









Curriculum Overview for Science

Year 8

<p>Half Term 1: BBL1, BOM5, OOEO4</p> <p>Substantive Knowledge: The function of the cell membrane, cytoplasm, nucleus, and mitochondria The hierarchical organisation of multicellular organisms: from cells to tissue to organs to systems to organisms Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope The structure and function of the human skeleton, to include support, protection, movement and making blood cells Biomechanics - the interaction between skeleton and muscles, including the measurement of force exerted by different muscle groups The function of muscles and examples of antagonistic muscles the differences in arrangements, in motion and in closeness of particles explaining changes of state, shape and density, the anomaly of ice water transition atoms and molecules as particles the properties of different states of matter (solid, liquid and gas) in terms of particle model, including gas pressure the difference between physical and chemical changes Forces measured in Newtons. Forces as pushes or pulls, arising from the interaction between objects: Contact forces and non-contact forces. Non-contact forces: gravity forces acting at a distance on earth and in space. Single forces. Draw for contact and non-contact, including magnetism. Using force arrows in diagrams to show each force acting upon an object. Balanced forces and equilibrium; weight held by stretched spring or supported on compressed surfaces. Measurements of stretching or compression as force is changed</p> <p>Disciplinary Knowledge: Using a model (cell diagram) to describe the structure of something we can't see with the naked eye. Identify the strengths and weaknesses of particular models Identify possible risks to yourself or others Identify a suitable piece of equipment or information source to address a specific question Construct and interpret bar charts Draw straightforward conclusions from data presented Using a model (Particle model) to describe the structure of something we can't see with the eye. Identify the strengths and weaknesses of specific models. Formulate a prediction based on learnt science. Recognise real applications of specific scientific ideas Identify a suitable piece of equipment needed to collect reliable data Identify one or more control variables in an investigation Describe observations using cause and effect, identifying sources of zero, random and systematic error Draw straight forward conclusions from data presented</p>		Model reading and highlighting to pick out key details, reading of data, Skim reading
		Cell, Cell Membrane, Cytoplasm, Nucleus, Mitochondria, Unicellular/Multicellular, Atom, Molecule, Macroscopic, Vibrate, Anomaly, Density Compress, Pressure, Gas Pressure, Syringe, Thrust Normal Reaction Force, Electrostatic Force, Newton, Magnitude, Stretch, Compress, Elastic, Inelastic, Extension, Stationary, Motion, Equilibrium
		End of unit assessments Recall tests
		Homework booklets – include revision cards and exam questions



<p>Half Term 2: THB9, BOM8</p> <p>Substantive Knowledge: Content of a healthy diet; carbohydrates, lipids, (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed. Calculations of energy requirements in a health daily diet. The consequences of imbalances in the diet, including obesity, starvation, and deficiency disease. The tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply and biological catalysts). The importance of bacteria in the human digestive system. The concept of a pure substance Mixtures, including dissolving. Simple techniques for separating mixtures; filtration, evaporation, and distillation. The identification of pure substances</p> <p>Disciplinary Knowledge: Identify simple advantages of working together on experiments or investigations. Use appropriate sampling techniques and/or scientific procedures to collect data. Draw straight forward conclusions from data presented. Recognise real applications of specific scientific ideas Independently recognise familiar risks and make suggestions on how to control them Construct scientific plans which will allow for reliable results to be collected Suggest improvement to their method without prompts Describe the difference viewpoints that people have about how science or technology should be developed Present simple scientific data in more than one way, including tables and bar charts Interpret frequency tables, line graphs, bar graph and pie charts Identify one or more control variables in an investigation Identify data as categoric, discrete or continuous</p>		<p>Model reading and highlighting to pick out key details, reading of data, Skim reading</p>
		<p>(Kilo)calorie, Biuret, Enzyme, Lipid, Malnutrition, Oesophagus, Pancreas, Reagent, distillation, insoluble, soluble, solution, Suspension, technique, mixture</p>
		<p>End of unit assessments Recall tests</p>
		<p>Homework booklets – include revision cards and exam questions</p>