AQA GCSE Chemistry

Using resources · Foundation tier

Questions only

The newest questions on the Foundation papers, about an hour. All 16 are in the exam generator.

Questions	Total marks	Time allowed
5	**51**	**54 min**

Name _____ Class or teacher _____ Date _____

Instructions

- Answer all questions in the spaces provided.
- Use black ink. Show your working for every calculation.
- You may use a scientific calculator and the periodic table insert.
- Print the separate mark scheme when you are ready to mark your answers.

For marking

Q	Source	Marks	Score
1	2024 P2F Q7	10	
2	2025 P2F Q10 / P2H Q3	9	
3	2025 P2F Q4	12	
4	2025 P2F Q7	9	
5	2025 P2F Q8 / P2H Q1	11	

Total _____ / 51 **Percentage** _____ %

Questions from AQA GCSE past papers, 2024–2025, reproduced for revision. Practise these topics online, with instant marking:
`whiteboardchemistry.com/revision/gcse-chemistry/exam-questions?topics=c10-using-resources&demand=low,standard&len=0`

Questions

Using resources · Foundation tier · 5 questions · 51 marks · time allowed 54 min

Q1 · June 2024 · Paper 2 Foundation · Q7 · [10 marks]

This question also needs Chemical analysis and Chemistry of the atmosphere.

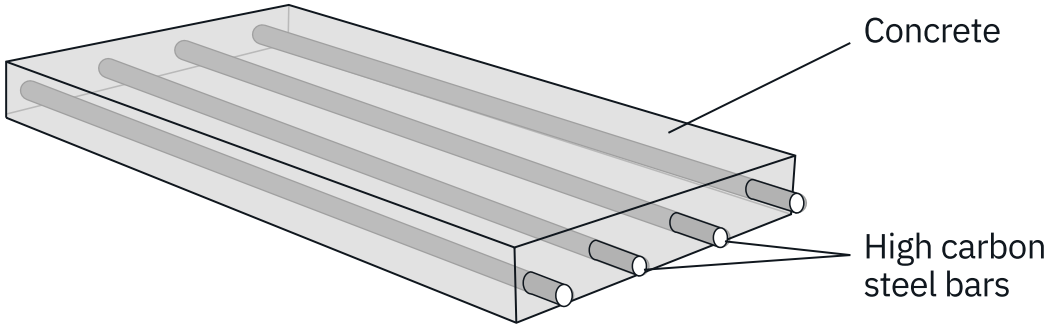
This question is about materials.

Pre-stressed concrete is a composite material.

The concrete is strengthened using high carbon steel bars.

Figure 8 shows the structure of a piece of pre-stressed concrete.

Figure 8



07.1 Which **two** words describe the high carbon steel bars?

Tick (✓) **two** boxes.

Alloy	☐
Binder	☐
Matrix	☐
Ore	☐
Reinforcement	☐

[2 marks]

07.2 Limestone is mainly calcium carbonate.

Limestone is a raw material used in the production of concrete.

In the first part of the production of concrete:

- air is heated by burning methane
- the hot air is used to heat limestone
- the limestone decomposes.

The equation for the decomposition of limestone is:

calcium carbonate → calcium oxide + carbon dioxide

Give **two** ways in which a greenhouse gas is released in this process.

[2 marks]

1

2

07.3 How could a sample of limestone be tested to show the presence of carbonate ions?

Complete the sentences.

Choose answers from the box.

barium chloride	**hydrochloric acid**	**limewater**
sodium hydroxide	universal indicator	

The substance added to the limestone is _____ .

The gas produced is identified using _____ .

