

Biology Platinum	Chemistry Platinum	Physics Platinum	Investigative Skills Platinum
<p>Calculate magnification of a microscope. Relate structure and function of specialised cells. Explain how organ systems link together. Make the link between blood cells and bones. Explain why foods need to be digested.</p>	<p>Predict state of matter from data on boiling and melting points. Compare diffusion speed in different states of matter. Explain how distillation allows liquids to be separated from other liquids or solutions in terms of particles and their energy. Recognise and classify a range of chemical reactions, such as reduction or thermal decomposition. Write balanced symbol equations for common reactions. Use a pattern to predict products of decomposition reactions. Understand the applications of chemical reactions in everyday lives, such as the extraction of iron in the blast furnace. Explain the differences between chemical reactions which are exothermic and those which are endothermic.</p>	<p>Use models to describe and explain phenomena, such as the flow of charge in parallel circuits. Give detailed interpretations of graphs, such as speed/time graphs. Find speed and acceleration from graphs. Use models to describe and explain phenomena, such as the flow of charge in parallel circuits.</p>	<p>Apply knowledge and understanding to a range of contexts including unfamiliar situations. Produce (unaided) precise plans for investigations. Evaluate my investigations and produce structured reports.</p>
Biology Gold	Chemistry Gold	Physics Gold	Investigative Skills Gold
<p>Draw cells viewed under a microscope to scale. Demonstrate a good understanding of cell structure and function. Prepare good slides and view using a microscope under different magnifications. Explain functions of the parts of plant and animal cells. Know and understand the differences between plant and animal cells. Explain how different cells are specialised for their functions. Describe diffusion. Explain how antagonistic muscle pairs work. Describe how food is digested and absorption. Understand why we need a balanced diet. Describe the functions of the main organs in the digestive system. Evaluate different methods of seed dispersal. Compare the differences between wind and insect pollinated flowers. Describe changes from fertilisation to birth. Describe the menstrual cycle. Know the requirements to maintain a healthy body and a healthy baby during pregnancy</p>	<p>Identify that fossil fuels are made of hydrocarbons and name the products of their combustion reactions. Write word equations for combustion of fuels. Explain the differences in the three states of matter using the particle model. Interpret data about melting points. Interpret data from tables and graphs about changes of state. Explain what factors affect diffusion. Use ideas about particles to explain the properties of a substance in its three states. Use the particle model to explain boiling. Explain the shape of heating and cooling curves. Explain sublimation. Describe evidence for diffusion. Use the particle model to explain gas pressure. Apply my knowledge of particles to explain changes of state, diffusion and dissolving. Recover a solvent from solution using simple distillation. Define what an atom is. Explain the differences between elements, compounds and mixtures. Explain the differences between mixtures and compounds in terms of their physical and chemical properties. Write and interpret chemical formulae. Explain what the law of conservation of mass is. Explain why in some reactions the mass appears to go up or down in terms of particles. Write word and symbol equations for common reactions. Analyse why chemical reactions are useful. Explain what a thermal decomposition reaction is. Compare chemical reactions to physical reactions. Explain what an oxidation reaction is. Use the reactivity series to make predictions about reactions of metals.</p>	<p>Compare weight and mass. Compare balanced and unbalanced forces. Explain why the speed or direction of motion of objects can change. Explain what forces do. Describe how forces deform objects. Evaluate how to reduce drag and friction. Contrast the speed of sound with speed of light. Describe common electrostatic phenomena and understand that electric current is a flow of charge. Describe simple applications of electromagnets. Calculate the average speed from measurements made of distance and time. Recall the properties of electromagnets. Explain how objects can become charged by friction in terms of transfer of electrons. Understand the relationship between applied force, the area over which it acts and the resulting pressure. Calculate mean speed from measurements made of distance and time. Describe the properties of electromagnets. Analyse data about planets in the solar system. Describe the relative movement of the Sun and planets within the solar system including the retrograde motion of Mars. Explain changes in day length, seasonal changes and changes in the elevation of the Sun. Describe the structure of the universe. Describe eclipses. Describe how day, night and year length are caused by the movement of the Earth.</p>	<p>Plan (with guidance) investigations. Identifying key factors that need to be considered. Make predictions using scientific knowledge. Apply scientific knowledge from other investigations to plan an investigation. Explain conclusions using the evidence collected and knowledge and understanding of science.</p>
