| Half term | Unit Title Hyperlink to SOW | Description |
|---|---|---|
| 7.1 | Cells and Orgnisation | The unit covers components of cells and the differences between plants and animal cells,how cells can be specialised and respiration.They will describe different levels of hierarchical organisation with regards to unicellular and multicellular organisation.They will describe how cells are adapted for different functions. Pupils should learn that plant and animal cells have a cell surface membrane which keeps the cell together and controls what enters and leaves; that cells have a cytoplasm which occupies most of the cell; that cells have nuclei which control activities of the cell.Students will learn how to interpret, observe and record cell structure using a light microscope. |
| 7.2 | Particles | In this unit pupils study the properties of the different states of matter (solid, liquid, and gas) in terms of particle model, exploring the differences in arrangement, motion and density. Pupils will study the conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation and dissolving. Pupils will also explore how diffusion in liquids and gases is driven by differences in concentration with specific focus on Brownian motion in gases. Pupils will also use the particle model to explain gas pressure and describe the factors that affect gas pressure. Pupils will delve into a simple atomic model and identify differences between atoms, elements and compounds. Lastly the unit covers the basis of chemical symbols and formulae for elements and compounds. |
| 7.3 | Forces 1 | Units covers aspects forces which include forces at a distance as well as balanced and unbalanced forcesThe students will find out where they can come across forces and how forces can act on objects.– How do things balance.They will study forces and their effects – How do different materials stretch? The unit explores what friction does, Where do we come across forces and why things float. Hooke's law as a special case will be investigated |
| 7.4 | Digestion | In this unit pupils will explore the content of a healthy human diet: carbohydrates, fats, proteins, vitamins, minerals, dietary fibre and water, and why each is needed. They will be require to carry out calculations of energy requirements in a healthy daily diet in addition to studying the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. Pupils will also study the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts). Pupils will also explore the importance of bacteria in the human digestive system. This unit also covers the skeletal and muscular system. Pupils will learn the interaction between skeleton and muscles, including the measurement of force exerted by different muscles. |
| 7.5 | Mixtures | In this unit pupils will explore the concept of a pure substance. Pupils will classify some solids as soluble or insoluble and explain the meaning of the term ‘saturated solution’. Pupils will also describe how mixtures can be separated by distillation and chromatography and will use the particle model to explain what happens when a solid dissolves in water, explaining why mass is conserved. Pupils will also describe how pure water can be obtained from sea water and how different colours can be separated from some inks. Pupils will also explore other simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography. |
| 7.6 | Energy | Pupils will also study the range of fuels used domestically and in industry. Pupils will describe how renewable energy resources can be used to generate electricity and provide heating. Pupils will compare the advantages and limitations of a range of energy resources. In this unit pupils will carry out a number of calculations of fuel uses and costs in the domestic context. They will compare the energy values of different foods and explain data on food intake and energy requirements for a range of activities. They will also compare the amounts of energy transferred in various appliances in watts and evaluate the different power ratings of appliances. |
| 7.7 | Ecology | In this unit pupils will study the different relationships in an ecosystem. They will explore the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops and will also explain various sampling techniques used to take measurements in an ecosystem. Pupils will look at how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Furthermore, they will study the importance of plant reproduction through insect pollination. |

| | | |
|---|---|---|
| 7.5 | Acids and alkalis | This unit covers acids and alkalis and how to neutralise substances and make salts.Students will learn about acids and alkalis and where to we use them. They will learn how acids and alkalis can be identified and distinguished from each other? What happens when an acid is added to an alkali? Where is neutralisation important? Bases should be emphasized and studied in detail. |
| 7.6 | Energy | Pupils will also study the range of fuels used domestically and in industry. Pupils will describe how renewable energy resources can be used to generate electricity and provide heating. Pupils will compare the advantages and limitations of a range of energy resources. In this unit pupils will carry out a number of calculations of fuel uses and costs in the domestic context. They will compare the energy values of different foods and explain data on food intake and energy requirements for a range of activities. They will also compare the amounts of energy transferred in various appliances in watts and evaluate the different power ratings of appliances. |
| 7.7 | Ecology | In this unit pupils will study the different relationships in an ecosystem. They will explore the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops and will also explain various sampling techniques used to take measurements in an ecosystem. Pupils will look at how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Furthermore, they will study the importance of plant reproduction through insect pollination. |
| 7.8 | Chemical reactions | This unit covers chemical and physical reactions.Teachers need to emphasise that some physical changes also involve colour changes and gas evolution and that a chemical reaction is distinguished by changes in the ways atoms are bonded together.Pupils should learn to represent and explain chemical reactions by word equations, models or diagrams'.The unit enables the students to write and complete chemical equations.They will study about chemical reactions that take place when fuels burn and how else chemical reactions can be used as energy resourcesThey will explore how fuels burn and complete word and symbol equations on complete and incomplete combustion.Students will explore the processes of different types of reactions like thermal decomposition,exothermic and endothermic reactions. |
| 7.9 | Sound and light | In this unit pupils will describe the different types of waves and their features. Pupils will relate changes in pitch and loudness of sounds to changes in vibrations and relate these to the oscilloscope representations of waves.This unit covers the similarities and differences between light and waves in matter. Pupils will explore how light waves travels through a vacuum as well as the transmission of light through materials by investigating absorption, diffuse scattering and specular reflection at a surface. Pupils will explain the origin of colour and the different frequencies of light whilst also studying differential colour effects in absorption and diffuse reflection. |
| 7.1 | The solar system project | This unit enables the studets to work independently while developing skils and content knowledge.The students studied the scale of the universe,planets,impact craters,craters 2 and deep impact,seasons and cycles. |