Chemistry

Curriculum Intent: To ensure students maintain and develop their curiosity and excitement about the natural world. To develop all to be `scientists` by embedding a culture of confidence and mastery underpinned by scientific enquiry. To develop their ability to see connections between science subject areas and become aware of some of the big ideas for understanding the world and to provide a high challenge, high quality science education for all our learners.

Year 12	Year 13
Core knowledge: Atomic structure and bonding. Calculations in Chemistry. Reaction energetics and kinetics. Reactions at equilibria. Redox reactions. Trends in the properties of period 3, group 2 and group 7 elements. Naming organic compounds. Properties and reactions of alkanes. Halogenoalkanes, alkenes and alcohols. Analysis of organic compounds.	**Core knowledge:** Thermodynamics. Quantitative reaction kinetics. Gaseous reactions at equilibria. Electrochemistry and acids. Bases and buffers. Reactions of period 3 elements and compounds. Transition metal chemistry and reactions of inorganic compounds in solution. Naming organic compounds. Properties and reactions of carbonyl compounds. Arenes and amines. Biochemistry and structure determination.
Procedural knowledge (how to..): Use scientific theories and explanations to develop hypothesis. Evaluate methods and suggest possible improvements Apply a knowledge of sampling techniques to ensure any samples collected are representative. Apply a knowledge of a range of techniques, apparatus, and materials to select those appropriate for both field work and for experiments. Translate data from one form to another. Represent distributions of results and make estimates of uncertainty. Carry out and represent mathematical and statistical analysis. Explain everyday technological applications of science Use a variety of concepts and models to develop scientific explanations. Appreciate the power of limitations of science and consider ethical issues.	**Procedural knowledge (how to..):** Use scientific theories and explanations to develop hypothesis. Evaluate methods and suggest possible improvements Apply a knowledge of sampling techniques to ensure any samples collected are representative. Apply a knowledge of a range of techniques, apparatus, and materials to select those appropriate for both field work and for experiments. Translate data from one form to another. Represent distributions of results and make estimates of uncertainty. Carry out and represent mathematical and statistical analysis. Explain everyday technological applications of science Use a variety of concepts and models to develop scientific explanations. Appreciate the power of limitations of science and consider ethical issues.
Assessment: Unit test x 9. TSAT exam x 2.	**Assessment:** Unit test x 11. TSAT exam x 2.
Homework: Assessed homework booklet x 9. Revision for tests x11.	**Homework:** Assessed homework booklet x11. Revision for tests x 13.
Links to careers and personal development include: Enabling students to recognise risks to their own wellbeing. Social development: Practice using a range of social skills in different situations. Confidence, Resilience and Knowledge: Mentally healthy, physically healthy, active lifestyle, healthy relationships.	**Links to careers and personal development include:** Enabling students to recognise risks to their own wellbeing. Social development: Practice using a range of social skills in different situations. Confidence, Resilience and Knowledge: Mentally healthy, physically healthy, active lifestyle, healthy relationships.