



# Sandwell Academy

## BTEC Applied Science Extended Certificate

### WHY APPLIED SCIENCE?

The opportunities for students of Science, on completion of full-time education, are enormous. There are many possible careers within the scientific world and qualifications in Science subjects are acceptable as an entry into many other careers.

Applied Science students can move on to Higher Education courses and careers in the following areas:

Veterinary Science	Forensic Science	Pharmacology
Mechanical Engineering	Lab Technician	Nursing
Environmental Studies	Biochemical Science	Food Science

The Science courses offered at Sandwell Academy are designed to provide academic and vocational experiences. They will prepare students for their choice of career in both the world of work and Higher Education.

### SPECIFIC ENTRY REQUIREMENTS

- Two Grade 5s in Science
- Grade 4 in Mathematics and English

### COURSE OUTLINE

The course involves 4 units, 3 are mandatory, and 1 optional unit.

During the AS year, students will study two units. (50 % each at AS)

#### **Unit 1 – Principals and Applications of Science (Exam, externally assessed)**

In this introductory unit, learners study key concepts and applications in biology, chemistry and physics. Learners will make judgements and reach conclusions by evaluating scientific information and making connections between different scientific concepts, procedures and processes. Biology learners will study; cell structure, the heart, homeostasis and photosynthesis. Chemistry learners will study; the periodic table, bonding and structure and enthalpy changes. Physics learners will study; energy and efficiency and electrical circuits

## **Unit 2 – Practical Scientific Procedures and Techniques (Coursework – Internally assessed)**

In this unit learners will gain skills in conducting quantitative analysis techniques in titration, colorimetry, calorimetry and chromatography. Learners will have the opportunity to calibrate equipment and conduct laboratory procedures and techniques safely. Learners will gain fundamental knowledge in scientific practical and transferable skills and be able to solve complex problems and interpret data. The experience gained from this unit will be invaluable to anyone who would wish to work in the chemical industry.

During the A2 year, students will study two units.

## **Unit 3 – Science Investigation Skills (Exam, Externally assessed)**

In this unit learners will develop the essential skills underpinning practical scientific investigations. Learners will acquire the skills needed in planning a scientific investigation, how to record, interpret, draw scientific conclusions and evaluate. Learners will need to use their knowledge and skills gained in unit 1 and 2 to complete unit 3. Learners will be provided with a case study two weeks prior to a supervised assessment in order to carry out a practical investigation and obtain results required to complete the assessment. The supervised assessment is a maximum of 90 minutes. Pearson sets and marks the written assessment.

## **Optional unit – (Coursework, Internally assessed)**

Learners will have an opportunity to study an optional unit in either biology, chemistry or physics. The units range from human biology, organic chemistry, electrical circuits and astronomy. Learners will submit a portfolio of work to be internally assessed.