The Ellesmere Port C of E College

Part of the Frank Field Education Trust

Year 13 Chemistry T1
Learning Programme 3

The LORIC skill focus for his LP is: RESILIENCE
The Moral Virtues focus for this LP are: RESPECT and JUSTICE

Respect - treat others how you would wish to be treated yourself.
Justice - our College rules are fair and reasonable.

What will I be learning about in this Learning Programme?

How to analyse chromatograms to identify unknown substances. The tests and observations for organic functional groupsHow to interpret proton and carbon NMR spectra.How to identify an organic molecule form an NMR spectra.The transition elements, their properties, how ligands are formed and how stereoisomers can be formed.

Where have I seen this learning before?

You have covered organic functional groups as you have moved through Yr12 and 13.You have studied the shapes of molecules and periodicity in Yr12.

What could I use it for?

Further degree study, careers in chemical analysis and synthesis particularly in the manufacturing of medicines.

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 LP3.1, I will know: 06/01/25 - (WK 2)	Key Vocabulary	Homework
how to identify individual functional groups of organic molecules containing several functional groups; how to interpret one-way TLC and gas chromatograms; the tests and positive result for organic function groups including alkenes, haloalkanes and phenols.	Chromatography	Chemical analysis practice questions
In LP3.2, I will know: 13/01/25 - (WK 1)	**Key Vocabulary**	**Homework**
the tests and positive result for organic function groups including carbonyls, aldehydes and alcohols.	Functional group	Functional group analysis practice questions
In LP3.3, I will know: 20/01/25 - (WK 2)	**Key Vocabulary**	**Homework**
how to use a carbon-13 NMR to make predictions about the number of carbon environments in a molecule; how to use a carbon-13 NMR to make predictions about possible structures for the molecule; how to use a high resolution proton NMR spectrum to make predictions about the number of proton environments in the molecule.	Nuclear magnetic resonance spectroscopy	NMR practice questions
In LP3.4, I will know: 27/01/25 - (WK 1)	**Key Vocabulary**	**Homework**
how to identify a molecule from a carbon-13 or proton NMR spectrum; how to deduce the structures of organic compounds from elemental analysis. Extended Task.	Nuclear magnetic resonance spectroscopy	NMR practice questions
In LP3.5, I will know: 03/02/25 - (WK 2)	**Key Vocabulary**	**Homework**
the electron configuration of atoms and ions of the d-block elements of Period 4 (Sc–Zn), given the atomic number and charge;how to illustrate, using at least two transition elements, of: (i) the existence of more than one oxidation state for each element in its compounds (ii) the formation of coloured ions (iii) the catalytic behaviour of the elements and their compounds and their importance in the manufacture of chemicals by industry.	Transition elements	Transition elements practice questions
In LP3.6, I will know: 10/02/25 - (WK 1)	**Key Vocabulary**	**Homework**
the explanation and use of the term ligand in terms of coordinate (dative covalent) bonding to a metal ion or metal, including bidentate ligands; how to use the terms complex ion and coordination number and examples of complexes with: (i) six-fold coordination with an octahedral shape (ii) four-fold coordination with either a planar or tetrahedral shape.	Ligands	Shape of complex ions practice questions
LP3 RLW, I will: 24/02/25 - (WK 2)		
review my learning, recalling and applying key knowledge, and focus on closing any gaps in my knowledge.		
In LP3.7, I will know: 03/03/25 - (WK 1)	**Key Vocabulary**	**Homework**
the types of stereoisomerism shown by complexes, including those associated with bidentate and multidentate ligands: (i) cis–trans isomerism e.g. Pt(NH3)2Cl2 (ii) optical isomerism e.g. [Ni(NH2CH2CH2NH2)3]2+. Extended Task.	Stereoisomerism	Stereoisomerism in ions practice questions

PRT Task 1

PRT Task 2

Resources to support learning:

Knowledge organiser, Microsoft TEAMS, machem guy YouTube videos. Knock hardy and a level chemistry.co.uk

FFET Award Challenge for this Learning Programme:

Complete three independent learning tasks and evaluate how they have helped you.