Year 7 Science Map

Autumn 1 *7 Weeks*	*Autumn 2* *7 Weeks*	*Spring 1* *6 Wks*	*Spring 2* *5 Wks*	*Summer 1* *6 Wks*	*Summer 2* *6 Wks*
CELLS -BIO Body organs and microscopes Animal cells Plant cells Specialised cells Single celled organisms **Practical - Microscopes** **MOVEMENT -BIO** Role of a skeleton Joints Muscles **FORCES -PHY** What do forces do Balanced and unbalanced forces Newtons second law Hooke's Law **Practical – Hooke's law** Gravity Mass and weight Gravity on other planets	**PARTICLE MODEL-CHEM** The particle model Compressibility Changing state Cooling curves Expansion and contraction Diffusion **Practical – potassium permanganate** Gas pressure Density ***HUMAN REPRODUCTION -BIO*** Fertilisation Male adaptations Female adaptations Foetal development Birth Mid-Year Assessment	**CHEMICAL SYMBOLS AND EQUATIONS -CHEM** Elements and compounds The periodic table Atomic structure Chemical equations **CHEMICAL REACTIONS-CHEM** Chemical reactions What happens to mass Gas tests Types of reactions Combustion **Practical – test for gases** Thermal decomposition **ACIDS AND BASES-CHEM** Acids and bases Indicators Range of acids and bases **Practical – using indicators** Adding acid to a base **Practical - Making copper sulphate crystals** Neutralisation Adding a metal to an acid	***SOUND WAVES*** Waves Frequency and amplitude The ear and hearing problems Echos ***LIGHT WAVES*** The EM spectrum Transmission and absorption Reflecting light **Practical – reflection** Refracting light **Practical – refraction** Colours of light Lenses How the eyes work **Practical eye dissection** **ECOLOGY -BIO** Classification Adaptations Food chains and food webs Pyramid of number and biomass Interdependence BRITISH SCIENCE WEEK POSTER PROJECT	**PLANT REPRODUCTION -BIO** Flower structure Pollination and fertilisation Seed dispersal **Practical – flower dissection** **EARTHS STRUCTURE-CHEM** Structure of the earth Sedimentary rock Igneous rock metamorphic rocks Rock cycle **End of year Assessment**	**UNIVERSE -PHY** Space and the universe Solar system Day, night and seasons Phases of the moon Solar and lunar eclipse **SUBSTANCES -CHEM** Atoms, elements, mixtures and compounds Making solutions **Practical – extracting salt from sand salt solution** **Practical – chromatography** Scientific inquiry skills – planning an experiment

Year 8 Science Map

Autumn 1 *7 Wks*	*Autumn 2* *7 Wks*	*Spring 1* *6 Wks*	*Spring 2* *5 WKs*	*Summer 1* *6 Wks*	*Summer 2* *6 Wks*
CHEMICAL SYMBOLS AND EQUATIONS Elements and compounds The periodic table Atomic structure Chemical equations Balancing equations Conservation of mass **METALS AND NON-METALS** Properties of metals Transition metals vs alkali metals Reacting metals with oxygen **Practical – magnesium burning with oxygen** Reacting metals with water and acid Reacting metal carbonates with acid Rusting ***DIGESTION*** Balanced diet **Practical – food tests** Digestive system Enzymes Temperature and enzymes The model gut	**ENERGY TRANSFER** Energy stores Shifting energy Conservation of energy Bouncing balls **ENERGY RESOURCES** Fossil fuels Power stations Renewable energy Paying for energy Mid-year Assessment	**RESPIRATION** Structure of lungs **Practical – making a lungs model** **Practical – lung dissection** Breathing Gas exchange Smoking and asthma Aerobic respiration Anaerobic respiration Fermentation **PHOTOSYNTHESIS** What do plants need to grow Roots How plants are adapted Investigating rate of photosynthesis **SPEED** Forces recap Calculating speed Distance time graphs Relative motion **Practical - Investigating speed**	**ELECTRICAL CIRCUITS** How to draw circuits What is potential difference What is current Current and PD in series circuits Current and PD in parallel circuits Resistance **Practical – component enquiry** Static electricity **EVOLUTION** Adaptations Natural selection Evolution Evidence for evolution Extinction Maintaining biodiversity BRITISH SCIENCE WEEK POSTER PROJECT	PRESSURE What is pressure Pressure in fluids Using pressure Floating and sinking **Practical – exploding can** **CLIMATE** The carbon cycle Global warming Human impacts Reducing carbon emissions END OF YEAR EXAMS	MAGNETISM Fields and effects **Practical – iron filings and magnets** Magnetic field lines Electromagnets **Practical - Electromagnet investigation** Using electromagnets EARTHS RESOURCES Materials and their uses Displacement reactions Extracting metals Recycling

