Armfield Academy – Department of Science

Year 10 Chemistry Curriculum Overview

- ✔ Each lesson will start with a series of questions linked to both the previous lesson and topics studied previously.
- ✔ Formative assessment of skills linked to practical work will enable students to demonstrate their acquisition of new skills.
- ✔ Students are encouraged to consolidate learning at least once a week and seek tutor help if unsure on any topics.
- ✔ Within each unit, time will be allocated for consolidation and recall before assessment, this includes for mock exams.
- ✔ The following questions will be explored within the units
- ✔ Content in blue is only taught to students on the triple science route.

Half Term 1	
Date	**Topic**: Structure and bonding
Week 1	Introduction to science (expectations, standards, health and safety, introduction of key skills and assessing prior knowledge).
Week 2	What are the states of matter? How is bonding arranged in metals?
Week 3	What is an alloy? **Application Time: Knowledge Check 1**
Week 4	How do we show the bonds between a metal and non-metal? What are the properties of ionic compounds?
Week 5	How do we represent the bonds between non-metals? What are the properties of simple covalent structures? What forms of carbon are there? **Application Time: Knowledge Check 2.**
Week 6	
Week 7	What are nanoparticles? What are the uses of nanoparticles? **Application time: End of topic assessment**
Half Term 2	
Date	**Topic**: Chemical changes
Week 8	What are metal oxides? How do metals react? What is the pH scale and how do we neutralise substances?
Week 9	What is the difference between strong and dilute acids? **Required practical: Titration**
Week 10	**Application time: Knowledge Check 1**
Week 11	How do we make a salt using metal carbonate and acid? **Required practical: Making a soluble salt.**
Week 12	What is the reactivity series? **Application Time: Knowledge Check 2** What is a displacement reaction?
Week 13	What is electrolysis? **Required practical: Electrolysis**
Week 14	How do we extract reactive metals from their ores? How do we extract aluminium from its' ore? How do we electrolyse salt water? **Application time: Knowledge Check 3** **Application time: End of topic assessment**
Half Term 3	
Date	**Topic**: Energy changes
Week 15	How does energy change in reactions?
Week 16	What reaction would be best for a hand warmer?
Week 17	What do we use exothermic and endothermic reactions for? **Application Time: Knowledge Check 1**
Week 18	How do reactions occur? Which fuel releases the most energy?
Week 19	How do we calculate bond energies? **Application Time: Knowledge Check 2**
Week 20	Where does the energy in a reaction come from? How do we make a battery? **Application Time: Knowledge Check 3** **Application time: End of topic assessment**
Half Term 4	
Date	**Topic**: Quantitative chemistry
Week 21	How do we balance equations? How do I calculate relative formula mass and percentage by mass?
Week 22	What happens to mass when a gas is made? **Application Time: Knowledge Check 1**
Week 23	What are moles? How do we calculate reacting masses?
Week 24	What is a limiting reactant? **Application Time: Knowledge Check 2** How do we calculate percentage yield?
Week 25	How do we use amounts of substances in equations? How can reactions be limited?
Week 26	What is atom economy? How do we calculate and use concentration? How do we calculate the volume of gases? **Application Time: Knowledge Check 3** **Application time: End of topic assessment**
Half Term 5	
Date	**Topic**: The rate and extent of chemical change
Week 27	How can the rate of a reaction be measured and how can it be calculated? **Application Time: Knowledge Check 1**
Week 28	How do the key factors affect the rate of a reaction? (temperature, concentration, surface area, catalyst)
Week 29	**Required practicals: Investigating rates of reaction** **Application Time: Knowledge Check 2**
Week 30	What is a reversible reaction?
Week 31	How does an energy change affect a reversible reaction? What is equilibrium?
Week 32	How does changing a condition affect the position of equilibrium? **Application time: End of topic assessment** **Year 10 Mock exams.**

Half Term 6	
Date	**Topic**: Chemistry of the atmosphere
Week 33	**Year 10 Mock exams.**
Week 34	**Year 10 Work Experience**
Week 35	How has the atmosphere evolved? How are pollutants produced?
Week 36	How do pollutants cause problems for humans? **Application Time: Knowledge Check 1**
Week 37	What is the greenhouse effect and how is it caused?
Week 38	How are we making the greenhouse effect worse and how will it affect us?
Week 39	What is a carbon footprint and why is it important? **Application Time: Knowledge Check 2**
Week 33	**Application time: End of topic assessment**