The Garibaldi School – Composite Overview

Subject: Science Date of Review_____

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Year 7	**Organs and Systems** Living and Non-Living Digestive System Respiratory System Circulatory System Skeletal and Muscles Reproductive System Nervous System	**Changes of State** Solids Liquids Gases Particle Theory Expansion and Contraction Brownian Motion	**Acids and Alkalis** Hazard Symbols Indicators Acids Alkalis and Bases pH Scale	**Sound** Longitudinal Waves Frequency Amplitude Wavelength Vacuum The Ear Sonar/Ultrasound	**Health and Wellbeing** Food Groups Carbohydrates Proteins Fats and Oils Vitamins and Minerals Water Fibre Food Labels	**Reproduction** Gametes Sexual Intercourse External Fertilisation Internal Fertilisation Periods Pregnancy Developing Foetus Giving Birth
	Atoms, Elements and Compounds Atoms Elements Properties of Metals Properties of Non-Metals Alloys Compounds Mixtures	**Chemical and Physical Changes** Melting Boiling Evaporation Condensation Freezing Fire Safety Observing Chemical Reactions Acids and Metals	**Forces** Contact and Non-Contact Forces Balanced and Unbalanced Forces Free Body Diagrams Qualitative Notions of Momentum Measuring Force Up thrust	**Electrical Circuits** Electrical Safety Circuit Components Completing the Circuit Current and Ammeters Voltage and Voltmeters Resistance	**Energy Transfers** Energy Stores Energy Transfers Wasted Energy Sankey Diagrams Dynamos Fuels Using the Sun's Energy	**Magnets** Magnetic Materials Permanent Magnets Poles Fields Compasses The Earth as a Magnet
Year 8	**Reactivity of Metals** Suitability of Metals Extracting Metals from the Earth Flame Testing Metals Features of Carbon Reactivity Series Conservation of Mass Thermal Decomposition Displacement Reactions Combustion	**Exploring the Periodic Table** How and Why Different Elements were Formed Patterns in Atomic Number and Mass Period and Groups Metals and Non-Metals Melting and Boiling Points of Elements Patterns in Reactivity	**Energy in Food** Uses of Energy Food as Energy Energy Stores in Animals Energy Stores in Plants	**Sustainability** The Earth's Natural Resources Human Population Oil Extraction Deforestation Overfishing Photochemical Smog Mass Extinction Recycling	**Dynamic Atmosphere** Composition of the Atmosphere The Ozone Layer Aurora Borealis Carbon Footprint	**Separation** Pure Substances Solvents, solutes and solutions Dissolving Soluble and Insoluble Filtration Evaporation Distillation Impure Substances Identifying Pure Substances
	Plants Importance of Plants to Humans Leaves Stem Flower Roots Reproduction in Plants Seed Dispersal Selective Breeding in Plants Dry Conditions Crop Growth Greenhouse Crops	**Cells** Single Celled Organisms Animal Cells Plant Cells Magnification	**Variation** Importance of Variation Discrete Variation Continuous Variation Environmental Variation Genetic Variation Variation Between Siblings Twins Breeding Characteristics in Animals Variation allows Competition	**Space Exploration** Mass and Weight Speed Relative Motion The effects of the Earth's Motion Gravitational Fields The Planets Stars and Galaxies	**Interdependence** Habitats Physical Environmental Factors Animal Adaptations Plant Adaptations Predator Prey Graphs Food Chains Food Webs Pyramids of Numbers	**Light** Transverse Waves Absorption Reflection Refraction Colour Spectrum Filtering Light Transparency, Translucency and Opacity Cornea and Lens in the Eye