Year 9 Science Curriculum Map

Autumn term 1 *7 Wks*	*Autumn term 2* *7 Weeks*	*Spring term 1* *6 Weeks*	*Spring term 2* *5 Weeks*	*Summer term 1* *6 Weeks*	*Summer term 2* *6 weeks*
B1 Cell Structure and Transport Microscopes and magnification Animal and plant cells **Required practical – microscopes** Eukaryotic and prokaryotic cells Specialised animal and plant cells Diffusion Osmosis **Required practical – osmosis** Active transport Exchanging materials **B2 Cell Division** Mitosis and cell cycle Specialisation and differentiation Stem cells	**C1 Atomic Structure** Atoms, elements and compounds Chemical equations Separating mixtures Fractional distillation Chromatography **Practical – chromatography** History of the atom Structure of the atom Electronic structure Ions and isotopes MID-YEAR ASSESSMENT	**C2 The Periodic Table** Development of the periodic table Metals, non-metals and noble gases Alkali metals Halogens Transition metals **P1 Energy** Principles Conservation of energy Energy and work Gravitational potential energy	**P1 Energy** Kinetic energy Elastic energy Efficiency Energy and power Calculation practice **B3 Organisation and the Digestive System** Tissues and organs Human digestive system **Required practical – food tests** Catalysts and enzymes Factors affecting enzyme activity **Required practical – enzymes** BRITISH SCIENCE WEEK POSTER PROJECT	**C3 Structure and Bonding** States of matter Atoms into ions Ionic bonding Giant ionic structures Covalent bonding Simple covalent structures Giant covalent structures Fullerenes and graphene Bonding in metals Giant metallic structures Nanoscience End of year assessments	**P2 Energy Transfer by Heating** Thermal energy transfers Infrared radiation Specific heat capacity **Required practical – specific heat** capacity Thermal insulation **P3 Energy Resources** Energy demands Renewable energy resources Energy issues

AQA BIOLOGY GCSE Curriculum Map

YEAR 10 BIOLOGY

Autumn term 1 7 weeks 14 lessons	Autumn term 2 7 weeks 10 lessons	Spring term 1 6 weeks 12 lessons	Spring term 2 5 weeks 10 lessons	Summer term 1 6 weeks 8 lessons	Summer term 2 6 weeks 8 lessons
B4 - Organising animals and plants The blood Blood vessels The heart **Practical – heart dissection** Helping the heart Breathing and gas exchange Tissues and organs in plants Transport systems in plants Evaporation and transpiration Factors affecting transpiration **B5 – Communicable diseases** Health and disease Pathogens and disease Growing bacteria in the lab	**B5 – Communicable diseases** Preventing bacterial growth Preventing infections Viral and bacterial diseases Diseases caused by fungi and protists Human defence responses Plant diseases and defences **B6 - Preventing and treating disease** Vaccination Antibiotics and painkillers Discovering and developing drugs Making monoclonal antibodies **MID-YEAR EXAMS**	**B7 - Non-communicable diseases** Non-communicable diseases Cancer Smoking and the risk of disease Diet, exercise and disease Alcohol and other carcinogens **B8 – Photosynthesis** Photosynthesis Rate of photosynthesis **Required practical - Investigating rate of photosynthesis** How plants use glucose Making the most of photosynthesis	**B9 – Respiration** Aerobic respiration Response to exercise Anaerobic respiration Metabolism and the liver **B10 – Human Nervous system** Homeostasis Nervous system **Required practical – reaction time** Reflex action The brain The eye Eye problems .	**B11 – Hormones** Principles Blood glucose Diabetes Negative feedback Reproduction and menstrual cycle Contraception Infertility treatments Plant hormones **End of Year Exams**	**B12 – Homeostasis in action** Controlling body temperature Removing waste products The human kidney Dialysis Kidney transplant **B13 – Reproduction** Types of reproduction The best of both worlds DNA and the genome DNA structure and protein synthesis

Year 11 Biology

Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2

7 weeks	7 weeks	6 weeks	5 weeks	6 weeks	6 weeks
B13 – Reproduction Gene expression and mutation Inheritance in action More about genetics Inherited disorders Screening for genetic disorders **B14 – Variation and evolution** Variation Evolution by natural selection Selective breeding Genetic engineering Genetic engineering and cloning **B15 – Genetics and evolution** Development of genetic theory Evidence for evolution	**B15 – Genetics and evolution** Antibiotic resistant bacteria Classification **B16 – Adaptations and competition** The importance of communities, abiotic and biotic factors **Required practical – quadrats** Competition in animals and plants Adaptations in animals and plants **B17 – Ecosystems** Feeding relationships Materials cycling Carbon cycle **Required practical – rates of decomposition** MID-YEAR EXAMS	**B18- Biodiversity** Human effect on ecosystems Impact of change Maintaining biodiversity Trophic levels and biomass transfer Food security and production Sustainable food production	***REVISION***	***GCSE EXAMINATIONS***	***GCSE EXAMINATIONS***

