National 5 Chemistry

# Course Rationale

Chemistry is concerned with materials of every description. It is often called the central science as it overlaps with both Biology and Physics. On the one hand, chemists unravel the chemical reactions which are responsible for life, and on the other, they investigate new materials with exciting and potentially useful properties. In this course you will learn about the applications of chemistry in everyday contexts such as medicine, energy and industry, as well as its impact on the environment and sustainability. In the process you will learn how to think creatively and independently and analyse and solve problems; skills valued in many career areas. Chemistry is particularly important in areas such as medicine, pharmaceuticals, and the food and materials industries.

# Course Content

Through research, investigation, practical work and discussion you will learn about how we use the Earth’s resources, the chemistry of everyday products and environmental analysis. You will discover how chemistry affects our environment and our everyday lives. This will help you to make your own decisions on contemporary issues where scientific knowledge is constantly developing.

There are 3 main areas of study:

**Chemical Changes and Structure** - Here you will study chemical reactions, rates of reaction and energy changes. You will expand your understanding of atomic structure and bonding and its relationship to properties of materials and investigate the reactions of acids and bases.

**Nature’s Chemistry** - In this area you will learn more about fuels, measure energy released, and expand your knowledge of organic chemistry to include the structure, reactions and uses of branched and cyclic alkanes, alkenes, alcohols and carboxylic acids.

**Chemistry in Society** - In this area you will investigate the chemical reactions, properties and applications of metal and alloys, including electrochemical cells and corrosion protection. You will discover the chemistry behind the production and properties of plastics and fertilisers. You will learn about the use of chemical analysis for monitoring the environment and investigate the properties and uses of radioactive materials.

# Skills

The chemistry course will support the development of your skills in numeracy and scientific literacy, and your ability to work independently, and with others. As well as developing a range of practical skills, you will extend your ability to think critically and creatively to analyse and solve problems.

# Course Assessment

To support your learning, your work will be assessed on an ongoing basis throughout the course. Formal assessment is through a written exam (80%) and assessed practical investigation (assignment), completed in school under exam conditions but marked by the SQA (20%). The Course assessment is graded A–D.

# Progression

If you complete the course successfully, it may lead to Higher Chemistry or further study, training or employment in e.g. engineering, science, health and medicine, the food industry, pharmaceuticals and the manufacture of plastics.

# Career Pathways

Agricultural consultant Biochemist Chemical engineer Clinical Psychologist Dentist Dietician Doctor Environmental Consultant Food Scientist Forensic pathologist Geoscientist Lab technician Materials engineer Neuroscientist Nurse Occupational therapist Orthoptist Pharmacist Paramedic Vet nurse Pharmacologist Physiotherapist Radiographer Textile technologist Teacher Vet