[2 marks]

07.4 Table 4 gives some information about plain concrete and pre-stressed concrete.

Table 4

	Plain concrete	**Pre-stressed concrete**
Cost in £ per m^3	75	225
Density in kg per m^3	2300	2500
Strength in arbitrary units	600	3000

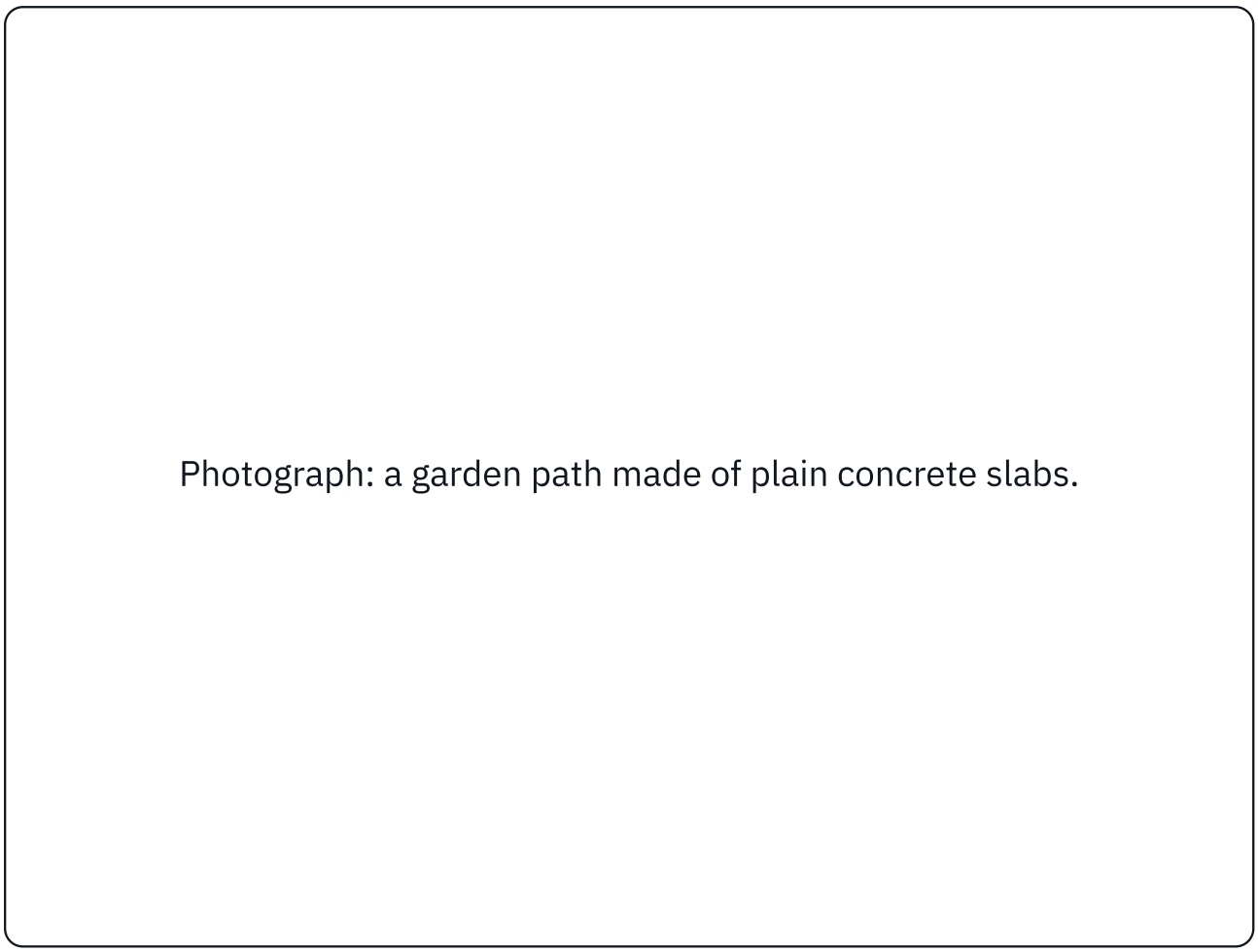
Explain why pre-stressed concrete rather than plain concrete is used to make bridges that carry heavy lorries.

Use Table 4.

[2 marks]

07.5 Figure 9 shows a garden path made of plain concrete slabs.

Figure 9



Suggest **two** reasons why plain concrete rather than pre-stressed concrete is used to make slabs for garden paths.

Use Table 4.

[2 marks]

1

2

Q2 · June 2025 · Paper 2 Foundation · Q10 · Paper 2 Higher · Q3 · [9 marks]

This question also needs Chemical analysis.

Doors can be made from aluminium or wood.

