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Regents Park Community College – KS4 Science Skills Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
I can remember a **wide range** of **basic** facts. I can use a **few** key words for **any topic** studied. I can understand that scientific discoveries have risks and benefits. I can **usually** apply knowledge effectively in a **range** of contexts. I can **usually** use theories to make **simple** explanations of events. I can **sometimes** use data to support evidence. I can **consistently use** and **sometimes rearrange** equations in calculations. I can evaluate information to develop arguments and explanations. I can **consistently** draw conclusions consistent with the available evidence**.** I can spot **some** causes of error and uncertainty in data or experimental procedures. I know the units of the **key** quantities. I can **mostly use accurate** spelling and correct use of punctuation, sentences, capital letters and paragraphs.	I can remember key facts about **most areas of Science.** I can **usually** use appropriate terminology in answers (key words and phrases) I can see the relationships between scientific advances, their ethical implications and the benefits and risks associated with them. I can **usually** apply knowledge effectively in a **wide range** of contexts. I can **usually** use theories to make **detailed** explanations of events. I can **usually** use data to support evidence. I can **usually rearrange** equations in calculations. I can evaluate information **systematically** to develop arguments and explanations. I can **usually** draw **detailed, evidence-based** conclusions**.** I can **usually** spot causes of error and uncertainty in data or experimental procedures. I know the unit and/or symbol of **most** quantities. I can **Usually use accurate** spelling and correct use of punctuation, sentences, capital letters and paragraphs.	I can remember key and detailed facts of **any area within Science**. I can **always** use appropriate terminology in answers (key words and phrases) I can explain the relationships between scientific advances, their ethical implications and the benefits and risks associated with them. I can **always** apply knowledge effectively in a **wide range** of contexts. I can **always** use theories to make **detailed** explanations of events. I can **always** make effective use of data to support evidence. I can **consistently rearrange** equations in calculations. I can evaluate information **from a wide range of sources systematically** to develop arguments and explanations. I can **consistently** draw **detailed, evidence-based** conclusions**.** I can **consistently** spot causes of error and uncertainty in data or experimental procedures. I know the unit and/or symbol of **every** quantity. I have **faultless** spelling and correct use of punctuation, sentences, capital letters and paragraphs.

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Regents Park Community College – KS4 Biology Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
I can label the basic cell components on a diagram of a plant and animal cell. I can label a diagram of different organ systems in animals and plants. I can describe how the human body defends against pathogens. I can state the types of drugs that can be used to treat disease. I can state examples of drugs produced from plants and microorganisms. I can state the word equations for photosynthesis and respiration. I can state the factors affecting the rate of photosynthesis. I can define homeostasis. I can describe the components of all control systems. I can identify the position of the endocrine glands. I can identify and describe the function of adaptations. I can state the different types of pollution that may impact biodiversity. I can construct a pyramid of biomass. I can define 'food security'.	I can calculate magnification. I can describe how genetic information is organised. I can explain how aseptic techniques are used in culturing microorganisms. I can calculate population in microorganisms. I can describe mitosis. I can explain the factors affecting diffusion. I can describe the adaptations of plants and animals for exchange. I can describe function of organ systems using key terms in the correct context. I can explain how enzymes are affected by temperature and pH. I can explain how diseases may be transferred with reference to specific examples. I can explain how antibiotics can be used to treat disease. I can describe the process of developing medicines. I can explain how plant diseases and deficiency conditions can be identified, stating examples. I can compare aerobic and anaerobic respiration. I can explain the changes that occur during exercise. I can describe the practical tests for starch, glucose + protein. I can explain how the structure of the nervous system is adapted to its function. I can describe the principles of kidney transplants and dialysis. I can explain how plant hormones control growth and control responses to stimuli.	I can use models and analogies to develop explanations of how cells divide. I can evaluate the practical, social and ethical issues surrounding the use of stem cells in medicine. I can ese models to explain enzyme action and de-naturation and apply this to the action of digestive systems. I can evaluate the health, economic and medical issues surrounding antibiotic resistant microorganisms. I can explain how monoclonal antibodies can be produced and used in medicine. I can interpret data to demonstrate how results of clinical trials can be manipulated to produce bias. I can explain how the body deals with oxygen debt. I can Interpret and explain graphs showing rate of photosynthesis with more than 1 limiting factor, in-cluding inverse square law in reference to light as a limiting factor. I can evaluate the issues surrounding the treatment of infertility for patients and doctors. I can evaluate the benefits and risks of procedures carried out on the nervous system. I can explain the process of genetic engineering, how GM crops effect populations and how medical research is exploring how GM could overcome in-herited diseases. I can evaluate information about human impact on the environment, including biodiversity. I can interpret population and food production statistics to evaluate food security.

