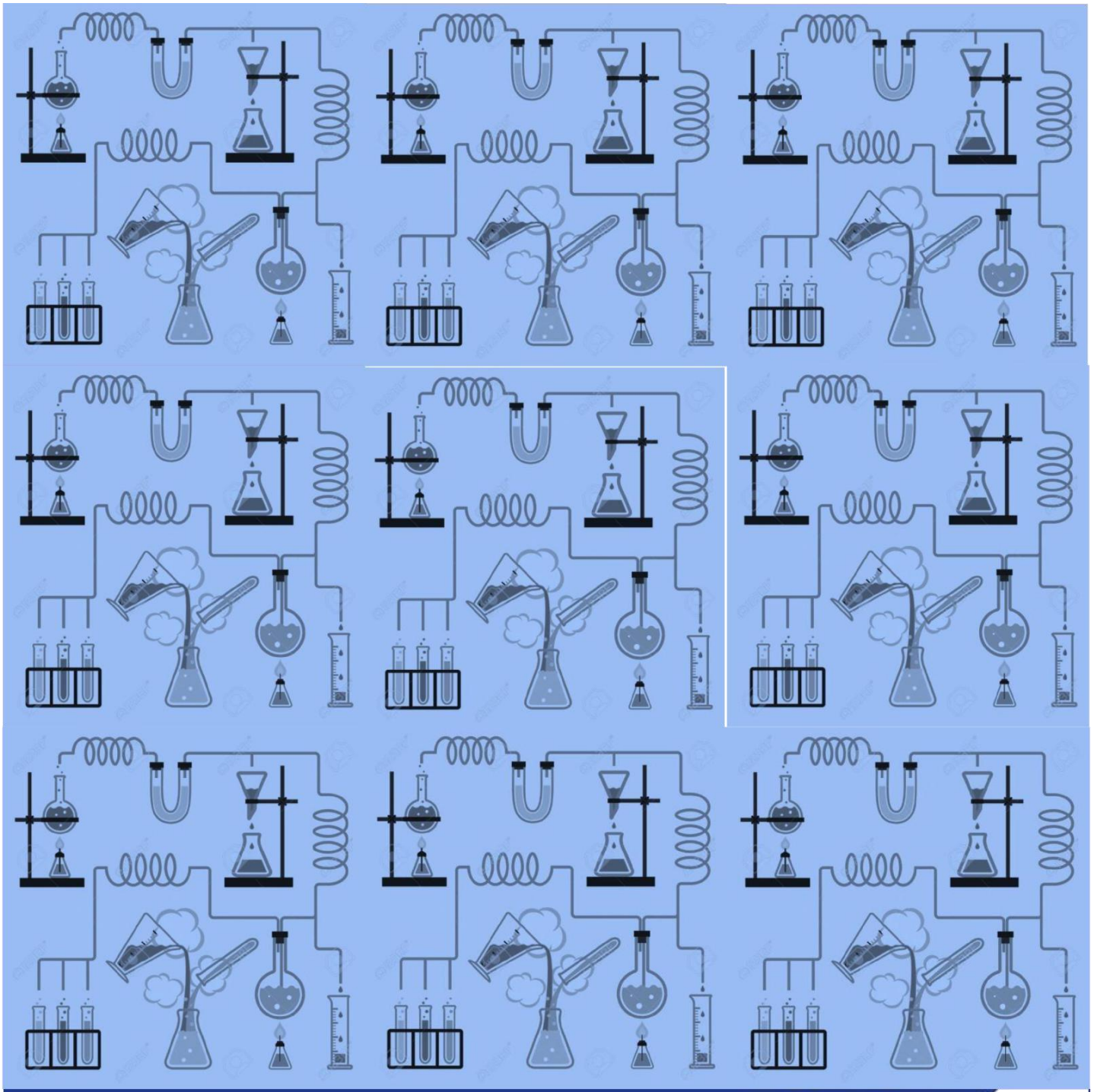
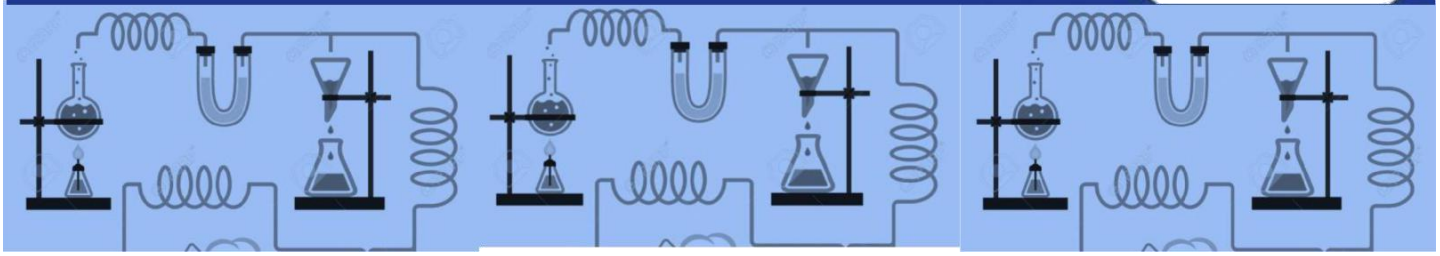


