**Mastery:**

**Sandbach School Science Curriculum:**

# Y12 Chemistry Curriculum Sequence

Intent: To establish a foundation of chemistry knowledge which can then be further built upon during Y13 and beyond

| Term 1 | Term 2 | Term 3 |
|---|---|---|
| **Atomic Stucture, Amount of Substance, Energetics, Kinetics** | **Periodicity, Group 2, Group 7, Organic chemistry** | **Organic Chemistry, Transition metals** |
| **Why start here?**<br>Atomic structure is the foundation of all chemistry, and all other topics lead from it. Students must be confident with atomic structure before they can move onto subsequent areas of chemistry.<br>Amount of substance is a very important topic relating to masses and moles. It is heavily linked to the GCSE topic chemical calculations, and is a logical progression from atomic structure.<br>Energetics and kinetics are topics that help to bridge the gap from GCSE to A-level, so students will be familiar with some areas already. They aim to establish fundamental knowledge in the area of physical chemistry. These topics are further developed in Y13. | **Why move onto these units?**<br>Periodicity, group 2 and group 7 are three topics centred around the periodic table. It is important that students learn to explain trends by using the knowledge from term 1 in atomic structure. They provide students with a foundational knowledge of inorganic chemistry which will then lead onto other topics at A-level such as transition metals and electrochemical cells.<br>Students also begin to learn the foundations of organic chemistry. Being able to draw and name molecules with different functional groups is the first thing students must be able to do, as they cannot access subsequent topics without these skills. Alkanes are the first organic molecule the students learn in detail, as they are the most basic. Once this topic is done, students are prepared to learn more complex organic concepts. | **Why move onto these units?**<br>Once the students have finished introduction to organic chemistry and alkanes, they should be confident enough to begin to deal with a wider variety of functional groups such as alkenes and alcohols. Organic analysis provides important techniques for analysing and differentiating these different functional groups.<br>The transition metals topic is a Y13 topic, but is usually done at the end of Y12 after exams. It builds upon several previous topics such as redox, periodicity, group 7, amount of substance bonding and GCSE transition metals to give a detailed overview of the d-block elements. |
| **Spec links:**<br>3.1.1 Atomic Structure<br>3.1.2 Amount of Substance<br>3.1.3 Bonding<br>3.1.4 Energetics<br>3.1.5 Kinetics<br>3.1.6 Equilibria<br>3.1.7 Redox | **Spec links:**<br>3.2.1 Periodicity<br>3.2.2 Group 2<br>3.2.3 Group 7<br>3.3.1 Introduction to organic chemistry<br>3.3.2 Alkanes | **Spec links:**<br>3.3.4 Alkenes<br>3.3.5 Alcohols<br>3.3.6 Organic Analysis<br>3.2.5 Transition metals |
| **Teaching these topics here supports:**<br>Y13 Thermodynamics<br>Y13 Kinetics<br>Periodicity<br>Transition metals | **Teaching these topics here supports:**<br>Y12 and Y13 organic chemistry<br>Y13 Transition metals | **Teaching these topics here supports:**<br>Y13 Organic chemistry<br>Reactions of aqueous ions |
| **These topics feed from:**<br>GCSE atomic structure<br>GCSE chemical calculations<br>GCSE Bonding<br>GCSE Energy changes<br>GCSE Rate of reaction | **These topics feed from:**<br>GSCE Periodic table<br>GCSE Crude oil<br>GCSE Organic chemistry (TRIPLE) | **These topics feed from:**<br>Introduction to organic chemistry<br>Periodicity<br>Group 2<br>Group 7<br>Redox<br>Amount of substance |