AQA Chemistry GCSE Curriculum Map

Year 10 Chemistry

Autumn term 1 7 weeks	Autumn term 2 7 weeks	Spring term 1 6 weeks	Spring term 2 5 weeks	Summer term 1 6 weeks	Summer term 2 6 weeks
C4 Quantitative Chemistry Relative atomic mass Equations and calculations Mass to balanced equations Yield Atom economy Concentrations Titrations Volumes of gases	**C5 Chemical Changes** The reactivity series Displacement reactions Extracting metals Salts from metals Salts from bases Salts from alkalis and carbonates PH Mid-Year Exams	**C6 Electrolysis** Introduction to electrolysis Changes at the electrodes The extraction of aluminium Electrolysis of aqueous solutions **Required practical – electrolysis** **C7 Energy Changes** Exothermic and endothermic reactions **Required practical – temperature changes** Reaction profiles Bond energy calculations	**C7 Energy Changes** Chemical cells and batteries Fuel cells **C8 Rates and Equilibrium** Rates of reaction Investigating effect of surface area, temperature, concentration and catalysts Reversible reactions and equilibrium Altering conditions	**C9 Crude Oil and Fuels** Hydrocarbons Fractional distillation Bruning fuels Cracking **C10 – Organic reactions** Reactions of the alkenes Structures of alcohols, carboxylic acids and esters **End of Year Examinations**	**C10 – Organic reactions** Reactions and uses of alcohols Carboxylic acids and esters **C11 – Polymers** Addition polymerisation Condensation polymerisation Natural polymers DNA

Year 11 Chemistry

Autumn term 1 7 weeks	Autumn term 2 7 weeks	Spring term 1 6 weeks	Spring term 2 5 weeks	Summer term 1 6 weeks	Summer term 2 6 weeks
C12 - Chemical Analysis Pure and impure substances **Require practical – chromatography** Gas tests	**C14 - The Earth's Resources** Finite and renewable resources Making water safe to drink Treating wastewater	**C15 - Using resources** Properties of polymers Glass, ceramics and composites Haber process	**Revision**	**Revision and GCSE Examinations**	**GCSE Examinations**

Tests for positive ions Tests for negative ions **<u>Required practical – unknown salt</u>**s Spectroscopy **C13 - The Earth's Atmosphere** The earth's atmosphere Greenhouse gases and climate change Atmospheric pollution	Extracting metals Life cycle assessment Reduce reuse and recycle **C15 - Using resources** Rusting Useful alloys Mid-year Exams	Fertilisers			

AQA Physics GCSE Curriculum Map

Year 10 Physics					
Autumn term 1 7 weeks	**Autumn term 2 7 weeks**	**Spring term 1 6 weeks**	**Spring term 2 5 weeks**	**Summer term 1 6 weeks**	**Summer term 2 6 weeks**
P4 Electrical circuits Electrical charges and fields Current and charge Potential difference and resistance **Required practical – resistance of a wire** **Required practical – component characteristics** Series circuits Parallel circuits **P5 Mains electricity** Alternating current and transformers Cables and plugs Power and PD Current and energy transfer Appliances and efficiency	**P6 – Molecules and matter** Density States of matter Changes of state Internal energy Specific latent heat Gass pressure and temperature Gas pressure, temperature and volume **Mid-year assessment**	**P7 - Radioactivity** History of the atom Atoms and isotopes Types of radiation Uses of radiation Changes in the nucleus Activity and half life Nuclear radiation in medicine Nuclear fission Nuclear fusion Nuclear issues **P8 - forces** Vectors and scalars Forces between objects Resultant forces Moments	**P8 - Forces** Levers and gears Centre of mass Parallelogram of forces Resolution of forces **P9 – Motion** Speed and distance time graphs Velocity and acceleration Velocity time graphs Analysing motion graphs	**P10 – Acceleration** Forces and acceleration **Required practical – forces and acceleration** Weight and terminal velocity Forces and braking Momentum Using conservation of momentum Impact forces and safety **Required practical – forces and elasticity**	**P11 – forces and pressure** Pressure and surfaces Pressure in a liquid Atmospheric pressure Upthrust and floatation **P12 – wave properties** Properties of waves **Required practical – waves** Reflection and refraction Sound waves Uses of ultrasound Seismic waves
Year 11 Physics					

Autumn term 1 7 weeks	Autumn term 2 7 weeks	Spring term 1 6 weeks	Spring term 2 5 weeks	Summer term 1	Summer term 2
P13 – EM Waves The EM spectrum **<u>Required practical- Infrared radiation</u>** Communications Ionising radiation **P14 – Light** Reflection Refraction Light and colour Lenses **P15 – Electromagnetism** Magnetic fields Magnetic fields of electric currents Electromagnets in devices The motor effect	**P15 – Electromagnetism** The generator effect AC generators Transformers Transformers calculations **P16 – Space** Lifecycle of a star and solar system Planets and orbits The expanding universe The beginning and future of the universe	**Revision**	**Revision**	**Revision and GCSE Examinations**	**GCSE Examinations**