



## Science – Year 10 – 2022/3 Mock Assessment Manifest

Biology		R	A	G
Describe the functions of cell organelle in plant and animal cells				
Describe the differences between prokaryotic and eukaryotic cells				
Compare scales of measurement and carry out order of magnitude calculations including standard form				
Describe and explain how to use a microscope				
Calculate using the magnification equation				
Use the term differentiation and link cell structure to function for specialised plant and animal cells.				
Describe the cell cycle (mitosis)				
Explain the use of stem cells in therapeutic applications				
Describe the effect of factors effecting the speed of diffusion				
Describe and predict movement of particles via osmosis and active transport in multicellular organisms				
Recall the principles of organisation form cell to organism				
Recall the function of organs in the digestive system				
Describe the effect of pH on enzymes and the role of enzymes in digestion				
Food tests for starch, sugar, fat and protein				
Structure and function of heart and lungs and differences between blood vessels				
Content and role of blood				
Causes, risk factors and treatment of Coronary Heart disease				
Relationships between health and disease and the interrelateness of certain conditions e.g. viruses causing cancer, physical ill health leading to mental illness.				
Lifestyle's influence on non-communicable diseases e.g. smoking, obesity and alcohol consumption,				
Cancer: how it occurs, comparing benign and malignant tumours and identifying risk factors.				
Plant tissues and organs: explaining how plant tissues are adapted to function e.g. palisade mesophyll, xylem and phloem and meristems, root hair cells etc.				
Describing to role of stomata and guard cells				



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Explain the effect of change in temperature, humidity, air movement and light intensity on the rate of transpiration.				
Pathogens: Virus, bacteria, Protists and Fungi and how they cause illness				
Viral diseases: Measels, HIV, Tobacco Mosaic virus, symptoms and treatment				
Bacterial: salmonella and gonorrhoea cause, prevention and treatment				
Fungal: rose black spot				
Protist: malaria spread and prevention				
Human immune system including the role of white blood cells				
Vaccination, antibiotics and painkillers				
Discovery and development of drugs from natural sources including penicillin, aspirin and Digitalis				
Photosynthesis and factors which effect its rate				
Uses of glucose in the plant				
Respiration equations for aerobic and anaerobic respiration in animals (and anaerobic in plants/yeast)				
Response of the body to exercise including heart and lung function. Metabolism				

<b>Chemistry</b>		R	A	G
Development of the model of the atom and the current structure				
Elements, compounds and mixtures definitions, identification and naming				
Describe processes for separating different mixtures				
Electronic structure and formation of ions				
Periodic table, structure and development				
Reactivity and properties of groups 1, 7 and 0				



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Ionic bonding and properties of ionic compounds				
Covalent bonding and properties of simple covalent compounds				
Giant covalent structures e.g. silica, diamond and graphite, fullerenes and graphene.				
Metallic bonding and properties of metals and alloys				
States of matter				
Polymers- diagrams and properties				
Conservation of mass				
Relative formula mass (Mr)				
<b>HT</b> Moles and Avogadro's constant				
<b>HT</b> Amounts of substance in equations, limiting reagents				
Concentration in g/dm <sup>3</sup>				
Reactivity of metals: reactivity series				
Reactions of metals: formation of oxides, reduction by Carbon,				
<b>HT</b> Oxidation in terms of electrons				
Reactions of acids with metals, metal oxides, metal hydroxides and metal carbonates				
pH scale and neutralisation (Universal indicator)				
<b>HT</b> Strong and weak acids				
Electrolysis of molten salts				
Electrolysis of aluminium oxide				
Electrolysis of aqueous solutions				
<b>HT</b> Half equations				
Exothermic and endothermic reactions- profiles, heat change and uses				

<b>Physics</b>		R	A	G
Energy stores and systems				
Conservation of energy and energy transfers				
Energy equations (kinetic, gravitational potential, elastic, specific heat capacity)				



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Power and efficiency				
Energy resources and producing electricity. The National Grid				
Electrical circuit diagrams				
Current, Potential difference and Resistance in series and parallel circuits				
Resistors, thermistors and LDRs				
Wiring a plug and safety around electricity				
Changes in state (solid, liquid and gas)				
Pressure in gases and liquids				
Atomic structure: Rutherford's gold foil experiment				
Atoms and isotopes: proton, neutron and electron numbers for the Periodic Table				
Radioactivity (alpha, beta gamma, penetration, ionisation, range, nature)				
Nuclear equations for emission of alpha and beta				
Half lives from graphs				
Radioactive contamination (irradiation vs contamination) safety precautions.				

Resources required for revision

Exercise books

Topic booklets including – Checklists, Key knowledge questions, knowledge organisers and practice exam questions

Suggested websites

<https://www.youtube.com/watch?v=HBZcpzr5B2g&list=PL2HrnZel5wZwl-OJJN3kpZp-2uVQgHkm>

[https://www.youtube.com/watch?v=L3NEXz9iry&list=PL9louNCPbCxULWXC09jt0PsuAbxYpw2\\_1](https://www.youtube.com/watch?v=L3NEXz9iry&list=PL9louNCPbCxULWXC09jt0PsuAbxYpw2_1)

[https://www.youtube.com/watch?v=-zy9eWzmGe4&list=PLCwEZqeni8ondpuyWWR0Ffst-WK\\_vwc-r](https://www.youtube.com/watch?v=-zy9eWzmGe4&list=PLCwEZqeni8ondpuyWWR0Ffst-WK_vwc-r)