



LC HL CHEMISTRY

FOUNDATION PROGRAM

+353 85 8457951
www.skjeducation.co
steven@skjeducation.com

1 Overview of 8-week LC HL Chemistry Program

LC HL Chemistry - Foundation Program

Are chemical equations, mole calculations, and organic reactions causing confusion? This 8-week Chemistry Foundation Program is designed to demystify the subject and build unshakable confidence. We go beyond memorizing the periodic table to teach you how to think like a chemist. Through our proven metacognition approach, you'll learn to recognize patterns in bonding, master the logic behind chemical calculations, and understand the "why" behind every reaction. This isn't about passive learning; it's about becoming an active problem-solver. In just 8 weeks, you'll gain the conceptual understanding, mathematical skills, and exam techniques needed to excel in Leaving Cert Chemistry. Your transformation starts here.

Here is the timetable for this 8-week program. There are links to extra questions and resources on StudyClix, should you wish to use them.

Here are links to extra questions and resources on StudyClix for this 8-week program, should you wish to use them.

Links	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Topic 1	Periodic Table	Bonding	Stoichiometry	Titration	Rates of Reaction	Organic I	Organic II	Equilibrium
Topic 2	Electron Arrangement	Atomic Structure	Gas Laws	Redox	Chromatography	Thermochemistry	Thermochemistry	Radioactivity
Experiment	YT Video "All of Chemistry"	Exp. Q3 (Other)	Exp. Q1 (Titration)	Exp. Q1 (Titration)	Exp. Q3 (Other)	Exp. Q2 (Organic)	Exp. Q2 (Organic)	Exp. Q3 (Other)

The program is structured in two 4-week blocks, designed to install the "language system" needed for chemistry.

- **Block 1 (Weeks 1-4): The Language of Chemistry.** Establish the absolute fundamentals—atomic structure, bonding, and the mole concept—that form the non-negotiable foundation for all chemical understanding.
- **Block 2 (Weeks 5-8): The Application of Chemistry.** Apply these core principles to organic chemistry, reaction rates, and equilibrium, mastering the calculations and patterns that are high-yield for exam marks.
- **Interleaved Revision:** From Week 2, worksheets and assessments will integrate calculations from previous topics. This deliberate design ensures you can't forget the mole and must build the flexible problem-solving skills essential for the exam.

2 Sample Study Plan

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Review Key Terms & LO's. Watch video (30 mins)	Finish Ex. Work sheet + Online Lesson (90 mins)	Rest and Reflect, Correct Work sheet. (20 mins)	Experiment Exercise Work sheet (50 mins)	Error Analysis Exercise (40 mins)	Exam Q Assessment (60 mins)	Self-Correct & Prep Day (30 mins)

3 Weekly Study Resources

1. **Key Terms:** Key vocabulary, definitions and formulae required for the worksheets (i.e., a cheat sheet/quick guide to this topic).
2. **Learning Objectives & Indicative Content (aligned LC HL Chemistry curriculum & specification):** Clear, quantifiable, achievable **goals** for the coming week.
3. **Exercise Worksheet:** Your main learning tool. It contains clear notes, worked examples, and key questions to solidify your understanding. This can be used for 1-4 study sessions in a given week (takes 90-120 minutes to complete).
4. ***Students have an online lesson after the exercise worksheet is completed***
5. **Error-Based Analysis Exercise:** A unique exercise where you'll find and fix common mistakes, training yourself to think like an examiner.
6. **Exam Question Assessment:** A short exam-style test to check your progress and get comfortable with the format of the real thing.
7. **Self-Correction & Progress Tracking Protocol:** see below.

4 Self-Correction & Progress Tracking Protocol

(This is the **MOST IMPORTANT task of the week** – complete this on Sunday, then immediately plan the following week's study to **guarantee consistency**).

