<b>P11</b>	<b>Pressure &amp; Motion</b>	Calculation and factors affecting pressure & motion, applications
<b>P12</b>	<b>GCSE Energy</b>	Energy Stores, transfers, efficiency, power, work

## KS4 SCIENCE Curriculum Topics 2017-18

KMap	TOPIC	CONTENT OVERVIEW
S1	Scientists & Scientific Ideas	Famous scientists and their contribution, development of scientific ideas
S2	LITERACY	Hazards & Risks, planning, methods, safety, conclusions, evaluations
S3	NUMERACY	Variables, graphs, tables, scaling, units.
S4	PRACTICAL WORK	Drawing & naming equipment, Working safely,
<b>Year 10</b>		
B	Cell Biology	Structure, organisation, microscopy, cell division, respiration & exercise, enzymes
B	Transport & Photosynthesis	Cell transport, osmosis, plants & humans (digestion, blood & circulation), photosynthesis
B	Disease & development of Medicines	Non/communicable diseases (health & risk factors), pathogens, fighting disease (plants & human), development of drugs
C	Atomic Structure & Periodic Table	Atomic structure, Periodic Table, Electronic structure, Groups 1,7,0
C	Structure & Bonding	Chemical bonds, ionic, covalent structures, states of matter, metals, alloys, carbon allotropes, nano particles
C	Quantitative Chem	Mass, equations, moles, solutions, titrations* , yield
C	Chemical & Energy Changes	Reactivity and extraction of metals, pH & salts, neutralisation, acid strength, electrolysis, energy changes in reactions, energy level diagrams,
P	Electricity	Circuits, current, voltage, resistance, p.d., series/parallel, Domestic uses, power & safety, energy transfers, static electricity
P	Particle Model of Matter	Particle Model, pressure, internal energy, change of state
P	Energy	Energy stores, transfers, conservation & dissipation, national and global resources, specific heat capacity
<b>Year 11</b>		
B	Coordination & Control	Homeostasis, nervous system, endocrine system, hormones in reproduction, infertility and contraception, plant hormones*
B	Inheritance, Variation & Evolution	Sexual/asexual reproduction, DNA, genes, inheritance, genetic disorders, variation & evolution, Darwin, Selective breeding, genetic engineering, stem cells, classification
B	Ecosystems	Organisms & ecosystems, feeding relationships, environmental change, biodiversity, recycling, Food production*, biotechnology*
C	Rate and Extent of Chemical Reactions	Rates of reaction, collision theory, activation energy, catalysis, reversible reactions
C	Organic Chemistry	Crude oil, hydrocarbons, alkanes, combustion, cracking
C	Chemical Analysis	Purity, formulations, chromatography, identification of gases, cations, anions
C	Earth's Atmosphere & Resources	Evolution of the atmosphere, Global climate change, pollution, potable water, extracting metals, glass ceramics & composites, life cycle assessment, recycling, preventing corrosion, The Haber Process*
P	Forces	Forces, elasticity, speed & velocity, graphs, Newton's Laws, Braking, momentum, resultant forces & vectors
P	Waves	Transverse, longitudinal, reflection, refraction, detection, electromagnetic spectrum, lenses, black body radiation
P	Magnetism & electromagnetism	Permanent & induced magnetism, fields, electromagnets, motor effect
P	Atomic structure & Radioactivity	Atoms & Isotopes, radioactive decay, nuclear radiation, equations, half-life, uses
P	Space Physics*	Stars & the solar system, Orbital motion, red shift & Big Bang Theory

\*Triple Science only