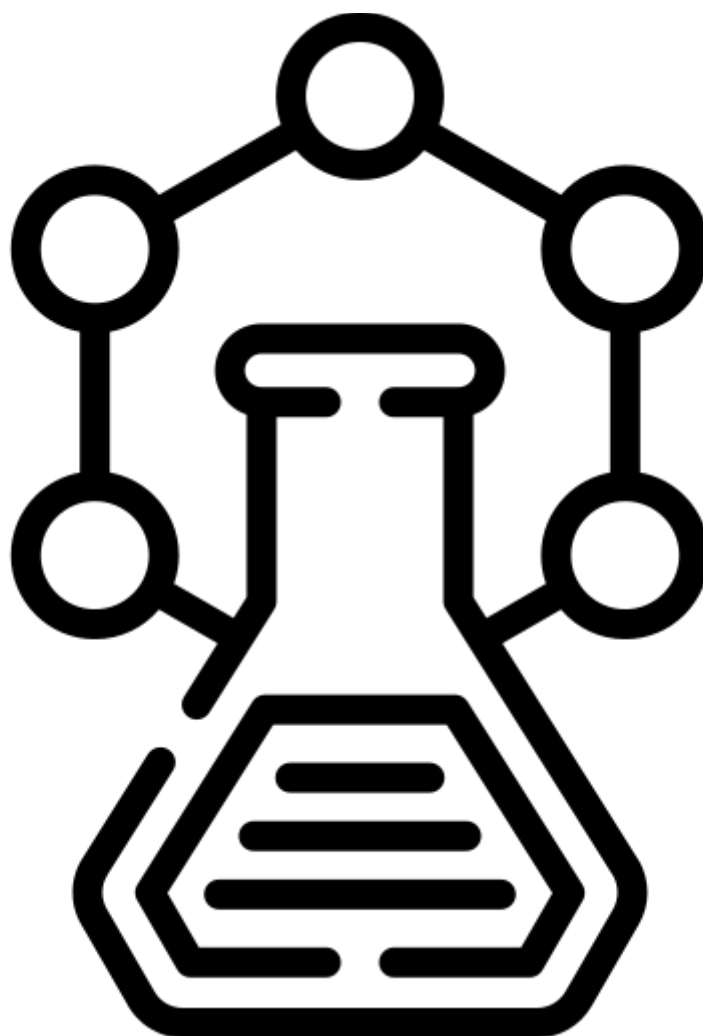


Name: _____

Group: _____

Year 10 Chemistry Summer Work 2026



Achieving Excellence, Belonging Together, Challenging Mindsets

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Instructions

This booklet is designed to help you prepare for your first milestones in September and your internal exams in November.

Each week you will have a topic to review from paper 1. The activities should take **no more than 15 minutes**. Keep on top of your work and do not leave it all to the last week of the summer holiday.

For each week you will use the revision guides. Read through the relevant pages and use the QR codes for the relevant YouTube clips and SAM learning activity.

Each week starts with the revision guide pages, YouTube and SAM learning activities.

See example below.

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Biology	15 + 16 15 + 16 15 + 20	Page number of section in the revision guide
YouTube Clip QR code	https://tinyurl.com/pmkjm87p https://tinyurl.com/muxc48kk	 	YouTube website and QR code for relevant topics
SAM learning QR Code	https://tinyurl.com/4w3bw6pu https://tinyurl.com/mrysbfn	 	SAM learning activity on the topic to test your knowledge

Once you have reviewed the topic, complete the exam style questions.

DO NOT LOSE your booklet. When you return in **September you will be reviewing your answers** with your science teacher.

Checklist

Use the following table to track your progress through the activities. Tick the box when you have completed the tasks.

Week	Topics	YouTube	SAM Learning	Exam Questions
1	Making salts practical			
2	Temperature changes			
3	Atomic structure			
4	Electrolysis practical			
5	Neutralisation			
6	Ionic bonding			
7	Covalent bonding (large)			
8	Covalent bonding (simple)			
9	Metallic structure and bonding			

Week 1: 20th July 2026

Topic: Making salts practical

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	127 129 48
YouTube Clip QR code	https://tinyurl.com/mbd6dje2	
SAM learning QR Code	https://tinyurl.com/36tamn84	

Answer the following questions

1. A student reacts an acid with copper oxide.

(a) The reaction between the acid and copper oxide is very slow at room temperature.

