

Name:

Date:

C10 - Test 1  
USING RESOURCES  
Beginner

**GCSE**

CHEMISTRY

AQA - Combined Science

Mark

Grade

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### Materials

For this paper you must have:

- Ruler
- Pencil and Rubber
- Scientific calculator, which you are expected to use when appropriate

### Instructions

- Answer all questions
- Answer questions in the space provided
- All working must be shown

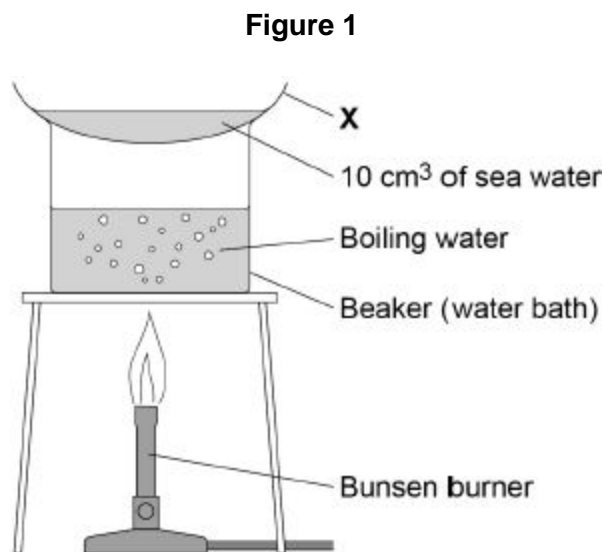
### Information

- The marks for the questions are shown in brackets

1.

A student tested a sea water sample for dissolved solids.

Figure 1 shows the apparatus.



(a) What is apparatus **X** on **Figure 1**?

Tick **one** box.

Boiling tube

Condenser

Funnel

Watch glass

(1)

(b) The student did the test four times.

The student calculated the mass of solid on apparatus **X** after heating.

The table below shows the student's results.

	Test 1	Test 2	Test 3	Test 4
Mass of solid in grams	0.12	0.29	0.14	0.15

Calculate the mean mass of solid.

Do not include the anomalous result in your calculation.

Give your answer to 2 significant figures.

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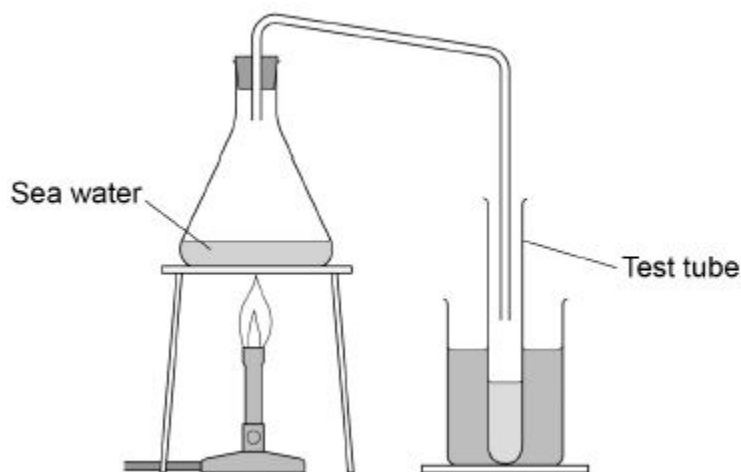
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Mean mass = \_\_\_\_\_ g

(3)

The student distilled a sample of sea water in the apparatus shown in **Figure 2**

**Figure 2**



(c) What change of state is happening at the surface of the sea water in **Figure 2**?

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(1)

(d) Describe how the water in the test tube in **Figure 2** is different from the sea water.

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(1)

(e) Why does producing drinking water from sea water using distillation cost a lot of money?

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(1)

(f) River water is filtered then sterilised to make drinking water.

Why are these **two** processes done?

Filtering \_\_\_\_\_

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Sterilising \_\_\_\_\_

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(2)

(Total 9 marks)

2.