10.1 Table 5 gives information about aluminium and wood.

Table 5

	Aluminium	**Wood**
Raw material	Metal ore from rock	Trees
Relative cost of 1 kilogram of material	87	1
Relative strength	1.3	1.0
Protection	No protection needed to prevent corrosion	Painted to prevent rotting
Disposal	Melted to form new products	Shredded into wood chips for fuel

Evaluate the use of aluminium and of wood for making doors.

[6 marks]

10.2 Aluminium has an oxide coating that protects the metal from corrosion.

Explain how the oxide coating protects aluminium from corrosion.

[2 marks]

10.3 Doors made from wood need painting to prevent rotting.

Paints are **formulations** made by mixing a solid pigment and a liquid.

Which statement describes the composition of a paint?

Tick (✓) **one** box.

A fixed mass of pigment and a fixed mass of liquid	☐
A fixed mass of pigment and a variable mass of liquid	☐
A variable mass of pigment and a fixed mass of liquid	☐
A variable mass of pigment and a variable mass of liquid	☐

[1 mark]

Q3 · June 2025 · Paper 2 Foundation · Q4 · [12 marks]

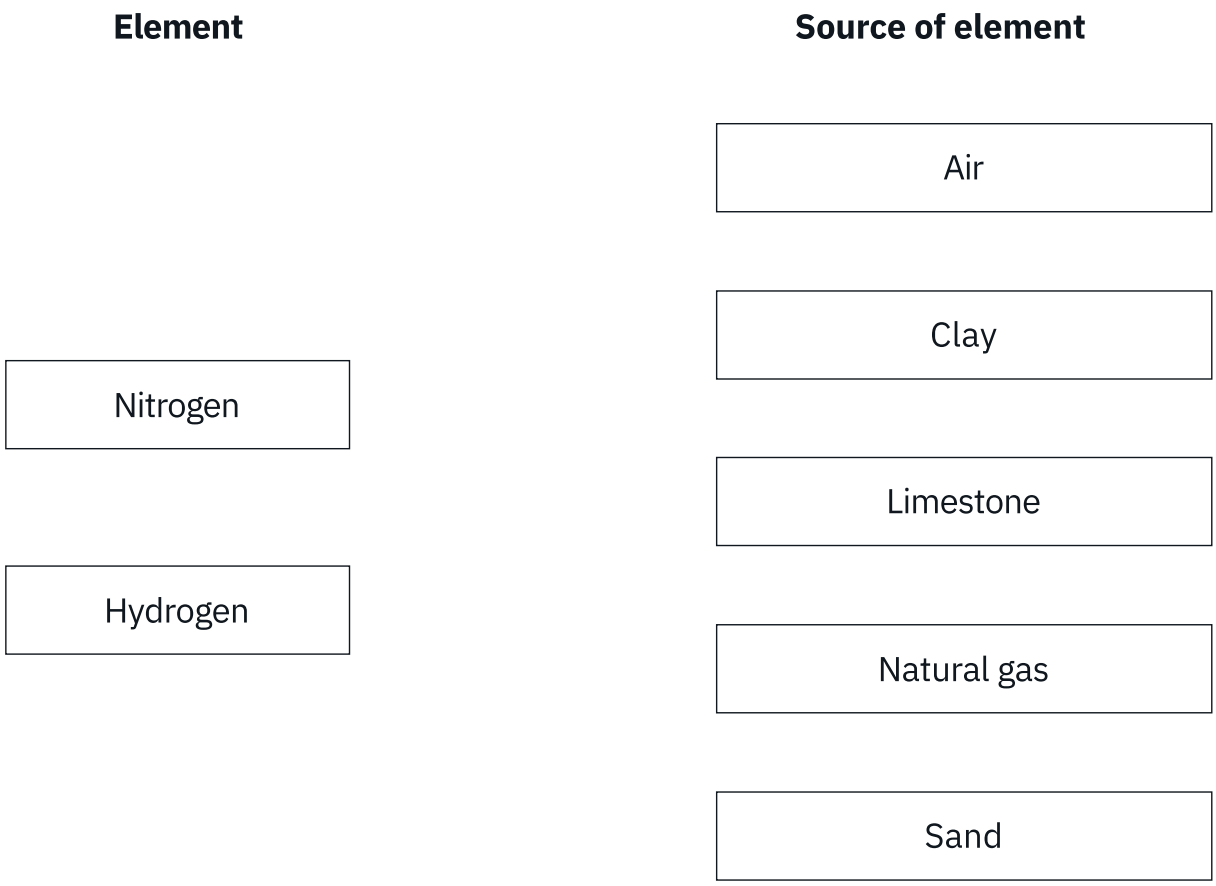
This question also needs Atomic structure and the periodic table and Bonding, structure, and the properties of matter.

