

Candidate's Name _____

Class _____

Biology Required Practicals

	Topic	Title	Description	Done
Paper 1	B1	Microscopy	Use a light microscope to observe, draw and label a selection of plant and animal cells. A magnification scale must be included.	
	B1 Bio only	Microbiology	Investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition.	
	B1 (B3)	Osmosis *	Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.	
	B2 (B3)	Enzymes *	Investigate the effect of pH on the rate of reaction of amylase enzyme. Students should use a continuous sampling technique to determine the time taken to completely digest a starch solution at a range of pH values. Iodine reagent is to be used to test for starch every 30 seconds. Temperature must be controlled by use of a water bath or electric heater.	
	B2 (B3)	Food Tests	Use qualitative reagents to test for a range of carbohydrates, lipids and proteins. To include: Benedict's test for sugars; iodine test for starch; and Biuret reagent for protein.	
	B4 (B2)	Photosynthesis *	Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.	
Paper 2	B5	Reaction Time *	Plan and carry out an investigation into the effect of a factor on human reaction time.	
	B5	Plant responses *	Investigate the effect of light or gravity on the growth of germinated seedlings.	
	B7 (B8)	Field Investigations 1	Measure the population size of a common species in a habitat, eg plant population using random sampling.	
	B7 (B8)	Field Investigations 2	Use sampling techniques to investigate the effect of a factor on the distribution of this species, eg sample along a transect.	
	B7 (B8) Bio only	Decay *	Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change.	

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Chemistry Required Practicals

	Topic	Title	Description	Done
Paper 1	C4	Making Salts	Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.	
	C4 Chem only	Neutralisation 1	Determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.	
	C4 Chem only	Neutralisation 2 (HT only)	Determination of the concentration of one of the solutions in mol/dm ³ and g/dm ³ from the reacting volumes and the known concentration of the other solution.	
	C4	Electrolysis *	Investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.	
	C5	Temperature *	Investigate the variables that affect temperature changes in reacting solutions, eg acid plus metals, acid plus carbonates, neutralisations, displacement of metals.	
Paper 2	C6	Rates of * Reaction 1	Investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced. This should be an investigation involving developing a hypothesis.	
	C6	Rates of * Reaction 2	Investigate how changes in concentration affect the rates of reactions by a method involving a change in colour or turbidity. This should be an investigation involving developing a hypothesis.	
	C8	Chromatography	Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate R _f values.	
	C8 Chem only	Identifying Ions	Use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections.	
	C10	Water Purification	Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.	

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Physics Required Practicals

	Topic	Title	Description	Done
Paper 1	P1	Specific Heat Capacity	Investigation to determine the specific heat capacity of one or more materials. The investigation will involve linking the decrease of one energy store (or work done) to the increase in temperature and subsequent increase in thermal energy stored.	
	P1 Phy only	Thermal * Insulation	Investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material.	
	P2	Resistance 1 *	Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits. - The length of a wire at constant temperature.	
	P2	Resistance 2	Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits. - Combinations of resistors in series and parallel.	
	P2	I-V Characteristics	Use circuit diagrams to construct appropriate circuits to investigate the I-V characteristics of a variety of circuit elements including a filament lamp, a diode and a resistor at constant temperature.	
	P3	Density	Use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids. Volume should be determined from the dimensions of regularly shaped objects and by a displacement technique for irregularly shaped objects. Dimensions to be measured using appropriate apparatus such as a ruler, micrometer or Vernier callipers.	

Paper 2	P5	Force and * Extension	Investigate the relationship between force and extension for a spring.	
	P5	Acceleration *	Investigate the effect of varying the force on the acceleration of an object of constant mass	
	P5	Acceleration *	Investigate the effect of varying the mass of an object on the acceleration produced by a constant force.	
	P6	Waves	Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements.	
	P6 Phy only	Light *	Investigate the reflection of light by different types of surface and the refraction of light by different substances.	
	P6	Radiation and Absorption	Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.	

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