Year 9	**Cell Biology** Cell Specialisation Cell Differentiation Microscopy Equation *Culturing Microorganisms* Mitosis Stem Cells Diffusion Osmosis Active transport	**Energy Part One** Energy stores and systems Changes in energy – Kinetic, Elastic and GPE SHC Power Energy Transfers Efficiency ***Big Idea 4***	**Organisation Part One** Organisation – Cells, Tissues, Organs Organ Systems The Human Digestive System – enzymes Heart and Blood Vessels Blood Coronary Heart Disease Health and Disease Effects of Lifestyle	**Particle Model of Matter** Density Internal Energy SHC and SLH Particle motion in gases *Pressure in gases*	**Organisation Part Two** Plant Tissues The Leaf Xylem and Phloem Transpiration Stomata	**Electricity Part Two** Direct and Alternating Potential Difference Mains Electricity Electrical Power Energy Transfers in Appliances The National Gird *Static Charge* *Electrical Fields*
	Atomic Structure and the Periodic Table Explain separation techniques. Development of the model of the atom. Electronic structure Development of the Periodic Table – Group 1,7 and 0 Transition metals.	**Electricity Part One** Advanced circuit symbols Charge and current VIR – graphs Series and parallel circuits	**Bonding, Structure and the Properties of Matter** Forming Ions Ionic Bonding diagrams Ionic Compounds Covalent Bonding Metallic Bonding Bonding Properties Structure and bonding of carbon compounds *Nanoparticle properties*	**Bioenergetics** Photosynthesis Reaction Rates of Photosynthesis Uses of glucose Anaerobic Respiration Aerobic Respiration Responses to exercise Metabolism **Energy Part Two** National and Global resources Environmental impact Renewable Alternatives	**Chemical Changes** Reduction and Oxidation reactions – include electron transfer Reactivity series from experimental results Extraction of metals. Reactions of acids *Titration* Electrolysis	**Atomic Structure** The Atom and Isotopes Nuclear Radiation Nuclear Equations Half Life Radioactive Contamination
Year 10	**Infection and Response** Communicable diseases Viral diseases Bacterial diseases Fungal diseases Protist diseases Human defence system Vaccination Drugs for diseases Drug development *Monoclonal antibodies* *Plant diseases* *Plant defences*	**Forces Part One** Scalar and Vectors Contact and Non-contact Gravity Resultant Forces *Moments, levers and gears* *Pressure in fluids* Atmospheric pressure	**Homeostasis and Response** Homeostasis The Nervous System *The Brain* *The Eye* *Controlling Temperature* Human Endocrine System *Water and Nitrogen balance* Blood Glucose Control Reproductive Hormones Contraception **Treating Infertility** **Negative Feedback** *Plant hormones*	**Waves** Properties of Waves *Reflection of Waves* *Sound* Waves Waves for *Exploration* Electromagnetic Waves – properties and uses *Lenses* *Visible Light* *Black Body Radiation*	**The Rate and Extent of Chemical Reactions** Calculating Rate of Reaction Factors that affect Rate of Reaction Collision Theory and Rate Activation Energy and Catalysts Reversible Reactions Equilibrium **Le Chatelier's Principle**	**Chemical Analysis** Pure Substance – Formulations Chromatography Testing for Common Gases *Flame Tests* *Metal Hydroxides* *Carbonates* *Halides* *Sulfates* *Instrumental Methods*
	Quantitative Chemistry Relative Formula Mass Conservation of mass - gases Uncertainty **Moles** **Using Moles** **Limiting Reactants** Concentration of Solutions *Percentage Yield* *Atom Economy* ***Using Concentrations of Solutions*** ***Using amounts and Gas Volumes 1***	**Magnetism** Plotting Magnetic Fields Electromagnets **Fleming's Left-Hand Rule** **Electric Motors** ***Loudspeakers*** ***Generator Effect*** ***Microphones*** ***Transformers***	**Energy Changes** Exo and Endo thermic reactions Reaction Profiles **Bond Energies** *Chemical and Fuel Cells*	**Chemistry of the Atmosphere** The Earth's Early Atmosphere How Gases Changed Greenhouse Gases Human Activities and Atmosphere Global Climate Change Carbon Footprint Atmospheric Pollutants	**Forces Part Two** Distance and Displacement Speed and Velocity Distance-Time graphs Acceleration Newton's Laws Stopping Distances Reaction Time Braking Distance **Momentum** *Changes in Momentum*	

Year 11	**Ecology** Communities Abiotic Factor Biotic Factors Adaptation Levels of organisation Material Cycles *Decomposition* *Impact of Environmental Change* Biodiversity Waste Management Land Use Deforestation Global Warming Maintaining Biodiversity *Trophic Levels* *Pyramids of Biomass* *Transferring Biomass* *Food Security* *Farming Techniques*	**Inheritance, Variation and Evolution** Sexual and Asexual Reproduction *Advantages and Disadvantages of Reproduction* Meiosis DNA *DNA Structure* Genetic Inheritance Inherited Disorders Sex Determination Variation Evolution Selective Breeding Genetic Engineering *Cloning* *Theory of Evolution* *Speciation* *Understanding Genetics* Evidence for evolution – Fossils Extinction Resistant Bacteria Classification	Revision	Revision	Revision	
	Organic Chemistry Crude Oil Fractional Distillation Hydrocarbons *Alkene Reactions* *Alcohols* *Carboxylic Acids* *Addition Polymerisation* ***Condensation Polymerisation*** ***Amino Acids*** *DNA*	**Using Resources** Using the Earth's Resources Sustainable Development Potable Water Waste Water **Alternative Metal Extraction** Life Cycle Assessment Reducing Resource Use *Corrosion and its Prevention* *Alloys* *Ceramics and Composites* *Haber Process* *NPK Fertilisers*				
		Space Physics *Solar System* *Life Cycle of a star* *Orbital Motion* *Satellites* *Red-shi**ft***				