

National 4 Chemistry

Course Rationale

Chemistry is vital to everyday life and allows us to understand and shape the world in which we live. Chemical reactions take place inside and around us all the time and help to make many of the products we use daily. 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.

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 lives and develop informed opinions on current and developing scientific issues.

Skills

Throughout the course you will have opportunity to develop numeracy, literacy and problem-solving skills. You will have opportunity to work with others in practical and research activities, and to develop your knowledge and skills in using apparatus and chemicals safely.

The course has **three** compulsory units, plus an **added value unit** which assesses the skills and knowledge developed in the other three units through investigation of a topical issue in Chemistry.

Chemical Changes and Structure - In this unit you will develop scientific skills and knowledge of chemical reactions including rates of reaction and energy changes. You will learn about reactions of acids and bases and their impact on the environment, and the structure of atoms and how this relates to the properties of materials.

Nature's Chemistry - In this unit you will research the Earth's rich supply of natural resources exploring key areas such as the extraction and use of fossil fuels and their effect on the environment, and the development and use of plants as a source of fuel, food, alcohol and everyday consumer products.

Chemistry in Society - Here you will investigate the chemical reactions, properties and applications of metal and alloys, including extraction, corrosion and electrochemical cells (batteries). You will compare the properties and applications of plastics and new materials. You will learn about chemical analysis and its use in monitoring the environment, investigate the use of fertilisers, and learn about formation of elements and background radiation.

Course Assessment

Your work will be assessed by your teacher on an ongoing basis throughout the course. Assessed items include practical experiments, research assignments and class-based exams. You must pass all of the units including the added value unit to gain the course qualification.

Progression

If you complete the course successfully, it may lead to National 5 Chemistry, National 4 courses in Biology or Physics, National Progression awards (SCQF level 4 or 5) or further training and employment opportunities in e.g. agriculture, engineering, science, health or the food industry.

Career Pathways

Agricultural consultant	Animal technician	Brewery worker	Chemical plant process operator
Dental therapist	Dietician	Environmental Consultant	Food Technologist
Lab technician	Materials technician	Medical sales representative	Nurse
Occupational therapist	Offshore service technician	Pharmacist	Paramedic
Physiotherapist	Radiographer	Scene of crime officer	
Sport and exercise scientist	Textile dyeing technician	Textile technologist	Vet nurse