Regents Park Community College – KS4 Biology Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
	I can describe the processes of selective breeding and evolution using named examples and evidence. I can describe antibiotic resistance. I can describe methods of ecological investigation including calculations. I can describe the Carbon cycle. I can explain the biological impact of waste, land use, deforestation and global warming. I can explain the conservation programmes in place to reduce the negative human impact on the environment. I can explain the factors that affect food security.	

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Regents Park Community College – KS4 Chemistry Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
I can state chemical names and symbols for often used elements. I can describe techniques for separating mixtures. I can describe word equations. I can state the three types of chemical bonding. I can label electrolysis equipment. I can recognise the pH scale and the use of Universal Indicator. I can recognise examples of exothermic and endothermic reactions. I can recognise that a chemical reaction occurs in cells. I can calculate the mean rate of a reaction from given information. I can state the factors that affect the rate of reaction. I can define 'hydrocarbon'. I can recognise the positive result for Oxygen + Hydrogen. I can state the gases and particulates that may be released when a fuel is burnt. I can state the difference between pure and potable water.	I can describe formulae equations. I can describe and explain why the atomic model has changed over time due to new evidence. I can describe why atoms have no charge. I can construct word equations. I can explain how the atomic structure of metals and non-metals relate to their position in the Periodic table and how they react. I can describe the three types of chemical bonding. I can describe the structure and properties of diamond and graphite. I can describe uses of nanoparticles. I can calculate the relative formula mass of compounds. I can calculate percentage yield from actual yield. I can calculate atom economy of a reaction. I can describe products made from simple electrolysis cells. I can use basic symbol equations. I can identify if elements make positive or negative ions. I can describe how to carry out titrations to find reacting volumes accurately. I can interpret simple energy diagrams. I can describe energy changes in bond braking and making. I can describe a simple fuel cell.	I can describe the development of the Periodic table and explain the evidence that supported it. I can work out the molecular formula from a given model or diagram of a compound. I can describe giant ionic structures, giant covalent structures, polymers and giant metallic structures. I can describe properties including melting and boiling points, electrical conductivity and explain how they are related to their structure. I can explain the properties of diamond and graphite related to their structure. I can describe the structure and use of graphene and fullerenes. I can explain the change in mass in some reactions. I can calculate the number of moles for a given mass of a substance. I can calculate the masses of substances in a balanced symbol equation. I can explain the meaning of 'concentration'. I can calculate theoretical mass of a product from given mass of reactant and a balanced equation for a reaction. I can explain how concentration of a solution is related to the mass of solute and the volume of solution. I can use formulae for different salts to deduce chemical formulae. I can explain neutralisation using H^+ and OH^- and choose appropriate methods for making soluble salts. I can calculate chemical quantities in titrations.

