

Year 10 Combined Science

Learning Programme 1

The LORIC skill focus for this LP is: LEADERSHIP The Moral Virtues focus for this LP are: COURAGE and HUMILITY. Courage - Acting with bravery and overcoming fears. Humility - Having a modest view of oneself. What will I be learning about in this Learning Programme? In Biology, how cells are structured and how to observe these using microscopes as well as stem cells and the cell cycle. In Chemistry, how our understanding of atomic theory has developed and how elements are organised in the periodic table. In Physics, how the concept of energy can be used to calculate changes in energy stores. The National Grid and how electricity is generated from renewable and non-renewable resources. Where have I seen this learning before? You have learnt about cell structure and microscopes in KS3. You will have covered particles and atomic structure in KS3 as well as the structure of the periodic table. You have encountered the idea of energy and efficiency at KS3. What could I use it for? You will use this knowledge in A-level Biology and Applied Science BTEC. You will use the atomic model to explain the bonding and structure in different substances in LP2 and 3 and you will use this learning in A level Chemistry as well as if you pursue a degree in Chemistry at university. Energy is a key concept in science, and underpins most of Physics, Chemistry and Biology.			Literacy: - Capital letters must be used at the start of sentences and for the first letter of proper nouns - Full stops must be used at the end of a sentence - Question marks must be used at the end of a question - Apostrophes should only be used for possession or omission - Days of the week and months must be spelled correctly - Key words must be spelled correctly
In LP1.1, I will know: the similarities and differences between plant and animal cells; the principles of light and electron microscopes; how to complete Required Practical 1: plant and animal cells and record scale magnification; the similarities and differences between prokaryotic and eukaryotic cells.	31/08/26 - (WK 1)	Frayer Model Word magnification	Homework Complete the Sparx science task set online.
In LP1.2, I will know: the functions and adaptations of specialised cells; how to compare stem cells to specialised cells; diffusion and active transport and explain the factors affecting diffusion; the effect of dilute and concentrated solutions on animal cells; how to carry out Required Practical 2: Osmosis.	07/09/26 - (WK 2)	Frayer Model Word eukaryotic	Homework Complete the Sparx science task set online.
In LP1.3, I will know: how to carry out Required Practical 2: Osmosis; how to analyse the osmosis practical; the importance of the cell cycle and describe each of the stages involved including mitosis; the definition of an element and the basic structure of an atom. Extended Task.	14/09/26 - (WK 1)	Frayer Model Word osmosis	Homework Complete the Sparx science task set online.
In LP1.4, I will know: what happens to the atoms during a chemical reaction and the conservation of mass; how to separate components in a range of mixtures; how fractional distillation works; how paper chromatography works.	21/09/26 - (WK 2)	Frayer Model Word atom	Homework Complete the Sparx science task set online.
In LP1.5, I will know: how the model of the atom has changed over time; what the atomic and mass number of an atom represent; to define an ion and an isotope with examples of each; the electronic structures of the first 20 elements on the periodic table and how it developed over time.	28/09/26 - (WK 1)	Frayer Model Word atomic number	Homework Complete the Sparx science task set online.
In LP1.6, I will know: how to describe and give examples of the energy stores and transfers that take place in a closed system; how to describe the conservation of energy principle and calculate the amount of energy associated with a moving object ($KE = \frac{1}{2}mv^2$); how to calculate the potential energy associated with a stretched spring ($EPE = \frac{1}{2}ke^2$) and an object raised above ground level ($GPE = mgh$); Extended Task.	05/10/26 - (WK 2)	Frayer Model Word conservation	Homework Complete the Sparx science task set online.
In LP1.7, I will know: how to carry out RP1: investigate the specific heat capacity of various materials; how to describe power as the rate of energy transfer (or work done), and use the calculations: $P = E \div t$ and $P = W \div t$; how to describe insulation and methods to reduce the thermal conductivity in a building; how to use the equations for efficiency in terms of energy transferred and power and renewable and non-renewable energy	12/10/26 - (WK 1)	Frayer Model Word Watts	Homework Complete the Sparx science task set online.
Resources to support learning: EPC Knowledge organisers, Synergy, search in YouTube "AQA Trilogy", search in Google "BBC Bitesize AQA Trilogy".			
FFET Award Challenge for this Learning Programme: Watch a documentary and one of the issues covered this LP, write a short report on what you learnt and present this to the class or your teacher.			

PRT Task 1

PRT Task 2