1. **Mark your work.** Use a different colour pen.
2. **For each question, categorise your result:**
 - **Fluent:** I got it right and knew why.
 - **Lucky:** I got it right but was guessing/doubtful. I could not fully explain why this is the answer/how I got it.
 - **Error:** I got it wrong.
3. **For each Error, complete this sentence:**

"The root cause of this was: I _____."
(e.g., "I confused the formula for displacement with distance," or "I forgot to convert units.")
4. **For each Lucky answer, mark with a highlighter for later revision tests.**
5. **Action Plan:** Based on your analysis, what is **one specific thing** you will do before next week's lesson? (e.g., "Create a flashcards for function properties," "Redo the error-analysis exercise," "Watch a video on integration steps").
6. **Confidence Rating:** On a scale of 1-5, how confident do you now feel with this week's core concepts? (1 = Not at all, 5 = Rock Solid). Go through every Learning Objective and rank them. Continue this at the end of every week.

5 Why This System Works

- **Smarter Learning, Not More Learning:** My materials are designed using proven learning science to help you understand and retain information more effectively.
- **Build Confidence Through Mastery:** Start with the absolute essentials, ensuring you have a rock-solid foundation before moving on. No gaps, no confusion. Ask as many questions as you can.
- **You Learn How to Learn:** This program will teach you how to review your work, spot your own mistakes, and identify what you need to focus on. This is a skill that helps you in every walk of life.
- **Focus on Weaknesses:** By directing most of your time to analysing mistakes and revising difficult topics, you are forcing your brain to grow rapidly.

6 Weekly Learning Objectives

Week 1: Introduction to Chemistry

- **1.1:** Describe the structure of the atom (protons, neutrons, electrons) and define atomic number and mass number.
- **1.2:** Explain what isotopes are and calculate relative atomic mass.
- **1.3:** Write electron configurations (e.g., 2-8-2) for the first 20 elements.
- **1.4:** Identify and explain trends in the Periodic Table (Group I, VII, & Period 3).

Week 2: Bonding & Shapes

- **2.1:** Predict the type of bonding between elements based on their position in the Periodic Table.
- **2.2:** Draw Lewis structures for simple molecules and ions.
- **2.3:** Use VSEPR theory to predict the shapes of molecules (linear, bent, trigonal planar, tetrahedral).
- **2.4:** Relate physical properties (MP/BP, conductivity, solubility) to bond type.

Week 3: Stoichiometry & The Mole

- **3.1:** Write and balance chemical equations.
- **3.2:** Define the mole and use the formula $n = \frac{m}{M}$ to convert between mass and moles.
- **3.3:** Perform calculations involving reacting masses.
- **3.4:** Calculate percentage composition by mass of an element in a compound.

Week 4: Volumetric Analysis

- **4.1:** Define acids and bases according to the Bronsted-Lowry theory.
- **4.2:** Describe the titration experiment, including equipment and indicators.
- **4.3:** Perform titration calculations using the formula $\frac{M_a V_a}{n_a} = \frac{M_b V_b}{n_b}$.
- **4.4:** Explain the concept of pH and the pH scale.

****Students will have a "Reading Week" between Weeks 4 and 5.****

Week 5: Rates of Reaction

- **5.1:** Describe the effect of concentration, pressure, temperature, surface area, and catalyst on reaction rate.
- **5.2:** Explain these effects using collision theory.
- **5.3:** Sketch and interpret reaction rate graphs.
- **5.4:** Define a catalyst and explain its action on a reaction pathway.

Week 6: Organic Chemistry I

- **6.1:** Explain the unique bonding properties of the carbon atom.
- **6.2:** Define a homologous series and state the general formulas for alkanes and alkenes.
- **6.3:** Apply IUPAC rules to name straight-chain alkanes and alkenes.
- **6.4:** Describe the reactions of alkanes (combustion) and alkenes (addition reactions with H_2 , Br_2 , H_2O).

Week 7: Organic Chemistry II

- **7.1:** Name and draw the structures of alcohols, carboxylic acids, and esters.
- **7.2:** Describe the preparation of ethanol by fermentation and hydration.
- **7.3:** Explain the oxidation of ethanol to ethanoic acid.
- **7.4:** Describe the formation of esters (esterification) and state one use.

Week 8: Chemical Equilibrium

- **8.1:** Explain what is meant by a dynamic equilibrium.
- **8.2:** State Le Chatelier's Principle.
- **8.3:** Predict the effect of changing concentration, pressure, and temperature on the position of equilibrium.
- **8.4:** Apply these principles to the Haber Process and the Contact Process.