QUEEN'S PARK HIGH SCHOOL

Age Related Milestones: Science – Biology

Year 8 AO		Working Towards	Meeting (You can demonstrate these skills most of the time)	Exceeding (You can demonstrate these skills most of the time)
1 – show knowledge and understanding	1.1	Not yet meeting the year 8 ARMs	Identify food groups and examples of foods for each group.	Describe the functions of food groups
	1.2		Describe a balanced diet	Explain the importance of a balanced diet and how an unbalanced diet can lead to malnutrition
	1.3		Describe a positive result for food tests	Describe how to carry out each food test
	1.4		Identify the organs in the digestive system	Describe the function of the organs in the digestive system
	1.5		Define digestion	Explain the importance of digestion
	1.6		Describe the function of lipase, amylase and protease	Explain how temperature can affect enzyme activity
	1.7		Identify the chemicals released from cigarettes and how smoking affects health	Explain how smoking causes diseases, emphysema, heart disease and respiratory infections.
	1.8		Identify the drug in alcohol and state the effects of alcohol	Explain the effects of alcohol on the body
	1.9		Define a drug and give examples	Describe different types drugs and their effects
	1.10		Define respiration and recall word/symbol equations	Explain the importance of respiration in the body
	1.11		Define anaerobic respiration and recall the word equation	Compare anaerobic and aerobic respiration and describe the effects of lactic acid
	1.12		Describe anaerobic respiration in plants and yeast	Explain why yeast/anaerobic respiration are used in beer and bread production
	1.13		Describe the structure of the leaf	Explain how the leaf is adapted to carry out photosynthesis
	1.14		Describe photosynthesis and recall the word/symbol equation	Explain why glucose is important to plants
	1.16		Identify key features of a food chain/web	Explain interdependence in terms of a food chain
	1.17		Describe pesticides and bioaccumulation	Evaluate the use of pesticides
	1.18		Define biodiversity	Explain how humans can affect biodiversity
	1.19		Describe key processes in the carbon cycle	Explain how changes in the environment (pollution, deforestation) affects the carbon cycle.
	1.20		Describe deforestation, pollution and global warming	Explain the effects of deforestation, pollution and global warming
	1.21		Describe the conditions needed for decay	
2 – apply knowledge	2.1		Information in the question used in calculations	Correctly use calculations
	2.2		Present data in a graph	Accurately present data in a graph
	2.3		Explain observations/phenomena	Apply scientific ideas to unfamiliar concepts
	2.4		Describe a practical procedure	Explain why stages of a practical procedure are carried out
3 – analyse information and ideas	3.1		Evaluate information provided	Suggest improvements to information provided e.g. methods, diets
	3.2		Interpret graphs/tables	Make conclusions from graphs/tables/information
	3.3		State improvements to experimental procedures	Suggest how your ideas will improve the practical

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Age Related Milestones: Science – Chemistry

Year 8 AO		Working Towards	Meeting (You can demonstrate these skills most of the time)	Exceeding (You can demonstrate these skills most of the time)
1 – show knowledge and understanding	1.1	Not yet meeting the year 8 ARMs	Compare patterns in properties in the groups and periods of the Periodic Table	Use patterns to predict properties of elements
	1.2		Describe Group 1 elements and how they react with water	Use balanced symbol equations to show reactions of Group 1 metals with water
	1.3		Describe displacement reactions involving Group 7 elements	Write word and symbol equations outlining Group 7 displacement reactions
	1.4		Describe Group 0 elements and their properties	Use patterns to predict properties of Group 0 elements
	1.5		Recognise that mass is not lost or gained in a reaction	Explain conservation of mass in chemical reactions
	1.6		Define the term thermal decomposition	Predict the products of thermal decomposition reactions to write word equations
	1.7		Describe the difference between an exothermic and an endothermic reaction	Use practical data to classify reactions as either exothermic or endothermic
	1.8		Describe how carbon can be used to extract metals from ores	Use the reactivity series to decide which metals can be extracted from ores
	1.9		Describe ceramic, polymer and composite properties	Explain why properties of ceramics, polymers and composites make them useful for their job
	1.10		Describe a simple experiment to separate a mixture	Explain the difference between mixtures and compounds
	1.11		Describe the terms solute, soluble and solubility	Use the particle model to explain dissolving
	1.12		Identify the apparatus required to perform a filtration and evaporation practical	Explain how filtration and evaporation works
	1.13		Recall the practical method for performing a distillation	Apply my knowledge of distillation to a real life example
	1.14		Describe how to carry out a chromatography experiment	Explain how chromatography separates mixtures
	1.15		Define what is meant by electrolysis	Describe how electrolysis separates a mixture
	1.16		Describe what happens during fractional distillation	Explain why fractional distillation is important
	1.17		Describe the advantages and disadvantages of recycling	Explain how substances are recycled
	1.18		Recognise what a life cycle assessment is and what they are used for	Compare and evaluate the use of different materials for the same purpose
	1.19		Describe the composition of the atmosphere	Explain how the composition of the atmosphere has change over time
	1.20		Identify the reactions of the carbon cycle	Identify carbon stores in the cycle and analyse how our actions are affecting them
	1.21		Describe what global warming is	Explain the difference between the greenhouse effect and global warming
2 – apply knowledge	2.1		Information in the question used in calculations	Correctly use calculations
	2.2		Present data in a graph	Accurately present data in a graph
	2.3		Explain observations/phenomena	Apply scientific ideas to unfamiliar concepts
	2.4		Describe a practical procedure	Explain why stages of a practical procedure are carried out
3 – analyse information and ideas	3.1		Evaluate information provided	Suggest improvements to information provided e.g. methods, diets
	3.2		Interpret graphs/tables	Make conclusions from graphs/tables
	3.3		State improvements to experimental procedures	Suggest how your ideas will improve the practical

