

Biology Platinum	Chemistry Platinum	Physics Platinum	Investigative Skills Platinum
<p>Explain the importance of plants.</p> <p>Explain how a leaf is adapted for photosynthesis.</p> <p>Understand the difference between how plants acquire their energy to build organic molecules and how consumers do.</p> <p>Explain bioaccumulation in food chains and some effects of this.</p> <p>Explain how living organisms may form populations of single species, communities of many species and ecosystems, interacting with each other, with the environment and with humans in many different ways</p> <p>Living organisms are interdependent and show adaptations to their environment.</p> <p>Understand aerobic and anaerobic respiration</p> <p>Explain the effects of anaerobic respiration on the body during and after exercise.</p> <p>Apply knowledge and understanding to a range of contexts including unfamiliar situations.</p> <p>Explain how living organisms are interdependent</p> <p>Explain how adaptations to their environment enable living things to thrive.</p> <p>Explain how the characteristics of a living organism are influenced by its genome and its interaction with the environment.</p> <p>Explain how evolution occurs by a process of natural selection and accounts both for biodiversity and how organisms are all related to varying degrees.</p>	<p>Predict the salt formed from reactions of acids with metals, alkalis or metal carbonates and write the word equation for these reactions.</p> <p>Explain trends and patterns in the periodic table.</p> <p>Describe the physical and chemical properties of metals and non-metals and their compounds.</p> <p>Apply knowledge of patterns in a chemical reaction to suggest how substances, such as salts, could be made.</p> <p>Evaluate the impact of natural causes compared of man-made causes of acid rain.</p> <p>Explain some of the benefits and drawbacks of using sustainable materials.</p> <p>Write balanced symbol equations for common reactions.</p> <p>Evaluate the effects of human activity on climate change and explain why people hold different views about the effects of increased levels of carbon dioxide.</p> <p>Evaluate secondary sources of data about climate change and justify your own opinions.</p>	<p>Describe what happens when waves superpose.</p> <p>Compare the ear with a microphone.</p> <p>Compare the eye with a camera.</p> <p>Relate the term 'energy' to work.</p> <p>Evaluate physical phenomena from different perspectives, such as relating the dissipation of energy during energy transfer to the need to conserve limited energy resources.</p> <p>Demonstrate an understanding of the principle of moments.</p>	<p>Produce (unaided) precise plans for investigations.</p> <p>Evaluate investigations and produce structured reports.</p> <p>Prepare systematic and precise plans for their investigations, including a strategy for dealing with results.</p> <p>Decide on the observations and measurements that need to be taken and the degree of accuracy that is required.</p> <p>Set up and use a range of scientific apparatus with precision and skill.</p>
Biology Gold	Chemistry Gold	Physics Gold	Investigative Skills Gold
<p>Label a diagram showing a cross section of the leaf.</p> <p>Explain the effects of different elements on plant growth.</p> <p>Understand why most food chains begin with a plant.</p> <p>Write a word equation for photosynthesis.</p> <p>List how a leaf is adapted for photosynthesis.</p> <p>Know that plants need mineral salts.</p> <p>Relate the structure of the lungs to efficient gas exchange.</p> <p>Explain the changes that occur during breathing.</p> <p>Relate a model of the lungs to breathing.</p> <p>Name some substances that move in and out of cells.</p> <p>Recall the word equations for aerobic and anaerobic respiration.</p> <p>Describe the differences between aerobic and anaerobic respiration in animals.</p> <p>Understand the processes of cell respiration and photosynthesis in terms of the main underlying chemical changes.</p> <p>Describe how gases enter and leave leaves.</p> <p>Describe the effects drugs have on the body.</p> <p>Describe the important stages in evolution by natural selection.</p> <p>Understand that organisms compete for resources.</p> <p>Explain what causes variation.</p>	<p>Describe some uses of neutralisation reactions.</p> <p>Relate the properties and uses of everyday materials.</p> <p>Explain how values on the pH scale relate to indicator colour and acidity.</p> <p>Compare the advantages and disadvantages of different indicators, such as universal indicator and litmus indicator.</p> <p>Describe chemical and physical changes and how new materials can be made.</p> <p>Evaluate the positive and negative effects of the exploitation of raw materials.</p> <p>Explain the processes by which the three different types of rocks are formed.</p> <p>Explain key properties of the three types of rocks, linked to their formation and suggest uses for them.</p> <p>Describe the physical processes of the rock cycle, including weathering and erosion.</p> <p>Describe the composition of the atmosphere and the importance of ozone.</p> <p>Relate carbon dioxide levels to global warming and how humans can impact carbon dioxide levels.</p> <p>Explain what is meant by the term 'carbon neutral'</p>	<p>Describe energy conversions in terms of the principle of the conservation of energy</p> <p>Use the principle of moments in practical situations.</p> <p>Understand the relationship between applied force, the area over which it acts and the resulting pressure.</p> <p>Compare human hearing range with other animals.</p> <p>Explain uses of ultrasound.</p> <p>Compare specular reflection and diffuse scattering.</p> <p>Explain how surfaces appear coloured.</p> <p>Analyse ways hearing can be damaged.</p> <p>Describe what ultrasound is.</p> <p>Explain how images are formed in a mirror.</p> <p>Explain what refraction is.</p> <p>Explain how the eye works.</p> <p>Describe how primary colours of light combine to make secondary colours.</p> <p>Understand that global resources are limited and explain why energy should be used efficiently.</p> <p>Describe energy conversions in terms of the principle of the conservation of energy.</p> <p>Recall that energy sources are ultimately dependent on the Sun's energy.</p>	<p>Plan (with guidance) investigations. Identifying key factors that need to be considered.</p> <p>Present my data clearly and concisely using graphs with lines of best fit</p> <p>Apply scientific knowledge from other investigations to plan an investigation.</p> <p>Explain conclusions using the evidence collected and knowledge and understanding of science.</p>

Know where genes are found inside a cell. Understand that genetic information is carried in the form of chromosomes and genes.		Explain the process of energy transfer by conduction, convection and radiation. Describe, in simple terms, the relationship between the angle of incidence and the angle of reflection. Understand how light is reflected from plane surfaces and that white light can be dispersed to give a range of colours.	
