**Single Science - Curriculum Map Year 10**

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| Y10 | Half  term 1 | Half  term 2 | Half  term 3 | Half  term 4 | Half  term 5 | Half  term 6 |
| Topics | **Biology:**  Cell division & stem cells (B1b),  Organisation & the digestive system (B2a),  Organising animals & plants (B2b).  **Chemistry:**  Atomic structure review (C1a),  Periodic table (C1b),  Bonding & structure (C2).  **Physics:**  Conservation & dissipation of energy (P1a),  Energy transfers by heating (P1b),  Energy resources (P1c). | **Biology:**  Communicable diseases (B3a),  Preventing & treating disease (B3b).  **Chemistry:**  Quantitative chemistry (C3),  Chemical changes (C4a).  **Physics:**  Electric circuits (P2a),  Electricity & the home (P2b),  Molecules & matter (P3). | **Biology:**  Non-communicable diseases (B3c).  **Chemistry:**  Electrolysis (C4b),  Energy changes (C5).  **Physics:**  Radioactivity (P4). | **Biology:**  Photosynthesis (B4a),  Respiration (B4b).  **Chemistry:**  Rate & extent of chemical change (C6),  Crude oil & fuels (C7a).  **Physics:**  Forces in balance (P5a),  Motion graphs (P5b). | **Biology:**  The human nervous system (B5a),  Hormonal coordination (B5b).  **Chemistry:**  Organic reactions (C7b),  Polymers (C7c).  **Physics:**  Forces & motion (P5c),  Pressure (P5d). | **Biology:**  Homeostasis in action (B5c).  **Chemistry:**  Chemical analysis (C8).  **Physics:**  Revision of all topics. |
| Key terms | **Biology:**  Cell division, cloning, stem cells.  Tissues & organs, human digestive system, food groups, enzymes, factors affecting enzymes, digestive system adaptations & efficiency.  Blood, blood vessels, heart, cardiac treatments, respiratory system, plant tissues & organs, plant transport systems, evaporation & transpiration, factors affecting transpiration.  **Chemistry:**  Atoms, chemical reactions, separating mixtures, distillation, chromatography, history of the atom, structure of the atom, electronic structures, ions, atoms & isotopes.  Development of the periodic table, electronic structure & the periodic table, alkali metals, halogens, explaining trends, transition elements.  **Physics:**  Changes in energy stores, conservation of energy, energy & work, gravitational potential energy stores, kinetic & elastic energy stores, energy dissipation, energy & efficiency, electrical appliances, energy & power.  Conduction, specific heat capacity, insulation.  Energy demands, wind & hydroelectric, geothermal & solar, big energy issues. | **Biology:**  Microorganisms, pathogens, bacteria growth, preventing infections, viral diseases, bacterial diseases, fungal & protist diseases, human defence responses, plant diseases, plant defence responses.  Vaccination, antibiotics & painkillers, discovering & developing drugs, making & uses of monoclonal antibodies.  **Chemistry:**  Relative masses & moles, balancing equations, limiting reactants & empirical formula, yield, atom economy, expressing concentrations, titrations, volumes of gas.  The reactivity series, displacement reactions, extracting metals, salts from metals, insoluble bases, & carbonates, neutralisation, strong & weak acids.  **Physics:**  Electrical charges & fields, current & charge, potential difference & resistance, component characteristics, series & parallel circuits.  Alternating & direct current, cables & plugs, electrical power, current & energy transfer, appliances & efficiency.  Density, states of matter, changes of state, internal energy, specific latent heat, gas pressure & temperature, pressure & volume. | **Biology:**  Non-communicable diseases, cancer, smoking, diet & exercise, alcohol.  **Chemistry:**  Electrolysis, changes at the electrodes, extraction of aluminium, electrolysis of aqueous solutions.  