Metals are extracted from ores in the Earth's crust.

(a) Why is copper used in the manufacture of computers?

Tick (✓) **one** box.

Because it has a high density.

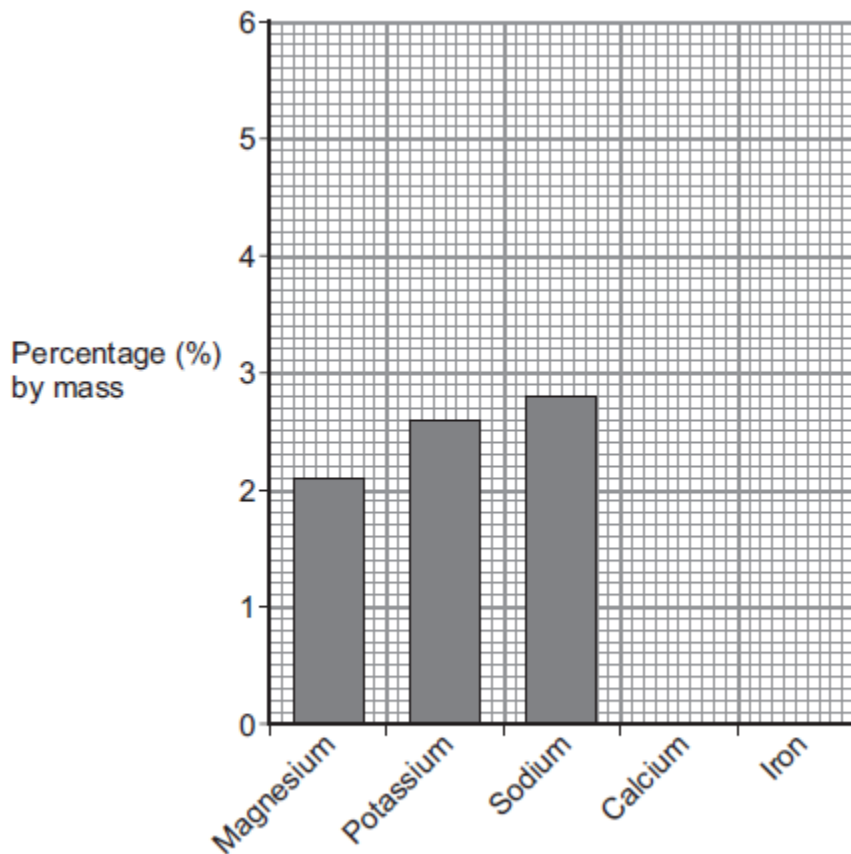
Because it does not react with water.

Because it is a good conductor of electricity.

(1)

(b) **Figure 1** shows the percentage (%) by mass of some metals in the Earth's crust.

**Figure 1**



(i) What is the percentage by mass of magnesium in the Earth's crust?

\_\_\_\_\_ %

**(1)**

(ii) On **Figure 1** draw the bars for:

- calcium at 3.6% by mass
- iron at 5.0% by mass.

**(2)**

(c) An ore of zinc contains zinc carbonate.

The equation for the reaction when zinc carbonate is heated is:



(i) What is the name of this type of reaction?

Tick (✓) **one** box.

corrosion

decomposition

electrolysis

(1)

(ii) Which substance in the equation is a gas at room temperature (20 °C)?

Tick (✓) **one** box.

zinc carbonate

zinc oxide

carbon dioxide

(1)

(iii) Complete the table below to show the number of atoms of carbon and oxygen in the formula of zinc carbonate.

Element	Number of atoms in the formula ZnCO <sub>3</sub>
zinc, Zn	1
carbon, C	
oxygen, O	

(2)

(iv) When 125 g zinc carbonate is heated, 81 g zinc oxide is produced.