Biology Silver	Chemistry Silver	Physics Silver	Investigative Skills Silver
Assign organisms to their major groups and understand the main stages in a life cycle. Describe, in simple terms, the parts and basic functions of the major organ systems in humans. Classify the animals and plants found in a local habitat using groupings Explain gas exchange across the alveoli. Describe how organisms are adapted. Draw a food chain. Give examples of genetic and environmental variation. Use knowledge of basic life processes, such as growing, feeding, moving or using their senses, to describe similarities and differences between living things. Provide simple explanations for changes affecting animal and plant behaviour, such as seasonal changes or the use of colour in camouflage. Understand the ways by which human activity, such as deforestation, can change the environment.	Compare properties of acids and alkalis. Explain how acids can be used safely, and explain the precautions taken when using them. Name some indicators and describe how they are used. Recognise the Periodic Table as a means of arranging elements and can describe the physical and chemical properties of elements in terms of their position. Identify trends in the chemical properties in groups in the periodic table and make predications. Use the pH scale when classifying solutions as acidic, alkaline or neutral. Describe the tests for hydrogen and carbon dioxide gases. Outline the effect of acid rain on lakes, rivers, rocks and buildings. Know that products made from paper, glass or aluminium can be recycled. Describe the layers of the Earth. Rocks are classified into different types, igneous, metamorphic and sedimentary. Rocks are worn away over time by weathering. Describe changes in the rock cycle. State that humans can have impact on the Earth and the importance of recycling.	Identify a range of energy sources, such as a battery for a torch. Identify a range of energy sources. Name the two main types of waves. Describe transverse and longitudinal waves. Explain why speed of sound changes in different materials. Describe link between loudness and amplitude. Explain the relationship between loudness and amplitude, and pitch and frequency of a sound. Describe the functions of the parts of the ear. Describe what an echo is. Describe the parts of the eye. Compare planets in the solar system. Describe how sound waves travel. Name the parts of the ear. Describe how heat transfers from different places Understand the meaning of temperature. Identify a variety of energy sources and know the difference between renewable and non-renewable sources Know how shadows are formed.	Use a range of apparatus with appropriate precision and safety. Interpret my data and begin to explain these using my scientific knowledge and understanding. Carry out a fair test and say which factors need to be kept constant. Draw conclusions and relate it to my knowledge and understanding. Design a fair test to answer questions that arise from their work in science. Use knowledge to make predictions. Interpret my data and begin to explain these using my scientific knowledge and understanding. Draw conclusions based on the available evidence Carry out a fair test and say which factors need to be kept constant. Draw conclusions and relate it to my knowledge and understanding.
Biology Bronze	Chemistry Bronze	Physics Bronze	Investigative Skills Bronze
Talk about a variety of living things and sort them into animals and plants using observable features, such as number of legs or shape of leaf. Describe similarities and differences between living things. Recognise and name external parts of the body, using words such as head or arm, and of plants, using words such as leaf or flower. Provide simple explanations for changes affecting animals and plants.	Name one acid or alkali. Describe some hazards of handling acids in a lab. Use an indicator to identify a substance as an acid alkali or neutral. Sort materials into groups giving reasons for their choice of groupings using everyday terms. Name some resources from the Earth's crust and what we use them for. Describe a variety of ways of sorting materials into groups according to their properties.	State that a wave carries energy. Simply state how the ear works. Associate waves with water. Recall that there are different sources of energy, such as oil, gas or coal. Explain that sounds are produced by vibrations. Know that light does not pass through all materials and when this happens shadows are formed.	Suggest how ideas can be investigated and make predictions about what might happen. Use appropriate instruments to make measurements and know when a test is fair. Make a simple record of observations and conclusions.