How could the student speed up the reaction?

(1)

(b) Complete the sentence to show how the student makes sure that **all** the acid reacts. Choose the answer from the box.

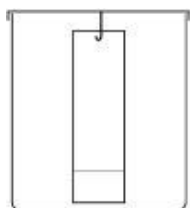
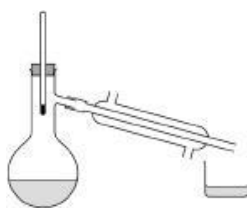
in excess	in solution	molten	soluble
------------------	--------------------	---------------	----------------

The student adds copper oxide to the acid until the copper oxide is _____

(1)

(c) The student filters the unreacted copper oxide from the solution.

Which apparatus does the student use? Tick (✓) **one** box.

☐☐☐☐

(1)

(d) What process is used to produce crystals of a salt from a salt solution?

(2)

2. This question is about salts.

A student wants to make copper chloride crystals.

The student adds excess copper oxide to some hot acid.

The student stirs the mixture.

(a) Which acid should the student use? Tick (✓) **one** box.

Hydrochloric acid

☐

Nitric acid

☐

Sulfuric acid

☐

(1)

(b) Suggest how the student would know that excess copper oxide has been added.

(1)

(c) There are four more stages, **A**, **B**, **C** and **D**, to make copper chloride crystals.

The stages **A**, **B**, **C** and **D** are not in the correct order.

Stage **A** Partially evaporate by heating with a water bath

Stage **B** Filter the mixture into an evaporating basin

Stage **C** Leave to crystallise

Stage **D** Remove and dry the crystals

Put stages **A**, **B**, **C** and **D** in the correct order.

First stage _____

Second stage _____

Third stage _____

Fourth stage _____

(2)

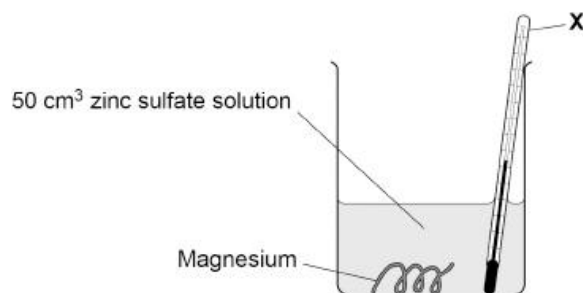
Week 2: 27th July 2026

Topic: Temperature changes

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	132, 133 139, 140 56, 57
YouTube Clip QR code	https://tinyurl.com/4sa55n3e	
SAM learning QR Code	https://tinyurl.com/37zrv8ra	

Answer the following question

1. A student investigated the temperature change when magnesium was added to zinc sulfate solution. The figure below shows the apparatus.



- (a) Which piece of equipment is labelled **X**? Tick (✓) **one** box.

Beaker

☐

Ruler

☐

Thermometer

☐

(1)

- (b) Which piece of equipment is the best to use to measure volumes of solution?

Tick (✓) **one** box.

Conical flask

☐

Evaporating basin

☐

Measuring cylinder

☐

(1)

The student added 1.0 g of magnesium to 50 cm³ of zinc sulfate solution and measured the temperature increase.

The student repeated the experiment two more times. The table below shows the results.

Temperature increase in °C			
Experiment 1	Experiment 2	Experiment 3	Mean
7.6	7.3	7.6	Y

(c) Calculate value **Y** in the table.

Y = _____ °C

(2)

(d) What is the name given to a reaction which causes the temperature to increase? Tick (✓) **one** box.

Endothermic ☐ Exothermic ☐ Thermal decomposition ☐

(1)

Figure opposite shows the reaction profile for an exothermic reaction.

(e) Which letter represents the activation energy for the reaction?

