

Year 10 Combined Science - Physics/Chemistry

Learning Programme 4

<p>The LORIC skill focus for his LP is: INITIATIVE. The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles. I will show integrity by taking responsibility for my actions. Gratitude - Feeling and expressing thanks. I will show gratitude by saying please and thank you.</p> <p>What will I be learning about in this Learning Programme? How the behaviour of particles affects the behaviour of substances. Density and how you measure it. The structure of the atom and nuclear radiation</p> <p>Where have I seen this learning before? From KS3: properties of materials, the particle model, changes of state, energy changes. You have learnt about the particle model in KS3 and Chemistry.</p> <p>What could I use it for? This knowledge is further built upon in the two topics: Electricity and Thermodynamics at A-level. Essential knowledge for careers in engineering, catering and food design, insulating buildings. You will learn more about the particle model and the nucleus in greater depth in A-level Physics and Chemistry</p>		<p>Literacy Non-Negotiables:</p> <ul style="list-style-type: none"> • 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 • Vocabulary to be taught using the Frayer model
<p>In LP4.1, I will know: 09/03/26 - (WK 2)</p> <p>How to apply the equation density=mass/volume and know how to find the volume of regular and irregular objects; how to investigate density (required practical).</p>	<p>Frayer Model Words</p> <p>density</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.2, I will know: 16/03/26 - (WK 1)</p> <p>How to draw and describe particle arrangements for solid, liquid, gas, in terms of internal energy of particles and state changes; how to explain key features of a heating/cooling curve and calculate the specific latent heat.</p>	<p>Frayer Model Words</p> <p>specific latent heat</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.3, I will know: 23/03/26 - (WK 2)</p> <p>How to define specific heat capacity. Rearrange and apply the equation $E=mc \times \text{temp change}$; how to investigate the specific heat capacity of metals (required practical).</p> <p>Extended Task.</p>	<p>Frayer Model Words</p> <p>specific heat capacity</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.4, I will know: 13/04/26 - (WK 1)</p> <p>How to explain the relationship between the temperature of a gas and its pressure at constant volume; My strengths and areas for development following the LP4 Formative Assessment 1</p>	<p>Frayer Model Words</p> <p>pressure</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.5, I will know: 20/04/26 - (WK 2)</p> <p>how to describe the structure of the atom given its mass number and atomic number. Describe the nature of subatomic particles. Define isotope; how to describe how the model of the atom has developed over time. Describe the difference between the plum pudding model and the nuclear model. Describe how the evidence from the alpha scattering experiment led to a change in the atomic model.</p>	<p>Frayer Model Words</p> <p>radiation</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.6, I will know: 27/04/26 - (WK 1)</p> <p>how to describe and explain the properties of alpha, beta and gamma: composition, charge, mass, effect in a field, ionisation; how to describe and explain the penetration power and dangers of alpha, beta and gamma *demo practical*.</p> <p>Extended Task.</p>	<p>Frayer Model Words</p> <p>decay</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>In LP4.7, I will know: 04/05/26 - (WK 2)</p> <p>how to construct and balance nuclear equations of alpha and beta decay; how to define half-life as the time taken for half the nuclei to decay; how to find the half-life from a graph and calculations using given information of mass or number of nuclei;</p>	<p>Frayer Model Words</p> <p>half-life</p>	<p>Homework</p> <p>Sparx Science homework task.</p>
<p>Resources to support learning: BBC bitesize, www.physicsandmathstutor.com, Physics Booklets from lesson (both content and revision). All homework on synergy and SPARX</p>		
<p>FFET Award Challenge for this Learning Programme: LP4 Year 10 Science: Create a revision resource on a topic of your choice.</p>		

PRT Task 1

PRT Task 2