The Ellesmere Port C of E College

Part of the Frank Field Education Trust

Year 10 Physics
Learning Programme 4

The LORIC skill focus for his LP is: INITIATIVE.
The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.

Integrity - Having strong moral principles.
Gratitude - Feeling and expressing thanks.

What will I be learning about in this Learning Programme?
Structure of the atom. Nuclear radiation. Radioactive decay. Nuclear fission and fusion

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.

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, and the knowledge of use of radioisotopes is beneficial for anyone that wants a career in medicine for the the treatment of and detection of cancer.

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 LP4.1, I will know: 10/03/25 - (WK 2)	Key Vocabulary	Homework
assessment week - summative assessment 2; how to describe the structure of the atom given its mass number and atomic number. Describe the nature of subatomic particles. Define isotope.	isotope	complete SPARX homework
In LP4.2, I will know: 17/03/25 - (WK 1)	**Key Vocabulary**	**Homework**
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 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;	radiation	complete SPARX homework
In LP4.3, I will know: 24/03/25 - (WK 2)	**Key Vocabulary**	**Homework**
how to explain the nuclear equations for the decay of alpha, beta and gamma; LP4 formative assessment 1. Extended Task.	decay	complete SPARX homework
In LP4.4, I will know: 31/03/25 - (WK 1)	**Key Vocabulary**	**Homework**
my strengths and areas for development following the assessment and PRT; 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.	half life	complete SPARX homework
In LP4.5, I will know: 21/04/25 - (WK 2)	**Key Vocabulary**	**Homework**
how to explain what is meant when radioactive decay is described as random and spontaneous - half life practical.; how to explain that contamination and irradiation can cause a risk to human health. Name common sources (natural and manmade) of background radiation;	contamination	complete SPARX homework
In LP4.6, I will know: 28/04/25 - (WK 1)	**Key Vocabulary**	**Homework**
how to evaluate the perceived risks of using nuclear radiation - Alexander Litvinenko story; LP4 formative assessment 2. Extended Task.	Becquerel	complete SPARX homework
In LP4.7, I will know: 05/05/25 - (WK 2)	**Key Vocabulary**	**Homework**
how to describe and explain uses and risks of alpha, beta and gamma radiation in industry and medicine; my strengths and areas for development following LP4 Formative assessment 1 and PRT;	radiotherapy	complete SPARX homework

PRT Task 1

PRT Task 2

Resources to support learning:
BBC bitesize, www.physicsandmathstutor.com, Physics Booklets from lesson (both content and revision). All homework's on synergy and SPARX

FFET Award Challenge for this Learning Programme:
LP4 Year 10 Science: Create a revision resource on a topic of your choice.