Key Stage 3 Curriculum

Subject: Chemistry

Head of Department: Miss M. Mohammed

Science helps students to understand the phenomena that occur in us, and the world in which we live, as well as enhancing our knowledge of the universe.

Chemistry looks at chemicals, gases and materials that have an impact on everything we do; from the creation of our buildings, to the air we breathe.

In Key Stage 3, pupils study the following:

Term	Year 7	Year 8	Year 9
Autumn	**Topic**: Atoms **Fertile Q**: Is everything in the Universe made of the same "stuff"? **Content**: • Atoms, elements & compounds • Mixtures • Development of the model of the atom • Relative electrical charges of subatomic particles • Size and mass of atoms • Electronic structure • The periodic table • Development of the periodic table • Group 0 • Group 1	**Topic:** Metals **Fertile Q**: Why is gold so valuable? Content: • Metals & non-metals • Group 1 • Metallic bonding • Properties of metals and alloys • Metals as conductors • Reactivity of metals • Reactions of acids with metals	**Topic:** Ionic bonding and electrochemistry **Fertile Q:** How can I gold-plate my car? **Content:** • Group 0 • Group 1 • Group 7 • Properties of transition metals • Ionic bonding • Ionic compounds • Properties of ionic compounds • Electrolysis
Spring	**Topic:** Matter **Fertile Q:** How can we use knowledge of matter to separate substances? **Content:** Three states of matter State symbols Separating mixtures	**Topic**: Covalent bonding **Fertile Q:** How does the bonding in diamond and graphite make them so special? **Content**: • Chemical bonds • Covalent bonding • Properties of small molecules	**Topic**: Energy chances and rates of reaction **Fertile Q**: How can we use Chemistry to make more money in industrial reactions? **Content:** • Conservation of mass and balanced chemical equations

		• Giant covalent structures • Structure and bonding of carbon of sexual and asexual reproduction	• Mass changes when a reactant or product is a gas. • Percentage yield • Energy changes • Rate of reaction • Reversible reactions and dynamic equilibrium
Summer	**Topic:** Acids and alkalis **Fertile Q**: How can I treat a bee sting using Chemistry? **Content**: • Conservation of mass and balanced chemical equations • Reactions of acids • Soluble salts • The pH scale and neutralisations • Titrations • Strong and weak acids	**Topic**: Organic Chemistry **Fertile Q:** How do we process crude oil to make it so useful? **Content:** • Carbon compounds as fuels and feedstock • Reactions of alkenes & alcohols • Synthetic & naturally occurring polymer	**Topic:** Chemical analysis **Fertile Q**: How can I identify chemicals? **Content:** • Purity, formulations and chromatography • Identification of common gases • Identification of ions by chemical and spectroscopic means