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Regents Park Community College – KS4 Chemistry Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
	I can explain the units used in rate of reaction calculations. I can explain how different factors affect the rate of reaction using collision theory. I can define 'equilibrium'. I can describe the covalent bonding in the four smallest alkanes using diagrams. I can describe the uses for the products of fractional distillation. I can describe the process of cracking. I can state the chemical test for alkenes. I can describe fermentation to produce ethanol. I can describe addition polymerisation. I can describe the tests for hydrogen, oxygen, carbon dioxide and chlorine. I can describe and explain the theory of the evolution from Earth's early atmosphere. I can explain how greenhouse gases make the Earth habitable. I can write word equations for complete and incomplete combustion. I can interpret data about the use of resources from charts, graphs and tables. I can describe a Life Cycle Assessment, including examples. I can carry out simple Life Cycle Assessments. I can give examples of alloys and their uses. I can describe properties of different materials and relate them to their uses.	I can calculate the energy transferred in a chemical reaction using bond energies. I can describe and interpret graphs comparing rates of reaction when given factors are changed. I can explain the separation of crude oil by fractional distillation. I can write balanced symbol equations for the cracking of alkanes. I can describe the reactions of alcohols with Na, H_20, oxidising agents and during combustion. I can describe the reactions of carboxylic acids with H_20, carbonates and alcohols. I can interpret data to identify pure and impure substances. I can calculate the Rf values from chromatograms. I can interpret evidence relating to the evolution of the Earth's atmosphere. I can explain the effects of climate change and the problems caused by increased amounts of pollutants in the air. I can describe how waste water may be treated. I can interpret Life Cycle Assessment information for given materials or products. I can explain the issues surrounding the use of Life Cycle Assessments. I can interpret graphs of reaction condition vs rate. I can describe production and uses of NPK fertilisers.

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Regents Park Community College – KS4 Physics Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
I can name examples of contact and non-contact forces. I can describe the changes in energy stores in simple machines and systems. I can use circuit symbols to draw simple circuit diagrams. I can draw the shape of the magnetic field. I can describe how to identify a magnetic material and a magnet. I can explain how a compass works. I can describe the changes of state. I can describe the composition of an atom.	I can state and use equations. I can identify shapes on Distance-Time and Velocity-Time graphs and relate it to motion. I can interpret Velocity-Time graphs for falling objects. I can state and apply the equations to calculate the moment of a force and the pressure of a fluid. I can calculate the pressure in a column of liquid. I can calculate changes in the way energy is stored when changes occur in a given system. I can evaluate the various types of insulation used in the home. I can calculate the efficiency of given energy transfers and describe ways to increase efficiency. I can compare the ways different energy resources are used and explain their advantages and disadvantages. I can draw diagrams to show the features of transverse and longitudinal waves and describe their features using key terminology. I can calculate the frequency of a wave. I can describe reflection, refraction, absorption and transmission of waves. I can recall and use equations. I can explain how the transfer of electrons leads to static electricity. I can describe the differences between AC and DC.	I can apply the principles of pressure to columns of liquid and the atmosphere. I can use principle of moments and conservation of momentum to solve problems. I can carry out calculations involving specific heat capacity. I can interpret data on the efficiency of different machines. I can explain the changes in air pressure caused by longitudinal waves. I can describe the effects of gamma, X-ray and ultra-violet waves on the body. I can explain the uses and dangers of electromagnetic radiation. I can link the idea of generation of electricity with oscilloscope traces. I can apply rules concerning conservation of current to circuit problems. I can explain why an electric motor will not work with alternating current. I can use Fleming's left-hand rule to predict the direction of rotation of a motor given relevant information. I can describe how changing the temperature can affect gas pressure. I can calculate the size of an atom given the size of the nucleus and the scale of the nucleus compared to the atom.

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Regents Park Community College – KS4 Physics Progress Pathway Descriptors		
Low Attaining Year KS4 student	**Middle Attaining Year KS4 student**	**High Attaining Year KS4 student**
	I can explain what is meant by the motor effect. I can recall Fleming's left-hand rule. I can describe the factors that affect the size of the force on a conductor in a magnetic field. I can calculate the force on a conductor in a magnetic field, given values. I can state and use the density equation. I can explain how increasing the temperature affects the internal energy of a substance and how this can lead to changes of state. I can evaluate data on melting and boiling points linked to the strength of forces between the particles. I can describe the differences between different models of the atom. I can describe radioactive decay and how it can be predicted. I can describe the different kinds of nuclear radiation. I can describe how radioactive contamination can occur, how risk can be minimised and the safety requirements taken. I can describe the process and use of irradiation. I can describe the similarities and distinctions between the planets, their moons and artificial satellites. I can explain quantitatively how circular and stable orbits can be affected.	I can explain how fusion processes lead to the formation of new elements.