Rise Carr COLLEGE

Science Five Year Overview – Year 7 -11

Denotes Essential Knowledge

Year	Autumn		Spring		Summer	
	HT1	HT2	HT3	HT4	HT5	HT6
	Topic/Unit (14)	Topic/Unit (14)	Topic/Unit (10)	Topic/Unit (7)	Topic/Unit (11)	Topic/Unit (7)
7	**Organisms 1** **Cells** • Observing cells using a microscope • Animal and Plant cells • Specialised cells • Cells, tissue and organs • Looking after organ systems **Separating mixtures** • Separating mixtures • Solubility • Evaporating and filtering • Chromatograph • Distillation **Organisms 1 - Movement** • Chicken wing dissection • Bones and Skeleton • Muscles • Joints	**Matter 1** **Particle Model** • Properties of matter • Particle model • Change in state • Diffusion • Gas pressure **Waves 1** **Sound** • Introduction to sound • Loudness and amplitude • Frequency and pitch • The ear and hearing **Forces 1** **Speed** • Investigating ramps • Speed • Distance- time graphs • Changing speed	**Genes 1** **Variation** • Variation • Causes of variation • Variation and survival • Variation and changing environments **Human reproduction** • Female reproductive system • Male reproductive system and fertilisation • Developing foetus • Factors affecting the foetus • Fertility issues • IVF	**Electromagnets 1** **Electricity** **Voltage, current & resistance** • Electrical circuits • Potential difference • PD in series and parallel circuits • Current in series and parallel circuits • Resistance • Investigating resistance • Charging up	**Reactions 1** **Metals & Non-metals** • Metal and acid • The reactivity series • Displacement • Heating metals • Metals and Non-metals **Earth 1** • Earth Structure • Rock cycle • Igneous Rock • Sedimentary Rock • Metamorphic Rock • Weathering and erosion .	**Earth 1 continued** • Day, night and seasons • The solar system • The milky way and the universe **Forces 1** **Gravity** • Journey into space • Mass and weight • Gravity • On the moon

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	Topic/Unit (13)	Topic/Unit (10)	Topic/Unit (9)	Topic/Unit (7)	Topic/Unit (12)	Topic/Unit (7)
8	**Digestive system** • Unhealthy diet • Digestive system • Digestion and absorption • Food groups and balanced diet • Disorders of the digestive system • **Pressure** • Pressure in a solid • Pressure in gases • Pressure in liquids	**Organisms 2** **Breathing** • Investigating lung volume • Respiratory system • Gaseous exchange • Factors affecting breathing rate • Disorders of respiratory system. **Forces 2** **Contact Forces** • Friction • Drag and resultant forces • Squashing and stretching • Levers and moments • Contact and non-contact forces • Balanced and unbalanced forces	**Matter 2** **Elements** • Elements • Compounds • Chemical Formulae • Polymers **Reactions 1** **Acids and Alkalis** • Acids, bases and alkalis • Indicators • pH • indigestion investigation part 1 • indigestion investigation part 2	**Energy 1** **Energy costs** • Energy in food • Electricity generation • The cost of home energy usage • Boiling a kettle **Energy transfers** • Energy stores • Energy transfers • Dissipated	**Waves 1** **Light** • How bright is light • Why do we see Eclipses? • Investigating reflection • Investigating refraction • The eye and vision • Colour mixing **Wave effect** • Detecting soundwaves • Making a loud speaker **Wave properties** • Sound waves, water waves and energy • Radiation and energy • Modelling waves • The ripple tank	**Ecosystems 1** • Food chains • Food webs • Competition • Changes in population numbers • Food security • Flower structure and pollination • Fertilisation and seed dispersal

