

**SMART EXAM RESOURCES**  
**CAMBRIDGE LOWER SECONDARY SCIENCE**  
**STAGE 7 CHEMISTRY**  
**TOPIC :ATOMS AND ELEMENTS**  
**SET-1**

1 Chen and Aiko investigate the properties of metals and non-metals.

They look at some data about element X.

property	property of element X
appearance	dull
density	low
ductility	poor
electrical conductivity	good
malleability	brittle
melting point	high
solubility in water	insoluble
state at room temperature	solid

(a) Chen makes this hypothesis,

**‘Element X is a metal because it has the properties of a metal.’**

Write down **two** pieces of evidence that support his hypothesis.

1 .....

2 .....

[2]

(b) Aiko makes this hypothesis,

**‘Element X is a non-metal because it has the properties of a non-metal.’**

Write down **two** pieces of evidence that support her hypothesis.

1 .....

2 .....

[2]

**Mark Scheme:**

	<b>any two from</b> dull brittle low density	<b>2</b>	each correct answer = 1 mark  <b>Accept</b> poor ductility
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2 The table gives some information about three metals.

metal	mass of 1 cm <sup>3</sup> of metal in g	reaction with cold water	strength in MPa
aluminium	2.7	no reaction	125
steel	7.8	forms rust (iron oxide)	400
gold	19.3	no reaction	120

(a) Give one advantage **and** one disadvantage from the table of making cars from steel.

advantage .....

.....

disadvantage .....

..... [2]

(b) Give **one** reason from the table why aluminium is suitable for making drinks containers.

.....

..... [1]

(c) Give **one** reason from the table why gold is suitable for making jewellery.

.....

..... [1]

(d) Give **one** reason, **not** shown in the table, why gold is suitable for making jewellery.

.....

..... [1]

**Mark Scheme:**

(a)	2	(advantage): strong(est) / strength 400 (disadvantage): forms rust / iron oxide / reacts with water	<b>Ignore</b> reference to cost
(b)	1	does not react with water / lightest / least dense / mass of 2.7(g)	
(c)	1	does not corrode / does not tarnish / does not react with water/air	
(d)	1	(idea of) lustrous / shiny / looks nice / desirable / malleable / easily worked into shape / valuable	

3 Metals are electrical conductors.

State three **other** physical properties of **most** metals.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

[3]

**Mark Scheme:**

	<b>any three from</b> hard strong shiny sonorous malleable ductile high melting point high boiling point (good) thermal conductor / heat conductor	<b>3</b>	each correct answer = 1 mark  <b>Accept</b> high density
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4

This question is about the properties of metals.

- (a) Draw straight lines to match the **property of a metal** with its correct **use** linked to that property.

**property of a metal**

sonorous

strong

ductile

hard

**use**

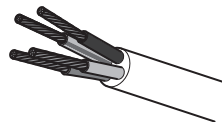
drill bit



bridge across a river



electrical wires

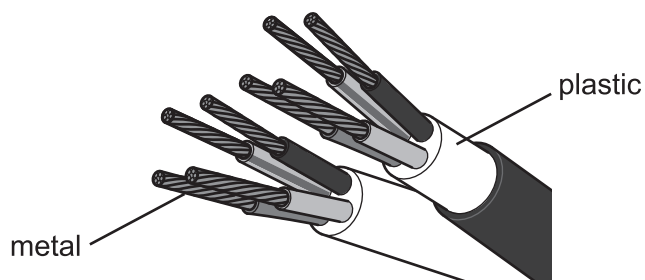


bell



[2]

(b) Metals are used to make electrical wires because they conduct electricity.



Write down **two** reasons why plastic is put around electrical wires.

- 1 .....
- 2 .....

[2]

(c) Read the sentences about the physical properties of metals.

Tick (✓) the box next to the correct sentence.

All metals have low melting points.

Some metals are gases at room temperature.

All metals conduct heat.

All metals are brittle.

[1]

## Mark Scheme:

2(a)	<p>metal property</p> <p>sonorous</p> <p>strong</p> <p>ductile</p> <p>hard</p> <p>use</p> <p>drum</p> <p>bridge across a river</p> <p>optical fibres</p> <p>bell</p>	2 all four correct = 2 marks two or three correct = 1 mark one correct = 0 marks
2(b)	<p>any two from</p> <p>plastic is an insulator/does not conduct electricity (idea of) makes the wires safe/prevents electrocution</p> <p>flexible</p> <p>can be coloured</p>	2 each correct answer = 1 mark Accept other valid answers
2(c)	<p>All metals have low melting points. <input type="checkbox"/></p> <p>Some metals are gases at room temperature. <input type="checkbox"/></p> <p>All metals conduct heat. <input checked="" type="checkbox"/></p> <p>All metals are brittle. <input type="checkbox"/></p>	1 more than one box ticked = 0 marks