GrindSpot
ONLINE GRINDS PLATFORM

LEAVING CERT 2027

LEAVING CERT CHEMISTRY

Exam Ready

Dyslexia friendly
large, clear text · room to write

Ordinary Level · New course · Workbook A

Built on the new Leaving Cert Chemistry course and the SEC sample papers, with 9 years of past papers: what comes up, how it's marked, and the practice to nail it.

- **9** years of exam trends, topic by topic
- **58** topic drills with answers
- **1** full practice paper, 300 marks
- ✓ every answer worked out step by step



Know what's coming.
Walk in ready.

Original GrindSpot material written in the style of the Leaving Certificate examination. Not an official SEC paper.

What comes up

2017 to 2026

We read every Ordinary Level paper of the **old course**, 2017–2026 (no exam in 2020). 2027 is on the new course: rows marked "not on new course" no longer apply. Each number counts questions out of 11; each is listed at grindspot.ie/exam-trends/chemistry. We counted a topic for a question when at least one of its parts could not be answered without it.

	2017	2018	2019	2021	2022	2023	2024	2025	2026	Years
Mandatory experiment	5	4	4	3	6	4	5	3	6	9/9
Atomic structure & the periodic table	3	5	4	4	4	3	5	4	3	9/9
Hydrocarbons & fuels	2	3	5	4	3	3	4	2	4	9/9
Water & the environment	3	3	4	3	2	3	3	3	3	9/9
The mole & stoichiometry	2	3	3	4	3	2	3	3	3	9/9
Organic reactions & functional groups	2	2	1	2	4	2	3	2	2	9/9
Bonding & molecular shapes	3	2	1	2	1	4	2	2	2	9/9
Redox & electrochemistry	2	2	2	1	1	3	1	3	1	9/9
Rates of reaction	1	2	2	2	3	2	1	1	1	9/9
Metals & crystals (not on new course)	2	1	1	2	2	2	2	1	1	9/9
Acids, bases & pH	1	2	1	1	1	1	1	1	1	9/9
Chemical equilibrium	1	1	1	1	1	1	1	1	1	9/9
Industrial chemistry (not on new course)	–	2	–	–	2	1	2	–	2	5/9
Thermochemistry	1	1	1	1	1	1	2	–	1	8/9
Volumetric analysis (titrations)	1	1	1	1	1	1	1	1	1	9/9
Radioactivity (not on new course)	1	1	1	1	1	1	1	–	1	8/9
Instrumental analysis (not on new course)	2	–	–	–	1	–	1	1	1	5/9

Darker = more questions. Source: State Examinations Commission papers, 2017 to 2026, read and grouped by GrindSpot. Every question we counted is listed at **grindspot.ie/exam-trends**. A guide to what has come up, not a prediction of what will.

Experiments every year. 40 of 99 questions were built on an experiment.

Hydrocarbons and atoms lead. Hydrocarbons came up in 30 questions, atoms in 35.

One titration a year. One came up every year, and in both new sample papers.

No longer examined. 24 of 99 questions had a part on radioactivity, instruments, metal extraction or industry: skip just those parts.

TOPIC 6

Titrations

Worked answers →

In the real exam

Came up in 9 old-course questions (1 a paper), 2017 to 2026: on the new sample papers in Sample 1 Q2, Sample 2 Q1(c), Q5(d) and Q6.



Fionn's tip: Rinse the burette with the solution that goes in it, the pipette with the solution it measures, and the conical flask with deionised water only.

1. Name the piece of apparatus used to measure exactly (i) 25.0 cm^3 of a solution, (ii) the volume added in a titration, (iii) 250 cm^3 of a standard solution.

2. Describe how to rinse and fill a burette.

3. A burette reads 0.3 cm^3 at the start and 22.9 cm^3 at the end. Find the titre.

Question 4 (50 marks)