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

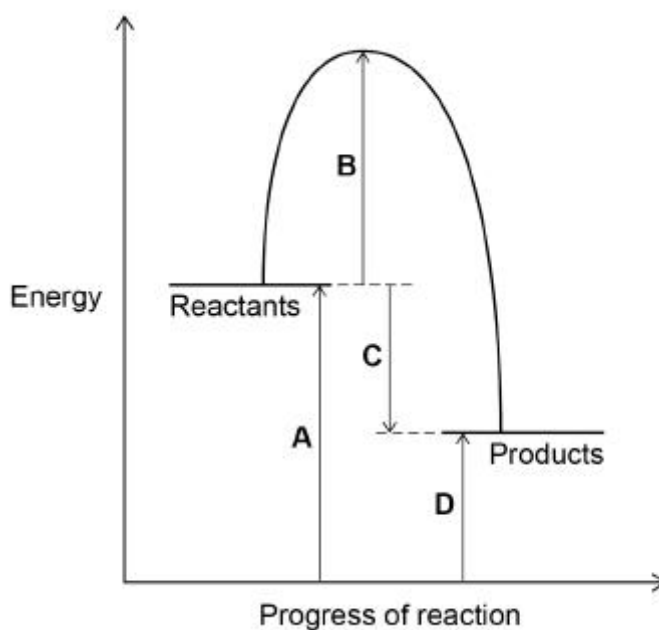
(1)

(f) Which letter represents the overall energy change for the reaction?

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

(1)



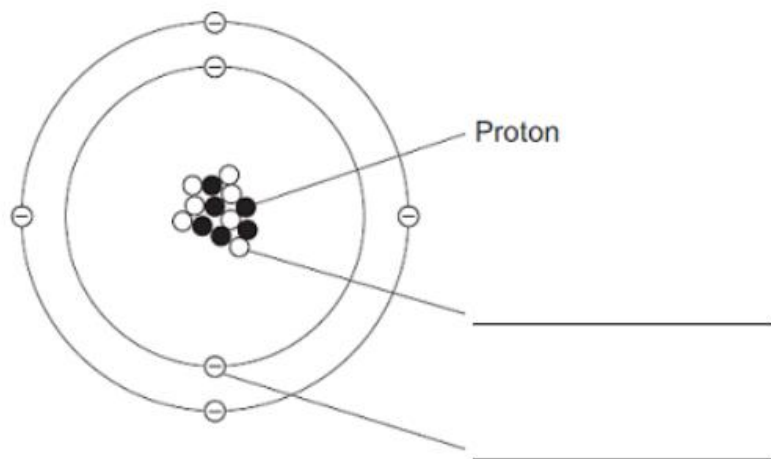
Week 3: 3rd August 2026

Topic: Atomic structure

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	92 94 12, 13
YouTube Clip QR code	https://tinyurl.com/y86fa8en https://tinyurl.com/yc7ek7bj	 
SAM learning QR Code	https://tinyurl.com/4xeze9x2	

Answer the following questions

1. (a) Label the diagram of the atom below. The proton is labelled for you.



(2)

- (b) Complete the table below to show the relative mass and charge of the sub-atomic particles.

Sub-atomic particle	Relative mass	Relative charge
Proton		
Electron		
	1	0 (neutral)

(5)

(c) Calculate the number of protons, electrons and neutrons in an atom of boron.

11
B
boron
5

Protons _____

Electrons _____

Neutrons _____

(3)

(d) Define the term **isotope**.

(2)

€ Boron has two isotopes as shown in the table below.

Isotope	Relative abundance
B-10	80.1%
B-11	19.9%

Use the information in the table above to calculate the relative atomic mass of boron using the formula below:

$$A_r = \frac{(\text{mass of isotope 1} \times \text{abundance}) + (\text{mass of isotope 2} \times \text{abundance})}{\text{total abundance}}$$

Give your answer to three significant figures.

(3)