Ammonia is produced in the Haber process.

The word equation for the reaction to produce ammonia is:

nitrogen + hydrogen ⇌ ammonia

04.1 Draw **one** line from each element to a source of that element.



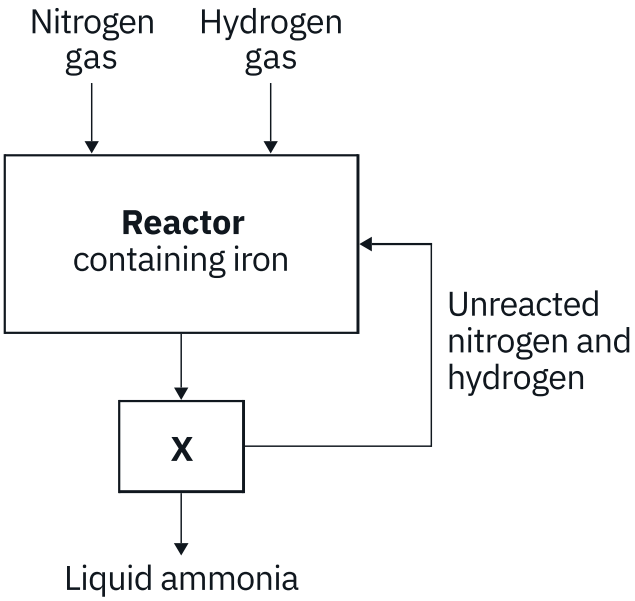
[2 marks]

Draw your answer on the figure above.

04.2 Ammonia is a gas at room temperature.

Figure 3 shows how ammonia is produced from nitrogen and hydrogen.

Figure 3



Which process takes place at X in Figure 3?

Tick (✓) **one** box.

Cooling	☐
Filtering	☐
Melting	☐

[1 mark]

04.3 Complete the sentence.

Use Figure 3.

The iron in the reactor is used as a _____ .

[1 mark]

04.4 Table 1 shows the world production of ammonia between 1990 and 2020.

Table 1

Year	World production of ammonia in arbitrary units
1990	120
2000	130
2010	155
2020	165

How did the world production of ammonia change between 1990 and 2020?

Use Table 1.

[1 mark]

04.5 Determine the mean change in mass of ammonia produced per year between 2000 and 2020.

Use Table 1 and the equation:

mean change in mass produced per year = (change in mass produced between 2000 and 2020)/(number of years)

Change in mass = _____ arbitrary units

Number of years = _____

Mean change = _____ arbitrary units per year

[4 marks]

04.6 Most of the ammonia produced in the Haber process is used to make fertilisers.

Which is a reason for the change in the world production of ammonia shown in Table 1?

Tick (✓) **one** box.

Change in amount of acid rain	☐
Change in global temperatures	☐
Change in world population	☐

[1 mark]

04.7 Fertilisers produced using ammonia contain nitrogen.

Which **two** compounds used in fertilisers contain nitrogen?

Use the periodic table.

Tick (✓) **two** boxes.

$Ca(NO_3)_2$	☐
$Ca_3(PO_4)_2$	☐
KCl	☐
K_2SO_4	☐
$(NH_4)_2SO_4$	☐

[2 marks]

Q4 · June 2025 · Paper 2 Foundation · Q7 · [9 marks]

This question also needs Bonding, structure, and the properties of matter.

This question is about gold.

18 carat gold is an alloy containing 75% by mass of gold.

07.1 Calculate the mass of gold in a 4 g jewellery ring made from 18 carat gold.

Mass = _____ g

[2 marks]

07.2 What is the simplest whole-number ratio of the mass of gold : mass of other metals in 18 carat gold?

Tick (✓) **one** box.