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	Topic/Unit (12)	Topic/Unit (11)	Topic/Unit (8)	Topic/Unit (9)	Topic/Unit (5)	Topic/Unit
9	**Matter 2** **Periodic table** • Periodic table introduction • Describing trends • Group 1 • Group 7 **Reactions 2** **Types of reactions** • Atoms in a reaction • Combustion • Comparing fuels • Thermal decomposition **Ecosystems 2** **Chemical energy** Respiration • Aerobic respiration • Anaerobic respiration • Fermentation	**Ecosystems 2** • Photosynthesis • Adaptations of plants • Rates of photosynthesis **Earth 2** **Climate** • Earth • Greenhouse effect • Global warming **Earth resources** • Carbon cycle • Ores and mining • Extraction of metals • Electrolysis • Recycling	**Work** • Levers • Pulleys • Deformation **Heating and cooling** • Energy and temperature • Conduction • Convection • Radiation • Investigating temperature change	**Genes 2** **Evolution** • Extinction • Evolution • Natural selection • The importance of biodiversity • Preserving biodiversity **Inheritance** • Inheritance • DNA • Genetics • Genetic modification	**Electromagnets 2** • How can we see magnetic fields • Magnets and magnetic fields • Investigating electromagnets • How can we turn off a magnet? • Using electromagnets	Transition KS4

Year	Autumn		Spring		Summer	
	HT1 (8)	HT2 (7)	HT3 (7)	HT4 (6)	HT5 (5)	HT6 (7)
	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit
10	**B1 Building Blocks of Life** • Eukaryotic & Prokaryotic Cells • Specialised Cells • Microscopy • Cell Division • Stem Cells **C1 Chemical Building Blocks** • States of Matter • Elements Compounds and Mixtures • Methods of Separation • Atomic Structure • Electronic Structure	**B2 Human Body** • Digestive System • Enzymes • Respiratory System • Heart, Blood and Circulation • Exchange Surfaces **P1 Energy** • Energy Stores • Energy Changes • Power and Efficiency • Energy Resources **P2 Matter** • States of Matter • Density • Pressure	**B2 Human Body** • Aerobic and Anaerobic Respiration • Exercise **P3 Heating** • Specific Heat Capacity • Specific Latent Heat • Insulating Buildings **C2 Compounds** • Compounds • Conservation of Mass • Equations • Ionic Bonding	**B2 Human Body** • Nervous System and Reflexes • Hormones **C3 Metals** • Properties of Metals • Metal Reactions • Reactivity • Metal Extraction • Electrolysis	**B3 Plants** • Plant Tissues and Organs • Photosynthesis **P6 Forces** • Contact and Non-Contact Forces • Gravity • Work • Elasticity • Newton's Laws • Speed, Velocity and Displacement • Stopping Distances	**B3 Plants** • Osmosis • Plant Adaptations • Plant Diseases **P8 Magnetism** • Permanent and Induced Magnetism • Magnetic Fields • Motor Effect • Electromagnetism **C4 Non-Metals** • Properties of Non-Metals • Types of Bonding • Forms of Carbon • Polymers

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	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit	Topic/Unit
11	**B6 Our Environment** • Communities and Organisation • Sampling • Adaptations • Material Cycling • Biodiversity • Global Warming **P7 Electricity** • Series and Parallel Circuits • Current, Potential Difference and Resistance • Domestic Supply and Mains • Power • Energy Transfers	**B4 Healthy Lifestyles** • Communicable and Non-communicable Diseases • Immune System **C5 Chemical Reactions** • Exothermic and Endothermic Reactions • Acid Reactions • Rate of Reaction **C6 Fuels** • Hydrocarbons • Fractional Distillation • Cracking	**B4 Healthy Lifestyles** • Vaccination • Drug Testing • Heart Disease • Cancer **P5 Waves** • Types of Wave • Wave Properties • Electromagnetic Spectrum **P4 Radioactivity** • Radioactive Decay • Nuclear Equations • Contamination	**B5 Reproduction & Inheritance** • Sexual & Asexual Reproduction • Menstrual Cycle and Fertility • DNA & The Genome • Genetic Inheritance • Inherited Disorders **C7 Chemistry of Our World** • Our Atmosphere • Greenhouse Effect • Potable Water	**B5 Reproduction & Inheritance** • Evolution • Selective Breeding & Genetic Engineering • Classification **Revision**	**Revision**