Science: Year 7 overview

Autumn term:

B1 – Cells and tissues:

Students learn about the difference between animal and plant cells, how to use a microscope. They also learn about specialised cells; how cells are organised in multicellular organisms.

B2 – Animal reproduction:

Students learn about changes to their bodies in puberty, male and female reproductive system, and the menstrual cycle. They learn about sex and reproduction which includes pregnancy and birth.

B3 – Food and digestion:

Students learn what a balanced diet consists of, and what foods are rich in the seven different nutrients. They carry out a practical activity to test the different food types and identify parts of the digestive system and roles of enzymes.

C1 – Atoms and Elements:

Students learn about Dalton's theory, arrangement of atoms in different substances and the atomic structure. Students carry out an investigation to measure the mass and volume of different substances so they can calculate the density.

C2-- The particle model:

Students learn about the particles model in solids, liquids and gases. They study change of state, diffusion, pressure and comparing the density of solid, liquid and gas.

C3—Compounds:

Students learn that elements can combine to form compounds. They practice writing chemical formulae and the law of conservation of matter. Students differentiate between compounds and mixture

P1—Energy transfers:

Students learn about the different energy stores. And the law of conservation of energy. They carry out practical investigation to compare amount of energy in different fuels. Students calculate energy transferred, work done and efficiency.

P2—Energy resources:

Students learn about renewable and non-renewable energy resources and how electricity is generated. They compare energy resources and their effects on our environment.

Spring term:

P3 – Electricity:

Students learn how to draw circuit diagrams for series and parallel circuits, and how current and voltage change in these two types of circuits. They also study resistance and how to calculate potential difference and resistance.

B4 – Environment and adaptation:

Students learn about different organisms in their habitats and their adaptation to their habitats. They learn about food chain, food web and competition among different organisms.

B5 – Variation and classification:

Students study how we classify organisms into different groups, and how genes and the environment control characteristics.

B6 – Photosynthesis:

Students study how plants make their own food through photosynthesis, and the crucial role of mineral salts in their growth. They learn about the factors that affect the rate of photosynthesis.

C4—Pure and impure substances:

Students learn about mixtures and how the components can be separated. They carry out practical investigations on solubility, concentration and different separation methods.

Summer term:

C5 – Acids and alkali:

Students study everyday acids and alkalis, learn what the pH scale is and make indicators. They carry out practical investigations on neutralisation and dilution.

C6—Simple chemical reaction:

Students learn about chemical and physical changes. They carry out practical investigation to collect and test different gases. They learn to write chemical equations.

P4 – Force and effects:

Students study the interaction of forces on objects and the different types of forces. They calculate resultant force and carry out a practical investigation on the extension of a spring.

P5—Motion:

Students learn how force affects speed, calculate speed and interpret a distance-time graph. They describe the motion of a skydiver and calculate weight of object using $W = m \times g$

P6 – Magnets and Electromagnets:

Students examine the fascinating world of magnets, including how magnets are made and effect objects around them. They study and build electromagnets and work out how to make them stronger and what they are used for.