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Age Related Milestones: Science – Physics

Year 8 AO		Working Towards	Meeting (You can demonstrate this most of the time)	Exceeding (You can demonstrate this most of the time)
1 – show knowledge and understanding	1.1	Not yet meeting the year 8 ARMs	State examples of push, pull and twist, describe attraction and repulsion	Describe different forces
	1.2		Describe how to measure forces	Compare contact and non-contact forces and give examples
	1.3		Use key terms and arrows to name forces and represent magnitude and direction.	Explain how balanced and unbalanced forces affect the motion of an object
	1.4		Describe the effects of friction	Explain how to change the friction applied.
	1.5		Define work and give examples.	Describe how to increase or decrease work done.
	1.6		Describe what a 'moment' is and how it can be calculated	Describe factors that can affect moments
	1.7		State magnetic materials and correctly draw field lines around a bar magnet	Explain interactions between magnets
	1.7-2		Describe an electromagnet and its uses	Explain how to change the strength of an electromagnet and the advantages of them
	1.8		State the equation for pressure	Explain why different surfaces in contact experience different pressures
	1.9		Describe the pressure in solids, liquids and gases	Explain how to change the pressure in solids and gases.
	1.10		Describe characteristics of different states	Explain what happens when changes of state occur
	1.11		Describe the terms conduction, convection and radiation	Explain how heat is transferred by conduction, convection and radiation
	1.12		Identify materials as conductors or insulators of heat	Suggest and explain different ways to insulate houses
	1.13		State examples of different types of waves and label the key features	Compare longitudinal and transverse waves
	1.14		Describe reflection and refraction	Explain how refraction occurs
	1.15		Describe total internal reflection	Explain the importance of TIR
	1.16		Recognise that white light is made up of different colours and label key parts of the eye.	Explain how we see colour using key terms absorb and reflect
	1.17		Recognise loudness and pitch on diagrams	Describe and explain the use of ultrasound
2 – apply knowledge	2.1		Information in the question used in calculations	Correctly use calculations
	2.2		Present data in a graph	Accurately present data in a graph
	2.3		Explain observations/phenomena	Apply scientific ideas to unfamiliar concepts
	2.4		Describe a practical procedure	Explain why stages of a practical procedure are carried out
3 – analyse information and ideas	3.1		Evaluate information provided	Suggest improvements to information provided e.g. methods, diets
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Age Related Milestones: Science – Practical Assessment

Year 8 Practical Skill		Working Towards	Meeting (You can demonstrate this most of the time)	Exceeding (You can demonstrate this most of the time)
A. Methods and Variables	A.1	Not yet meeting the year 8 ARMs	Select and name key pieces of equipment	Describe how you will use different pieces of equipment
	A.2		Outline experiment in detail which can be followed to obtain repeatable data	Explain why chosen method will give repeatable and precise results
	A.3		Identify independent, dependent and at least two control variables	Identify all variables and describe which may be difficult to control
	A.4		Write a prediction	Prediction is supported by scientific understanding using key terms
B. Health and Safety	B.1		Identify more than one hazard, the risk they pose and how they will reduce the risk	Describe how a method could can be adapted to reduce a particular risk
C. Collecting data	C.1		Make a set of measurements with suitable intervals in an appropriate table	Make a set of measurements with suitable intervals in an appropriate table
	C.2		Make repeat readings if appropriate	Make repeat readings if appropriate and calculate an average
	C.3		Correct titles and units in columns	Correct titles and units in columns
D. Presenting Results	D.1		Appropriate graph with appropriate scales	Appropriate graph with appropriate scales
	D.2		Graph has at least **three** of: labelled axes, correct units, labelled data sets, line of best fit (if appropriate)	Graph has labelled axes, correct units, labelled data sets and line of best fit (if appropriate)
E. Conclusions and Evaluations	E.1		Give quantitative relationship in their results	Identify quantitative relationship between variables ***or*** make prediction based on results
	E.2		Begin to link scientific ideas and use three scientific keywords	Select data to contribute the conclusions ***or*** assess strength of evidence ***or*** explain unexpected observations or measurements
	E.3		Suggest reasons based on scientific knowledge for limitations in data collected	Explain modifications to method to improve repeatability/reproducibility ***or*** suggest way to take method further