SUBJECT GCSE Chemistry (Sets 3&4) Year 9 LP 1

This half term: Skills, Knowledge and Understanding to be developed:

- **Skills (students WILL BE ABLE to by the end of the Learning Programme):** represent simple molecules using chemical formulae and a diagram and key; write the formulae of ionic compounds given the formulae of the ions they contain; represent chemical reactions using balanced chemical equations
- **Knowledge (students WILL KNOW by the end of the Learning Programme:** the meaning of the terms relative atomic mass and relative molecular (formula) mass; that chemical reactions are a process of re-arrangement of the atoms present in the reactants to form one or more products
- **Understanding (students WILL DEMONSTRATE their understanding):** by answering past paper questions on each learning outcome.

Key Terms / Words
Element, compound, electron, proton, neutron, atomic number, relative atomic mass, formula, equation, periodic table.

LP 1 – Week 1 Learning Outcomes:

1. Elements
Students will be able to:
- know that elements are substances made up of only one type of atom.
- represent elements using chemical symbols
- label an atom model

2. Compounds (2 lessons)
Students will be able to:
- understand that compounds are substances made of two or more different types of atom that are chemically joined
- carry out an investigation which demonstrates the formation of a compound
- name compounds from their constituent elements and vice versa

Success criteria:
- Students will use the periodic table to identify element symbols and names
- Students will be able to label an atom
- Students will be able to name compounds from their constituent elements and vice versa.
- Students will investigate how the properties of elements change on the formation of a compound

Homework 1 LP 1
Google classroom:
Quiz on elements

LP 1 – Week 2 Learning Outcomes:

3. Mixtures
Students will be able to:
- understand that a mixture is two or more elements or compounds that are in the same place but **not** chemically joined together
- Identify elements, compounds and mixtures using particle diagrams

4. APP
Students will be able to:
- Demonstrate their understanding of elements, compounds and mixtures in APP assessment

Students will apply and demonstrate new knowledge and skills in APP assessment on elements, compounds and mixtures.

5. Formula
Students will be able to:
- understand compound formula
- identify which elements are present in a compound from a given formula, along with the number of atoms of each element present.

(Literacy framework strand- 9.OS4- I can respond to how listeners are reacting by adapting what I say and how I say it.)

Success criteria:
- Students will be able to identify elements, mixtures and compounds (EMC) using particle diagrams
- Students will apply their knowledge of EMC to answer past paper questions on the topic
- Students will be able to identify which elements are present in a compound from a given formula, along with the number of atoms of each element present.

Homework 2 LP 1
Revise for APP by completing the yellow revision sheet on elements, compounds and mixtures

LP 1 – Week 3 Learning Outcomes: **6. Generating formula of ionic compounds (2 lessons)** Students will be able to: ○ write the formulae of ionic compounds given the formulae of the ions they contain. **7. Space filler diagrams** Students will be able to: ○ represent simple molecules using chemical formulae and a diagram and key.		**Success criteria:** • Students will be able to write the formulae of ionic compounds. • Students will be able to draw space-filler diagrams from a given key.	**Homework 3 LP 1** **Google classroom:** Quiz on formulas
LP1 – Week 4 Learning Outcomes: **8. Balancing equations (2 lessons)** Students will be able to: ○ balance symbol equations. ○ know that chemical reactions are a process of re-arrangement of the atoms present in the reactants to form one or more products, which have the same total number of each type of atom as the reactants **9. Filtration and evaporation** Students will be able to: ○ know that atoms/molecules in mixtures are not chemically joined and can be easily separated by physical processes such as filtration and evaporation ○ recall the key words associated with the process of filtration and evaporation		**Success criteria:** • Balance a range of symbol equations from simple to examples more difficult equations that include brackets • To be able to identify how to separate mixtures based on solubility	**Homework 4 LP 1** Revise for SA – end of term test on all aspects of the work covered during LP1
LP1 – Week 5 Learning Outcomes: **10. Distillation** Students will be able to: ○ know that atoms/molecules in mixtures are not chemically joined and can be easily separated by physical processes such as distillation **11. SA** Students will apply and demonstrate new knowledge and skills in an end of unit summative assessment. (SUMMATIVE based on ~30 marks. Questions will consist of a variety of short 1,2,3,4 and 6 mark questions.)		**Success criteria:** • Complete QWC on distillation of ethanol and water. • To be able to identify how to separate mixtures based on solubility and boiling point. • **SUMMATIVE ASSESSMENT**	
LP1 – Week 6 Learning Outcomes: **12. Review work on S.A** Students will reply to feedback on their summative assessment. **13. Chromatography (2 lessons)** Students will be able to: ○ understand the principle behind chromatography as a separation technique ○ know how to undertake chromatography. ○ interpret chromatographic data analysis ○ will recognise and apply key mental facts and strategies **(Numeracy Focus: 8N4)** and use a range of strategies to check calculations including the use of inverse operations **(Numeracy Focus: 7N16)** when calculating Rf values and the distance travelled by pigments from chromatograms.		**Success criteria:** • Complete and analyse their own chromatograph	

LP1 – Week 7 Learning Outcomes: **14. Skills – Planning** Students will be able to: ○ use scientific skills to plan an investigation to test the following question; 'Do two pigments contain the same ink?' ○ use technical terms, language and expression **(Literacy focus: WL2)**; use paragraphs to organise their response **(Literacy focus: WS4)** and write a broad account to answer the question **(Literacy focus: WM1).** **15. Skills – Success Criteria** Students will be able to: ○ determine the success criteria for carrying out chromatography ○ justify reasons for the success criteria chosen **16. Skills – Review Success** Students will be able to: ○ decide whether their method was successful by referring to their success criteria ○ evaluate how far success criteria fully reflects successful outcomes ○ say how they could improve their method **PLEASE NOTE, THIS LEARNING PROGRAMME IS SUBJECT TO CHANGE.**		**Success criteria**: • Plan a safe step-by-step method in order to answer the question given • Review findings by identifying and explaining pattern • Evaluate learning during the investigation	