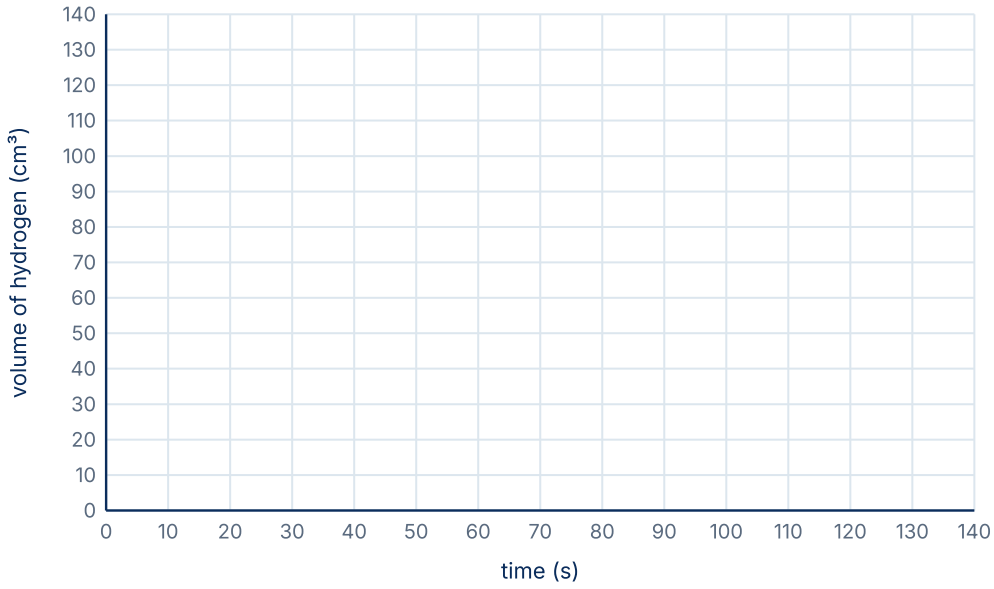
Ayesha adds 0.12 g of magnesium ribbon to 50 cm^3 of 1.0 M hydrochloric acid in a conical flask and collects the hydrogen over water in a 250 cm^3 graduated cylinder.

$$Mg + 2HCl \rightarrow MgCl_2 + H_2$$

time (s)	0	20	40	60	80	100	120	140
H_2 (cm^3)	0	46	78	98	110	117	120	120

(a) What is meant by the rate of a reaction?

(b) Plot a graph of the volume of hydrogen against time on the grid below.



(c) Calculate the average rate of reaction over the first 40 seconds. Use your graph to find:
(i) the volume of hydrogen after 30 seconds
(ii) the time taken to collect 100 cm^3.

(d) Why did the reaction stop after about 120 seconds?

(e) Calculate the number of moles of magnesium used, and show that the final volume of hydrogen at room temperature and pressure should be 120 cm^3. (Take the molar volume of a gas at room temperature and pressure as 24.0 L.)

(f) Ayesha repeats the experiment with the acid warmed to 40 °C. How would the graph be different? Explain using collision theory.

(g) Give one safety precaution for this experiment.

Each part shows the method, the answer, its marks, and a guide to partial credit in the style of the SEC marking schemes (our guide, not an official scheme: the SEC has not published one for the new course; its chemistry schemes give marks for listed points). In calculations, a slip in the arithmetic usually costs 1 mark if the working is shown.

Question 1 (50 marks)

(a) (i) Protons = 12, electrons = 12, neutrons = 24 − 12 = 12.
(ii) 12 electrons: 2, 8, 2.
(iii) Two outer electrons: Group 2. **12, 12, 12; 2, 8, 2; Group 2**

10 marks · partial credit: **3** for one of the three; **7** for two of the three

(b) (i) 39 + 16 + 1 = 56.
(ii) 2.8 ÷ 56 = 0.050 mol.
(iii) 0.050 ÷ 0.500 L. **56; 0.050 mol; 0.10 mol/L**

10 marks · partial credit: **3** for M_r correct; **7** for moles correct, volume not in litres

(c) Sodium: yellow-orange. Crimson: lithium (strontium also gives a red flame; accept it). Copper: blue-green.

10 marks · partial credit: **3** for one correct; **7** for two correct

(d) (i) C_4H_{10}.
(ii) Hexane molecules are bigger, with more electrons and more surface touching, so the London (intermolecular) forces between them are stronger and need more energy to overcome. **C_4H_{10}**

10 marks · partial credit: **3** for formula, or "bigger molecule"; **7** for stronger forces without naming them

(e) (i) Primary: the volume of gas you measure every 20 seconds. Secondary: published results in a textbook, journal or the SEC data booklet.
(ii) Other experts check that the method and conclusions are sound and that the results can be repeated, before others rely on them.

10 marks · partial credit: **3** for one part; **7** for both parts, one incomplete