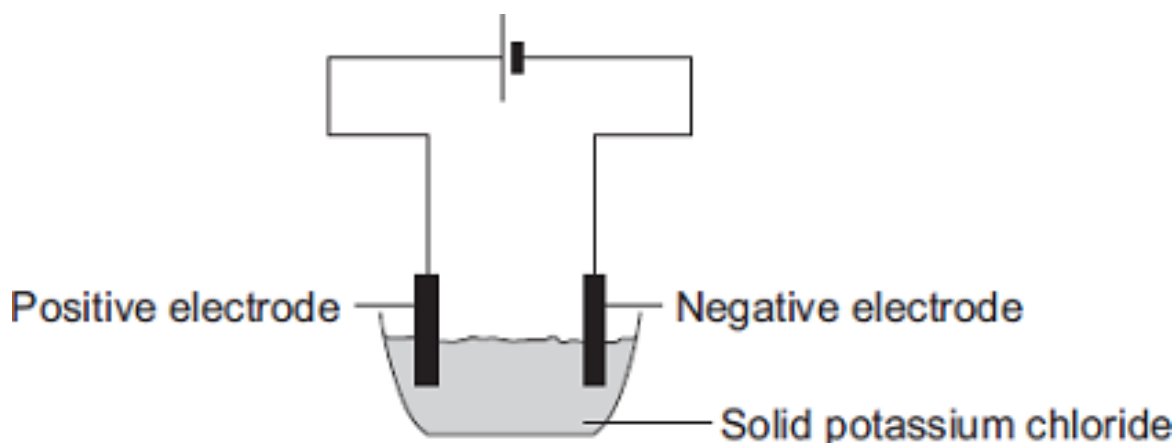
Week 4: 10th August 2026

Topic: Electrolysis practical

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	130, 131 136, 137 53, 54
YouTube Clip QR code	https://tinyurl.com/5n6vwj7f https://tinyurl.com/mr7jkg2s	 
SAM learning QR Code	https://tinyurl.com/2dscrhk5	

Answer the following questions

1. (a) A student tried to electrolyse potassium chloride.



Potassium chloride contains potassium ions (K^+) and chloride ions (Cl^-).

- (b) The student found that solid potassium chloride does not conduct electricity.

Use the correct answer from the box to complete the sentence.

are too big	cannot move	have no charge
--------------------	--------------------	-----------------------

Solid potassium chloride does not conduct electricity because the ions _____.

(1)

- (c) What could the student do to the potassium chloride to make it conduct electricity?

(1)

- (d) During electrolysis why do potassium ions move to the negative electrode?

(1)

- (e) Draw a ring around the correct answer to complete the sentence.

When the potassium ions reach the negative electrode

they turn into potassium

atoms. electrodes. molecules.

(1)

- (f) Another metal, **aluminium** is produced by electrolysis of a molten mixture.

Complete the sentence below. Choose the answers from the box.

carbon	chloride	cryolite	oxide	water
---------------	-----------------	-----------------	--------------	--------------

The molten mixture contains _____ and

aluminium _____ .

(2)

Week 5: 17th August 2026

Topic: Neutralisation

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	126, 127 129, 131, 139 46, 47, 48
YouTube Clip QR code	https://tinyurl.com/w6c8b9uj	
SAM learning QR Code	https://tinyurl.com/yk7jehja	

Answer the following questions

1. (a) Define the term neutralisation

(1)

- (b) Complete the ionic half equation for neutralisation below.



(2)

2. This question is about acids and bases.

- (a) What is the pH of sulfuric acid? Tick (✓) **one** box.

1 ☐

7 ☐

14 ☐

(1)

(b) An acid reacts with zinc to produce zinc chloride and hydrogen.

Which acid reacts with zinc to produce zinc chloride? Tick (✓) **one** box.

Hydrochloric acid

☐

Nitric acid

☐

Sulfuric acid

☐

(1)

(c) What type of substance is zinc chloride? Tick (✓) **one** box.

Alkali

☐

Base

☐

Salt

☐

(1)

(d) An alkali is a base in solution.

Which compound is an alkali? Tick (✓) **one** box.

Sodium hydroxide

☐

Sodium nitrate

☐

Sodium sulfate

☐

(1)

(e) The formula of the copper ion is Cu^{2+}

The formula of the oxide ion is O^{2-}

What is the formula of copper oxide? Tick (✓) **one** box.

Cu_2O_2

☐

CuO_2

☐

CuO

☐

(1)

Week 6: 24th August 2026

Topic: Ionic bonding

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	111, 112 112, 113 22, 23
YouTube Clip QR code	https://tinyurl.com/2uy6rd8m https://tinyurl.com/ynynh7d8	 
SAM learning QR Code	https://tinyurl.com/yr939s8f	

Answer the following questions

1. Structure and bonding is used to explain properties of compounds.

Metal atoms react with non-metal atoms to form ions.

(a) Which group of elements does **not** form ions? Tick (✓) **one** box.

