

Year 10 Physics Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles. Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme? Structure of the atom. Nuclear radiation. Radioactive decay. Nuclear fission and fusion</p> <p>Where have I seen this learning before? You have learnt about the particle model in KS3 and LP3. The structure of the atom is a fundamental concept that you learnt in KS3 and have since reviewed in Chemistry.</p> <p>What could I use it for? You will learn more about the particle model and the nucleus in greater depth in A-level Physics and Chemistry. Nuclear power will be crucial as we look to move to more carbon neutral energy.</p>		<p>Literacy:</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
<p>In LP4.1, I will know: 04/03/24 - (WK 1)</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>Key Vocabulary</p> <p>isotope</p>	<p>Homework</p> <p>PPQ alpha scattering experiment</p>
<p>In LP4.2, I will know: 11/03/24 - (WK 2)</p> <p>how to describe and explain the properties of alpha, beta and gamma: composition, charge, mass, effect in a field, ionisation, penetration power, dangers. *demo practical* How to explain the nuclear equations for the decay of alpha, beta and gamma</p>	<p>Key Vocabulary</p> <p>radiation</p>	<p>Homework</p> <p>PPQ on alpha beta and gamma properties</p>
<p>In LP4.3, I will know: 18/03/24 - (WK 1)</p> <p>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 how to explain what is meant when radioactive decay is described as random and spontaneous - half life practical</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>decay</p>	<p>Homework</p> <p>PPQ on half-life</p>
<p>In LP4.4, I will know: 25/03/24 - (WK 2)</p> <p>how to explain how contamination and irradiation can cause a risk to human health. Name common sources (natural and manmade) of background radiation. How to evaluate the perceived risks of using nuclear radiation - Alexander Litvinenko story.</p>	<p>Key Vocabulary</p> <p>contamination</p>	<p>Homework</p> <p>PPQ on contamination, irradiation and background radiation</p>
<p>In LP4.5, I will know: 15/04/24 - (WK 1)</p> <p>How to describe and explain uses of alpha, beta and gamma radiation in industry.</p>	<p>Key Vocabulary</p> <p>Becquerel</p>	<p>Homework</p> <p>PPQ on uses of radiation</p>
<p>In LP4.6, I will know: 22/04/24 - (WK 2)</p> <p>How to describe medical uses of radiation Response to assessment</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>irradiation</p>	<p>Homework</p> <p>PPQ on medical uses of radiation</p>
<p>In LP4.7, I will know: 29/04/24 - (WK 1)</p> <p>How to describe the process of nuclear Fusion How to describe the working of a nuclear power station</p>	<p>Key Vocabulary</p> <p>fusion</p>	<p>Homework</p> <p>PPQ on nuclear fission</p>
<p>In LP4.8, I will know: 06/05/24 - (WK 2)</p> <p>How to describe the process of nuclear fission How to evaluate the perceived risks of using nuclear radiations for medical or energy in relation to given data and consequences.</p>	<p>Key Vocabulary</p> <p>fission</p>	<p>Homework</p> <p>PPQ on nuclear fusion</p>
<p>Resources to support learning: BBC bitesize, www.physicsandmathstutor.com, Physics Booklets from lesson (both content and revision). All on TEAMS</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