1 : 3	☐
3 : 1	☐
6 : 18	☐
18 : 6	☐

[1 mark]

07.3 What other **two** metals may also be present in 18 carat gold?

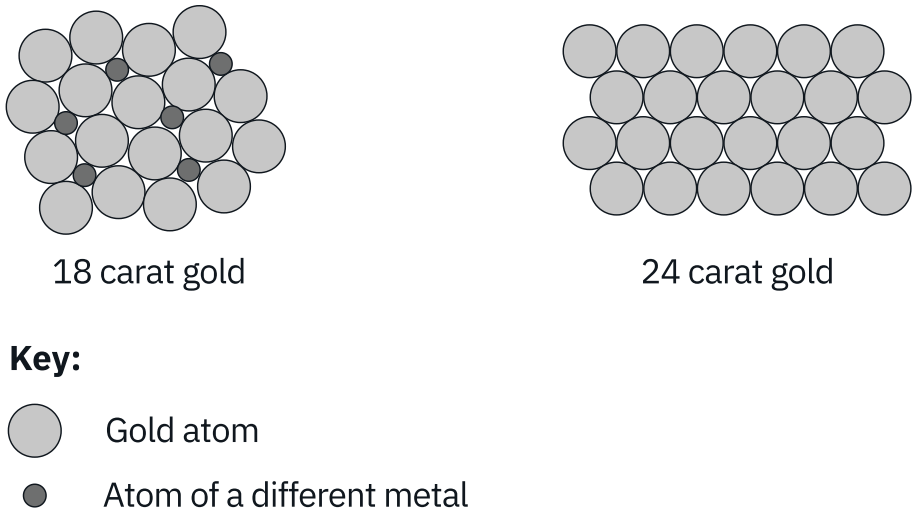
Tick (✓) **two** boxes.

Copper	☐
Magnesium	☐
Potassium	☐
Silver	☐
Sodium	☐

[2 marks]

07.4 Figure 6 represents the structure of 18 carat gold and of 24 carat gold.

Figure 6



Explain why 18 carat gold is harder than 24 carat gold.

[3 marks]

07.5 Gold is used to make jewellery.

Give **one** reason why iron is **not** used to make jewellery.

[1 mark]

Q5 · June 2025 · Paper 2 Foundation · Q8 · Paper 2 Higher · Q1 · [11 marks]

This question also needs Quantitative chemistry.

A student investigated the mass of dissolved solids in sea water.

This is the method used.

1. Weigh an empty evaporating basin.

2. Measure 10.0 cm^3 of sea water sample A into the evaporating basin using a burette.

3. Heat the evaporating basin until all the water seems to have evaporated.

4. Weigh the evaporating basin and contents.

5. Calculate the mass of dissolved solids in the sample.

6. Repeat steps 1 to 5 with sea water samples B, C and D.

08.1 Why did the student use a burette rather than a measuring cylinder to measure 10.0 cm^3 of each sample?

[1 mark]

08.2 What was the dependent variable in this investigation?

[1 mark]

08.3 Describe how the student could make sure **all** of the water had evaporated in step 3.

[2 marks]

08.4 How did the student calculate the mass of dissolved solids in each sea water sample?

[1 mark]

08.5 Table 3 shows the results.

Table 3

Sea water sample	A	B	C	D
Mass of dissolved solids in grams	0.35	0.37	0.33	0.34

Calculate the mean concentration of dissolved solids in 10.0 cm^3 samples of sea water A, B, C and D.

Use Table 3 and the equation:

mean concentration of dissolved solids (g/dm^3) = (mean mass of dissolved solids (g))/(volume of sample (dm^3))

Give your answer in g/dm^3.

Mean concentration = _____ g/dm^3

[5 marks]

08.6 Suggest why sea water samples A, B, C and D contain different masses of dissolved solids.

[1 mark]

Source: AQA GCSE Chemistry past papers. Reproduced for revision at whiteboardchemistry.com.

Mark scheme:
whiteboardchemistry.com/revision/gcse-chemistry/exam-questions/pdf/c10-using-resources-foundation-mark-scheme.pdf