Exothermic & endothermic reactions, energy transfers from reactions, reaction profiles, bond energy calculations, cells & batteries, fuel cells.  **Physics:**  Atoms & radiation, discovery of the nucleus, changes in the nucleus, alpha, beta & gamma radiation, activity & half-life, nuclear medicine, nuclear fission, nuclear fusion, nuclear issues. | **Biology:**  Photosynthesis, rate of photosynthesis, limiting factors of photosynthesis, how plants use glucose.  Aerobic & anaerobic respiration, metabolism & the liver.  **Chemistry:**  Rates of reaction, collision theory & surface area, effect of temperature, effect of concentration, effect of catalysts, reversible reactions, energy & reversible reactions, dynamic equilibrium, altering conditions.  Hydrocarbons, fractional distillation, burning hydrocarbons (combustion), cracking.  **Physics:**  Vectors & scalars, forces between objects, resultant forces, moments, centre of mass, resolution of forces.  Speed, distance time graphs, velocity & acceleration, velocity time graphs. | **Biology:**  Homeostasis, human nervous system, reflexes, the brain, the eye, common problems of the eye.  Hormones, controlling of blood glucose levels, diabetes, human reproduction, menstrual cycle, contraception, infertility treatments, plant hormones & responses, using plant hormones.  **Chemistry:**  Reactions of alkenes, structures of alcohols, carboxylic acids & esters, reactions & uses of alcohols, carboxylic acids & esters.  Addition polymerisation, condensation polymerisation, natural polymers, DNA.  **Physics:**  Force & acceleration, weight & terminal acceleration, forces & braking, momentum, conservation of momentum, impact forces, safety, forces & elasticity. | **Biology:**  Controlling body temperature, removing waste products, human kidney, dialysis, kidney transplants.  **Chemistry:**  Pure substances & mixtures, analysing chromatograms, testing for gases, tests for positive & negative ions, instrumental analysis. |
| Assessment | N/A | Assessment 1 – written paper on recent topics followed by classroom DIRT. | N/A | Assessment 2 – written paper on recent topics followed by classroom DIRT. | N/A | Assessment 3 –  written paper on recent topics followed by classroom DIRT. |
| Embedding learning | **Biology:**  B1a,  B1a,  B1b,  B1b,  KS3 recap,  B2a,  B1a & b.  **Chemistry:**  C1a,  C1a,  KS3 recap,  C1b,  C1b,  C2,  C1a & b.  **Physics:**  KS3 recap,  KS3 recap,  KS3 recap,  P1a,  P1a,  P1b,  P1a & b. | **Biology:**  Mixed B1,  B2a,  B2b,  B2b,  Mixed B2,  B3a,  B3a.  **Chemistry:**  Mixed C1,  C2,  C3,  C3,  KS3 recap,  KS3 recap,  Mixed C2 & C3.  **Physics:**  P1b,  KS3 recap,  P1c,  P2a,  P2a,  KS3 recap,  P2b. | **Biology:**  B3b,  B3b,  B3a & b,  B3c,  Mixed B3,  KS3 recap.  **Chemistry:**  C4a,  C4a,  C4b,  C4b,  Mixed C4,  C5.  **Physics:**  P2b,  Mixed P2,  P3,  P3,  P4,  P4. | **Biology:**  Prac & math skills,  B4a,  KS3 recap,  Assessment based,  Assessment based,  B4a.  **Chemistry:**  C5,  Prac & math skills,  Mixed paper 1,  Assessment based,  Assessment based,  C6.  **Physics:**  KS3 recap,  KS3 recap,  P5a,  Assessment based,  Assessment based,  P5a. | **Biology:**  B4b,  B4b,  Mixed B4,  B5a,  B5a,  Assessment based.  **Chemistry:**  C6,  C7a,  C7a,  C7b,  C7b, Assessment based.  **Physics:**  P5b,  P5b,  KS3 recap,  P5c,  P5c,  Assessment based. | **Biology:**  Assessment based,  B5b,  B5b,  B5c,  B5c,  Mixed B5.  **Chemistry:**  Assessment based,  C7c,  C7c,  Mixed C7,  C8,  C8.  **Physics:**  Assessment based,  P5d,  P5d,  Mixed P5,  Prac & maths skills,  Mixed paper 1. |
| Awareness days | Recycle week 20/9, National Poetry Day 1/10,  Black History Month. | World Kindness Day 13/11,  Pride in STEM Day 18/11,  No pen day. | Holocaust Memorial Day 27/1,  Mental Health Awareness week 7/2. | World Book Day 23/4, International Women’s Day 8/3, British Science week 11/3. |  | World Environment Day 5/6. |