Alkali metals

☐

Halogens

☐

Noble gases

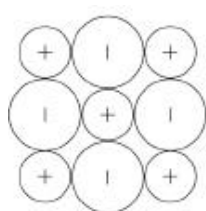
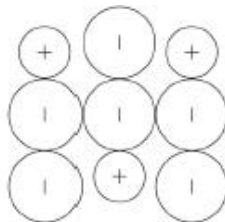
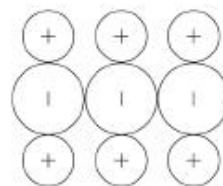
☐

(1)

(b) In solid ionic compounds, opposite charged ions attract to form a giant structure.

Which structure represents the arrangement of ions in solid potassium chloride?

Tick (✓) **one** box.

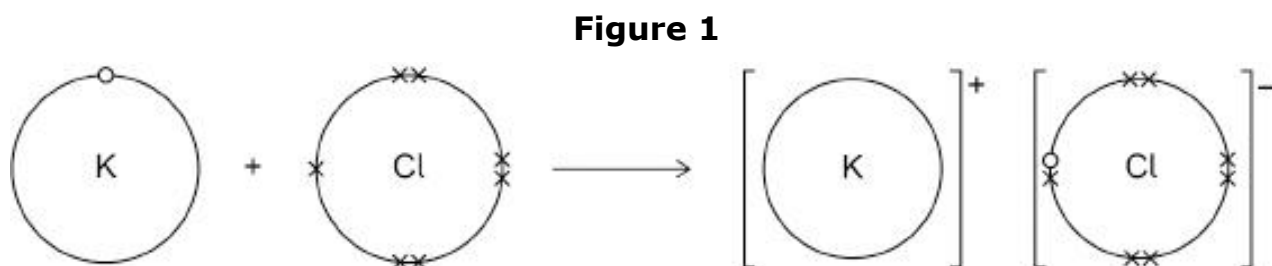
☐☐☐

(1)

(c) Potassium reacts with chlorine to produce potassium chloride (KCl).

Figure 1 shows what happens to the electrons in the outer shells when a potassium atom reacts with a chlorine atom.

The dots (o) and crosses (x) represent electrons.



Describe what happens when a potassium atom reacts with a chlorine atom to produce potassium chloride.

Answer in terms of electrons.

(4)

Week 7: 31st August 2026

Topic: Covalent bonding (giant)

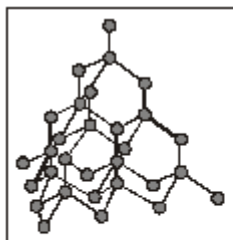
Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	113 114 24
YouTube Clip QR code	https://tinyurl.com/2w37akt9	
SAM learning QR Code	https://tinyurl.com/ajhxnu5z	

Answer the following questions

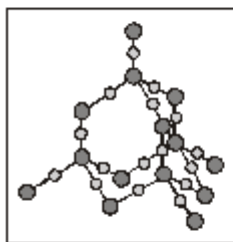
1. This question is about giant structures. Diamond, graphite and silicon dioxide all have giant structures.

(a) The diagrams show the structures of these three substances.

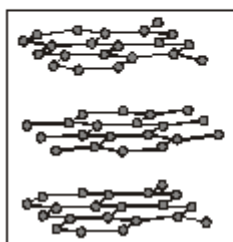
Draw a line from each structure to its name.



Silicon dioxide



Graphite



Diamond

(2)

(b) Complete the sentences using words from the box.

covalent	four	hard	ionic
shiny	soft	three	two

(i) Diamond, graphite and silicon dioxide have high melting points because all the atoms in their structures are joined by strong _____ bonds.

(1)

(ii) In diamond each atom is joined to _____ other atoms.

(1)

(iii) Diamond can be used to make cutting tools because it has a rigid structure which makes it very _____.

(1)

(iv) In graphite each atom is joined to _____ other atoms.

(1)

(v) Graphite can be used to make pencils because it has a structure which makes it _____.

(1)

(c) When a diamond is heated to a high temperature and then placed in pure oxygen it burns. Carbon dioxide is the only product.

Name the element in diamond.