# 1. Examination board and course title:

## A-level Chemistry AQA

QAN: 50026148 / 50026574



## 2. Course overview

Studying A-level chemistry at George Dixon Academy will enable you to develop:

- an enthusiasm for chemistry, an understanding of how atoms and molecules interact and how chemistry is crucial to our lives and real world experiences
- practical skills alongside an understanding of chemical concepts and principles
- an appropriate and relevant foundation of knowledge that can be used as a stepping stone to the future study of chemistry in higher education and skills that lay the groundwork for careers in science or engineering

The subject content consists of three main sections: physical chemistry, inorganic chemistry and organic chemistry. Each section is then divided into units that will be studied as detailed below:

**Year 12 chemistry students will study:**

- Units 1 - 16

**Physical chemistry**

- Unit 1: Atomic structure
- Unit 2: Amount of substance
- Unit 3: Bonding
- Unit 4: Energetics
- Unit 5: Kinetics
- Unit 6: Equilibria
- Unit 7: Oxidation, reduction and redox

**Inorganic chemistry**

- Unit 8: Periodicity
- Unit 9: Group 2, the alkaline earth metals
- Unit 10: Group 7, the halogens

**Organic chemistry**

- Unit 11: Introduction to organic chemistry
- Unit 12: Alkanes
- Unit 13: Halogenoalkanes
- Unit 14: Alkenes
- Unit 15: Alcohols
- Unit 16: Organic analysis

**Year 13 chemistry students will study:**

- Units 17 - 33

**Physical chemistry**

- Unit 17: Thermodynamics
- Unit 18: Kinetics
- Unit 19: Equilibrium constant
- Unit 20: Electrode potentials and electrochemical cells
- Unit 21: Acids, bases and buffers

**Inorganic chemistry**

- Unit 22: Periodicity
- Unit 23: The transition metals
- Unit 24: Reactions of inorganic compounds in aqueous solutions

**Organic chemistry**

- Unit 25: Nomenclature and isomerism
- Unit 26: Compounds containing the carbonyl group
- Unit 27: Aromatic chemistry
- Unit 28: Amines
- Unit 29: Polymerisation
- Unit 30: Amino acids, proteins and DNA
- Unit 31: Organic synthesis and analysis
- Unit 32: Structure determination
- Unit 33: Chromatography

## 3. Assessment outline

A-level chemistry is a stand-alone (2 year) course and consists of 3 examinations and a portfolio of practical work. The practical work will contribute to a certificate of competency.

Paper 1:

- relevant physical chemistry topics, inorganic chemistry and relevant practical skills
- written exam: 2 hours
- 105 marks (35% of A-level)
    - 105 marks of short and long answer questions

Paper 2:

- relevant physical chemistry topics, organic chemistry and relevant practical skills
- written exam: 2 hours
- 105 marks (35% of A-level)
    - 105 marks of short and long answer questions

Paper 3:

- any content and any practical skills
- written exam: 2 hours
- 90 marks (30% of A-level)
    - 40 marks of questions on practical techniques and data analysis
    - 20 marks of questions testing across the specification
    - 30 marks of multiple choice questions

# 4. Entry requirements

Students must have achieved at least:

- Grade 6 in GCSE chemistry or GCSE Combined Science
- Grade 6 in GCSE mathematics

In addition the students should have a good understanding of English language, preferably obtaining a grade 5 or higher in GCSE English.

### Education progression

A level Chemistry, especially in combination with two other sciences (such as Mathematics, Biology and Physics) can support applications for a wide variety of science degrees. It is a desired subject for students wishing to study medical sciences such as medicine, dentistry, pharmacy, physiotherapy, nursing and optometry.

# 5. Career pathways.

As a subject on its own, A-level in Chemistry shows that you have a high level of scientific skill, numeracy and understanding. Taken with other sciences, Chemistry A level opens up many careers including Medicine and related medical careers; Dentistry; Optometry; Pharmaceutical industries; Pharmacy; Biochemistry; Laboratory Technician; Environmental Scientist, Forensic Scientist, Chemical engineer, Materials Engineer, Oil and Petroleum Chemistry.