Pupil’s Checklist for Being A Level Chemistry-ready

You are expected to know/understand the following:

**Electron configuration** for the first 20 elements

**Naming compounds** from formulae and vice versa

**Bonding**

Three main types – formation and properties

* ionic
* covalent
* and metallic

**Dot and cross diagrams** for covalent molecules and ionic compounds to include:

* sodium chloride, calcium oxide, calcium fluoride, aluminium oxide
* chlorine, oxygen, nitrogen, ammonia, carbon dioxide, methane, ethane, ethanol, sulfur dioxide, water

**Writing formulae** for all of the above plus compounds with:

* carbonate
* nitrate
* hydroxide
* hydrogen carbonate
* sulfate.

**Balancing equations** for

* neutralisation
* metals with acids
* alkali metals with water
* redox (displacement of halogens and metals), thermal decomposition

**Calculations**

* relative atomic mass, relative formula mass and empirical formulae
* Percentage yield and atom economy
* Reacting masses and limiting reagent

**Energetics**

* difference between exothermic and endothermic
* graphs associated with these
* energies in bond making and bond breaking

**Organic Chemistry**

* differences between alkanes and alkenes
* naming and reactions of alkanes and alkenes
* fractional distillation
* cracking
* characteristics of good fuels
* balancing combustion equations

Transition Course – Week 1 overview

| Topic | Specification links |
| --- | --- |
| Section A  Atomic structure, formulae and bonding | KS5 Topic 1: Atomic Structure and the Periodic Table  KS4 Topic 0: Formulae, equations and hazards  Topic 1: Key Concepts in Chemistry SC/CC 3 &4 – Atomic structure, the periodic table, ionic bonding, covalent bonding |
| Section B  Quantitative analysis and equations | KS5 Topic 5: Formulae, Equations and Amounts of Substance  KS4 Topic 1: Key Concepts in Chemistry SC9/CC9 – Calculations with masses  Plus Separate Chemistry Topic 5, SC14 Quantitative Analysis |
| Section C  Structure and properties **–** Literacy Focus | KS5 Topic 2: Bonding and Structure  KS4 Topic 1: Key Concepts |