

# CSEC Chemistry Exam Breakdown

Matthew Williams • Chemistry • May 15, 2026

## CSEC Chemistry Exam Breakdown

### Format

The CSEC Chemistry examination assesses three core profiles:

- Knowledge and Comprehension (KC)
- Use of Knowledge (UK)
- Experimental Skills (XS)

These profiles determine how marks are distributed across the exam.

Profile	Percentage
Knowledge & Comprehension	43%
Use of Knowledge	37%
Experimental Skills	20%

Total marks: **200**

The exam consists of **three papers**.

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### Paper 01 – Multiple Choice

**Duration:** 1 hour 15 minutes

**Questions:** 60

This paper tests:

- Definitions
- Basic concepts
- Simple calculations
- Interpretation of diagrams or data

Content is drawn from all three sections:

- Principles of Chemistry
- Organic Chemistry
- Inorganic Chemistry

This paper is fast-paced and relies heavily on recall.

#### Paper 01 Tips

- Know definitions exactly. Chemistry marking is strict.
- Memorise formulas and common reactions.
- Be careful with units and numerical answers.
- Do not overthink. Most questions are direct.

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## Paper 02 – Structured and Extended Response

**Duration:** 2 hours 30 minutes

This is the most important paper and carries the most marks.

Structure:

- 1 compulsory data analysis question
- 2 structured questions
- 3 extended response questions (answer 2)

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### Data Analysis Question

This tests your ability to:

- Interpret graphs and tables
- Identify trends
- Perform calculations
- Draw conclusions

You may be asked to:

- Explain patterns in data
- Suggest improvements to experiments
- Identify sources of error

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## Structured Questions

These are broken into parts and test:

- Definitions
- Calculations
- Chemical equations
- Explanations of processes

Expect:

- Mole calculations
  - Balancing equations
  - Reaction explanations
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## Extended Response Questions

These test deeper understanding and explanation.

You will need to:

- Explain processes step-by-step
- Apply knowledge to unfamiliar situations
- Write clearly using chemical terminology

Common topics:

- Bonding and structure
- Acids, bases, and salts
- Electrolysis
- Organic reactions
- Rates of reaction
- Energetics

### Paper 02 Tips

- Show working for ALL calculations.
- Always include units.
- Use correct chemical equations where needed.
- Answer exactly what is asked. Do not write extra.
- For long answers, structure your explanation logically.

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## Paper 03 – School-Based Assessment (SBA)

This paper assesses **practical and experimental skills** and contributes significantly to your grade.

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### Skills Assessed

- Planning and Designing (PD)
  - Manipulation and Measurement (MM)
  - Observation, Recording, Reporting (ORR)
  - Analysis and Interpretation (AI)
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### What You Must Be Able To Do

Design experiments including:

- Aim
- Hypothesis
- Variables (independent, dependent, controlled)
- Method
- Expected results

Record results using:

- Tables (with units)
- Graphs (labelled axes, correct scales)

Analyse results by:

- Identifying patterns
  - Performing calculations
  - Drawing conclusions
  - Identifying errors and limitations
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## Practical Skills Emphasis

You are expected to:

- Use lab equipment properly (burette, pipette, balance)
  - Perform titrations
  - Carry out separation techniques
  - Interpret experimental results
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### SBA Tips

- Always link your conclusion to your results.
  - Identify at least one limitation and one improvement.
  - Graphs must be neat, labelled, and accurate.
  - Understand what you are doing, not just copying steps.
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## Paper 03/2 – Alternative to SBA

**Duration:** 2 hours 10 minutes

For private candidates.

Tests:

- Experimental reasoning
  - Data interpretation
  - Practical understanding
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## Syllabus Structure

The Chemistry syllabus is divided into three major sections:

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## Section A – Principles of Chemistry

This is the **foundation** of the subject.

Topics include:

### States of matter

- Particle theory
- Changes of state
- Energy and particle arrangement

### Mixtures and separation

- Pure substances vs mixtures
- Solutions, suspensions, colloids
- Filtration, distillation, chromatography

### Atomic structure

- Protons, neutrons, electrons
- Atomic number and mass number
- Isotopes and uses

### Periodic table

- Group and period trends
- Reactivity patterns
- Predicting properties

### Bonding and structure

- Ionic, covalent, metallic bonding
- Properties of substances
- Structure-property relationships

### Mole concept

- Moles, molar mass
- Avogadro's number
- Chemical calculations

### Acids, bases, and salts

- pH scale
- Neutralisation
- Salt preparation
- Titration calculations

## Redox reactions

- Oxidation and reduction
- Oxidising and reducing agents

## Electrochemistry

- Electrolysis
- Conductivity
- Electrochemical series

## Rates of reaction

- Factors affecting rate
- Graph interpretation

## Energetics

- Exothermic vs endothermic
  - Energy profiles
  - Heat calculations
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## Section B – Organic Chemistry

Focuses on carbon compounds.

Topics include:

### Hydrocarbons

- Alkanes and alkenes
- Sources (petroleum)
- Cracking

### Structure of organic compounds

- Structural formulas
- Homologous series
- Isomerism

### Reactions

- Combustion
- Addition and substitution
- Oxidation and reduction

## Alcohols and acids

- Functional groups
- Reactions of ethanol and ethanoic acid
- Esterification

## Polymers

- Addition vs condensation polymerisation
  - Uses of plastics and synthetic materials
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## Section C – Inorganic Chemistry

Focuses on metals, non-metals, and environmental chemistry.

Topics include:

### Metals

- Physical and chemical properties
- Reactivity series
- Extraction methods

### Uses of metals

- Alloys
- Industrial applications

### Corrosion

- Conditions required
- Prevention methods

### Non-metals

- Properties and reactions
- Preparation of gases

### Environmental chemistry

- Pollution (CO, SO, NO<sub>x</sub>)
- Water treatment
- Hardness of water

### Green chemistry

- Reducing environmental impact

## How You Are Actually Tested

Chemistry tests three main abilities:

### Knowledge

- Definitions
  - Facts
  - Equations
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### Application

- Solving mole problems
  - Predicting reactions
  - Using formulas
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### Analysis

- Interpreting data
  - Evaluating experiments
  - Explaining trends
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### Common Mistakes

- Not showing working in calculations
  - Forgetting units
  - Writing unbalanced equations
  - Confusing similar concepts (e.g. oxidation vs reduction)
  - Poor explanation of processes
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## Study Strategy

### Master Calculations

You must be fluent in:

- Mole calculations
- Concentration
- Titrations

This is non-negotiable.

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### Learn Core Reactions

Memorise:

- Common equations
  - Reaction types
  - Functional group behaviour
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### Practice Data Questions

You must be able to:

- Read graphs
  - Interpret trends
  - Analyse experiments
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### Understand, Don't Memorise

You need to understand:

- WHY reactions happen
  - HOW processes work
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## Use Past Papers

This is the most effective method.

Focus on:

- Repeated question types
  - Mark scheme wording
  - Timing
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## Final Insight

Chemistry is not content-heavy. It is **precision-heavy**.

Most students lose marks because:

- Their calculations are sloppy
- Their explanations are vague
- Their answers lack structure

Fix those, and your grade jumps immediately.