(1)

(d) Explain why graphite can conduct electricity

(1)

Week 8: 7th September 2026

Topic: Covalent bonding (simple)

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	114 115 25
YouTube Clip QR code	https://tinyurl.com/y3fdf52y	
SAM learning QR Code	https://tinyurl.com/4n6wv7x3	

Answer the following questions

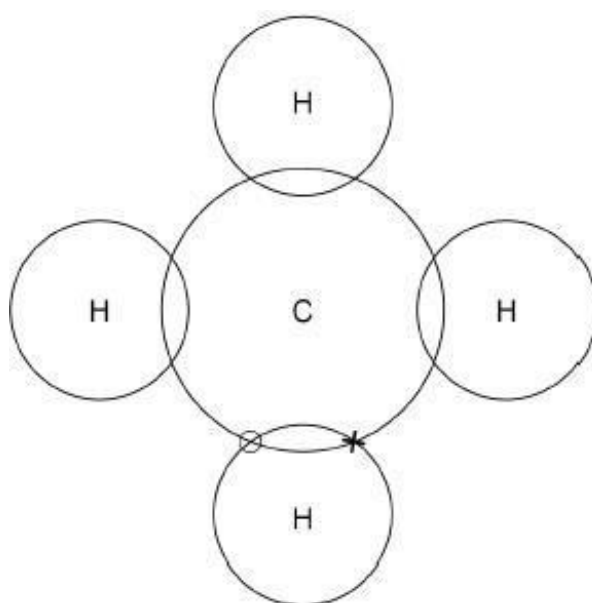
1. Carbon is in Group 4 of the periodic table.

(a) Methane contains carbon and hydrogen atoms.

A carbon atom has 4 electrons in the outer shell.

A hydrogen atom has 1 electron in the outer shell.

Complete the dot and cross diagram for a methane molecule in the space below.



(2)

(b) Circle below the type of bonding in methane.

ionic	covalent	metallic
--------------	-----------------	-----------------

(1)

(c) Use words from the box to complete the sentences below:

intermolecular	weak	gas	thermal	low
-----------------------	-------------	------------	----------------	------------

Methane is a _____ at room temperature because it has a
_____ boiling point. The _____ forces between
the molecules are _____ and do not require much
_____ energy to overcome.

(5)

(d) Explain why methane does **not** conduct electricity.

(2)

Week 9: 14th September 2026

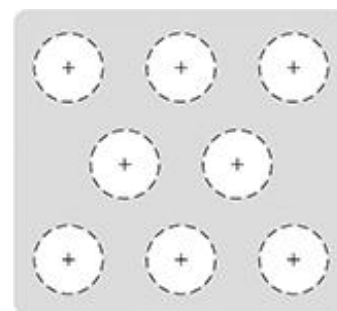
Topic: Metallic structure and bonding

Revision guide pages	Combined Science: Trilogy Foundation Combined Science: Trilogy Higher GCSE Chemistry	117 118 28
YouTube Clip QR code	https://tinyurl.com/ppdhp67v	
SAM learning QR Code	https://tinyurl.com/4yxtt6sa	

Answer the following questions

1. This question is about metals and alloys.

Figure opposite represents the structure of sodium metal.



Sodium metal

a) Explain why sodium metal conducts electricity when solid.

(2)

b) Explain why sodium metal has a high melting point.

(3)

(c) **Figure below** represents the structures of pure copper and of an alloy of copper and zinc.



Use **Figure 1** below.

A blank periodic table grid is shown. The grid is composed of squares representing elements. The layout is as follows:

- Row 1: 2 squares on the left, 1 square in the middle, 6 squares on the right, and 1 square on the far right.
- Row 2: 2 squares on the left, 16 squares in the middle, and 6 squares on the right.
- Row 3: 2 squares on the left, 16 squares in the middle, and 6 squares on the right.
- Row 4: 2 squares on the left, 16 squares in the middle, and 6 squares on the right.
- Row 5: 2 squares on the left, 16 squares in the middle, and 6 squares on the right.
- Row 6: 2 squares on the left, 16 squares in the middle, and 6 squares on the right.

Labels are placed in the following positions:

- A**: In the second square of the second row from the left.
- B**: In the eighth square of the fourth row from the left.
- C**: In the fifth square of the third row from the right.
- D**: In the sixth square of the third row from the right.



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