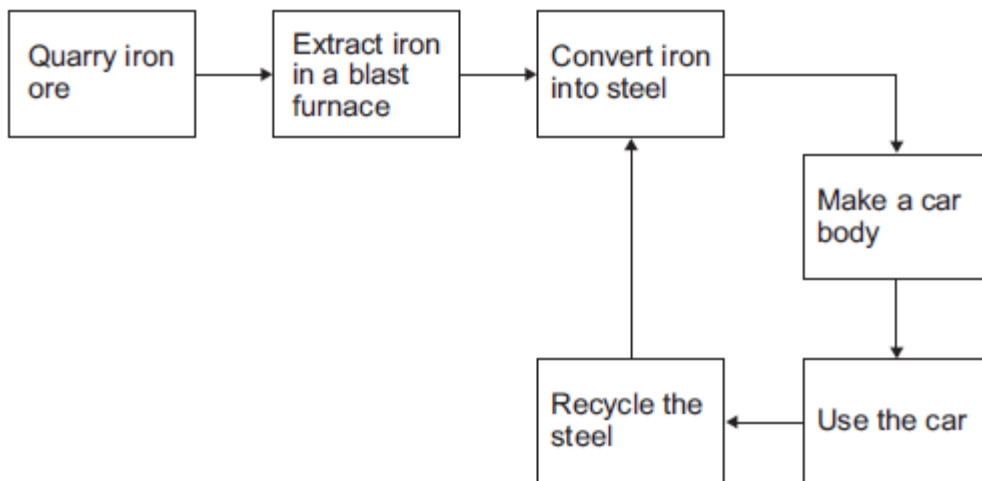
Calculate the mass of carbon dioxide produced.

Mass of carbon dioxide = \_\_\_\_\_ g

(1)

(d) **Figure 2** shows a simple life cycle of a car body.

**Figure 2**



(i) What is **one** reason why iron from the blast furnace is converted into steel?

Tick (✓) **one** box.

To make the iron pure.

To make the iron more brittle.

To make alloys for specific uses.

(1)

(ii) Apart from cost, give **three different** reasons why steel should be recycled.

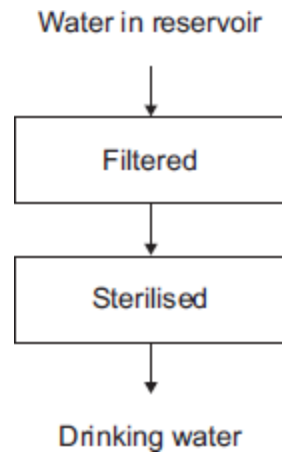
1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

(3)  
(Total 13 marks)

3.

This question is about drinking water.

(a) The flow diagram below shows how water is made suitable for drinking.



(i) What is removed when the water is filtered?

Tick (✓) **one** box.

Gases

Liquids

Solids

(1)



(ii) What is used to sterilise the water?

Tick (✓) **one** box.

Carbon

Chlorine

Sodium chloride

(1)

(iii) Why is the water sterilised?

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(1)

(b) Water can be purified by distillation.

Drinking water is **not** usually purified by distillation because distillation is expensive.

Complete the sentence.

Distillation is expensive because it requires a lot of

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(1)

(c) Why do some water companies add fluoride to drinking water?

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(1)

(Total 5 marks)

4.

Good quality water is needed for a healthy life.

In the United Kingdom, obtaining safe water for drinking is as simple as turning on a tap. The water is made safe to drink by water companies.

However, in many parts of Africa and Asia, water used for drinking is contaminated and untreated. It is estimated that 2.2 million people die each year as a result of drinking contaminated water.



*DADA DANESHANANDA, Man with filtered water from the Mafi-Zongo water project. [www.amurt.net/africa/ghana/2005](http://www.amurt.net/africa/ghana/2005)*

(a) Sea water is **not** used as drinking water.

Suggest why.

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(1)

(b) Explain why water for drinking is filtered and then treated with chlorine.

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(2)

(Total 3 marks)