Birchwood High School — Science (Chemistry/Biology/Physics) Curriculum Map 2020/2021

your dreams, your future, our challenge

	Autumn Term		Spring Term		Summer Term	
7	**Topic: B1 Cells** Observing plant and animal cells Specialised cells and the movement of substances Unicellular organisms **Topic: P1 Forces** Squashing and stretching Drag and friction Balanced and unbalanced forces	**Topic: C1 Particles** Particles and states of matter Changes of state Diffusion and gas pressure **Topic: C2 Elements, atoms and compounds** Elements, atoms and compound Chemical formula	**Topic: P2 Sound** Sound and energy transfer (waves) Loudness, pitch, echoes & ultrasound Detecting sound **Topic: B2 Body systems** Levels of organisation Breathing and gas exchange Human anatomy (muscles and skeleton)	**Topic: C3 Reactions** Chemical reactions and their word equations Combustion, decomposition and conservation of mass Endothermic and exothermic reactions **Topic: C4 Acids and alkalis** Acids and alkalis Indicators, pH and neutralisation Making salt	**Topic: B3 Reproduction** Adolescence, reproduction, fertilisation & implantation The menstrual cycle and development of a fetus Plant reproduction **Topic: P3 Light** Light, reflection, refraction & colour The eye and the camera	**Topic: P4 Space** The Earth and the Solar System. The night sky and the Moon. **Constant topic throughout the year:** Working scientifically Asking scientific question Planning investigations Recording, analysing and evaluating data
8	**Topic: B1 Health and lifestyle** Testing food for nutrients Healthy and unhealthy diets Bacteria and enzymes in digestion Drugs ,alcohol and smoking **Topic: P1 Electricity and magnetism** Positive and negative charges Electrical circuits and current , potential difference and resistance Series and parallel circuits Magnets, magnetic fields and creating electromagnets	**Topic: C1 periodic table** Differences between metals and non-metals Differences between groups and periods Elements of groups 1,7and 0 **Topic: C2 Separation Techniques** Solubility within mixtures and solutions Techniques such as filtration, evaporation, distillation and chromatography.	**Topic: B2 Ecosystems processes** Photosynthesis, Leaves and plant minerals Chemosynthesis in bacteria Aerobic and anaerobic respiration in humans and microorganisms Food chains and webs in ecosystems with disruptions **Topic: P2 Energy** Food and fuels Differences between energy and temperature Transferring energy using particles and radiation Power and work from energy	**Topic: C3 Metals and acids** Reactions of metals with acid, oxygen and water Displacement reactions between metals Extracting metals using the reactivity series Properties of ceramics, polymers and composites **Topic: C4 The Earth** The earth and its atmosphere Properties of sedimentary, igneous and metamorphic rocks with their cycles Carbon cycle and climate change Advantages and disadvantages of recycling	**Topic: B3 Adaptations and inheritance** Competition and adaptation within animals Adaptations and variation in animals Continuous and discontinuous graphing and results Inheritance and natural selection of animals Extinctions and how they occur **Topic: P3 Motion and pressure** Speed calculations Understanding motion graphs Pressure with solids, liquids and gases Moments of forces	**Constant topic throughout the year:** Working scientifically Asking scientific question Planning investigations Recording, analysing and evaluating data **End of key stage assessment**
9	**Topic: B1 Cells** Using microscopes Animal and plant cells Diffusion Osmosis **Topic: P1 Energy** Energy stores Energy and Work Gravitational Potential Energy Kinetic energy Energy and Power	**Topic: B2 Cell Division** Cell Division Growth and differentiation Stem cells **Topic: B3 (Organisation and the) Digestive System** Tissues and organs Chemistry of food Human digestive system Catalysts and enzymes	**Topic: B4 Organising animals and Plants** Heart and blood vessels Breathing and gas exchange Organ systems in plants Exchange of materials using transport systems in plants **Topic: C3 Structure and Bonding** Ionic Bonding Covalent bonding Ionic and covalent compounds Fullerenes and graphite	**Topic: B5 Communicable Disease** Health and disease Pathogens Bacterial growth Viral diseases Bacterial diseases Human defence responses **Topic: C4 Chemical calculations** Relative formula mass and moles Mass calculations and balanced equations Titration and titration calculations(T)	**Topic: B6 Preventing and treating disease** Vaccination Antibiotics and painkillers Developing drugs **Topic: C5 Chemical Changes** Reactivity series Displacement reactions Extracting metals	**Topic: B7 Non communicable diseases** Cancer Smoking and the risk of disease Diet, exercise and disease Alcohol and other carcinogens **Topic: C5 Chemical changes** Salts from metals Making salts Acids/pH scale

	<u>Topic:</u> C1 Atomic Structure Chemical equations Separating mixtures Structure of the atom Ions and isotopes	**<u>Topic:</u> C2 The Periodic Table** History of the periodic table Electronic structure Group 1 - Alkali Metals Group 7 – Halogens **<u>Topic:</u> P2 Energy transfer** Conduction, convection and infrared radiation Specific heat capacity	**<u>Topic:</u> P3 Energy resources** Energy from Renewable resources Energy issues	Volumes of gases (T) **<u>Topic:</u> P4 Electricity** Electric current, potential difference and resistance Series and parallel circuits	**<u>Topic:</u> P5 Electricity** Alternating current Electrical appliances and power Energy transfer and currents	**<u>Topic:</u> P6 Molecules and matter** Density States of matter Changing state Specific latent heat Internal energy