Biology Silver	Chemistry Silver	Physics Silver	Investigative Skills Silver

<p>Prepare own slides and view under a microscope. Draw and label plant and animal cells. Use a microscope to view prepared slides. Label plant and animal cells correctly. Name the main organs and structures in the breathing, circulatory and skeletal systems. Describe the functions of the skeleton and how muscles are involved. Describe different types of joints. Name the main resources that plants and animals need to survive. Name the food groups in a balanced diet Label the main organs in the digestive system. Know the functions of food, the roles of nutrients in the diet and the reasons for maintaining a healthy diet. Know the conditions necessary to keep healthy. Sequence the main stages of a life cycle Name the major organs of the human body and identify the position of these organs. Identify the main organs of the reproductive system. Describe the function of flowers and seeds. Describe sexual intercourse and fertilisation. Name the label the main structures in flowers and describe fertilisation.</p>	<p>Describe how materials are made up of particles. Describe changes of state using keywords. Describe the changes in state in heating and cooling water. Use particle model diagrams to explain the properties of different states. Describe what gas pressure is. Describe some methods for separating compounds. State that all matter is made up of particles called atoms. Describe what elements and compounds are. Use the terms mixture and compound accurately. Identify substances as elements, compounds and mixtures from their particle diagrams. Write the chemical names for simple compounds. Match an element to its correct symbol. Identify reactants and products in word equations. Explain combustion. Explain how we know a chemical reaction has occurred.</p>	<p>Describe the most commonly used forces. Draw and label a force diagram. Describe the effects of drag and friction. Describe what forces do and name some common forces. Recall the properties of magnets and the magnetic field pattern produced by a bar magnet. Describe how to construct simple circuits using terms, such as switches, bulbs or batteries, and identify materials as insulators or conductors. Describe the effect of friction on moving objects Know the properties of magnets and the magnetic field pattern produced by a bar magnet Describe the effect of changing current in an electric circuit and explain what happens in series and parallel circuits. Describe how forces can affect the movement and shape of objects. Describe how to construct simple circuits. Identify materials as insulators or conductors.</p>	<p>Carry out a fair test and say which factors need to be kept constant. Draw conclusions and relate it to knowledge and understanding. Design a fair test to answer questions that arise from work in science. Interpret data and begin to explain these using scientific knowledge and understanding.</p>
<p>Biology Bronze</p>	<p>Chemistry Bronze</p>	<p>Physics Bronze</p>	<p>Investigative Skills Bronze</p>
<p>Use a microscope with help to view prepared slides. Name some parts of plant and animal cells. Describe what the lungs, heart and skeleton are for. Know what is required for humans to keep healthy and safe. Sequence the basic stages of human development. Describe some changes that occur at puberty.</p>	<p>Describe what happens when some everyday substances are heated or cooled. Know that some everyday substances, such as sugar or salt, will dissolve in water. Name a method for separating mixtures. Name an element. Carry out chemical reaction practicals with some assistance. Describe a way to tell if a chemical reaction has occurred.</p>	<p>Name one or two common forces. Describe a force as a push or pull. Talk about some appliances in the classroom and at home which use electricity, such as a television or a kettle. Describe what happens when objects are pushed and pulled, using terms such as 'speeds up' or 'stops'. Know that there are different sources of energy. Outline the dangers of misuse of mains electricity and know how to use electrical appliances safely. Name objects in the solar system. Describe the phases of the moon. Name some planets. Name a phase of the moon.</p>	<p>Suggest how ideas can be investigated and make predictions about what might happen.</p>