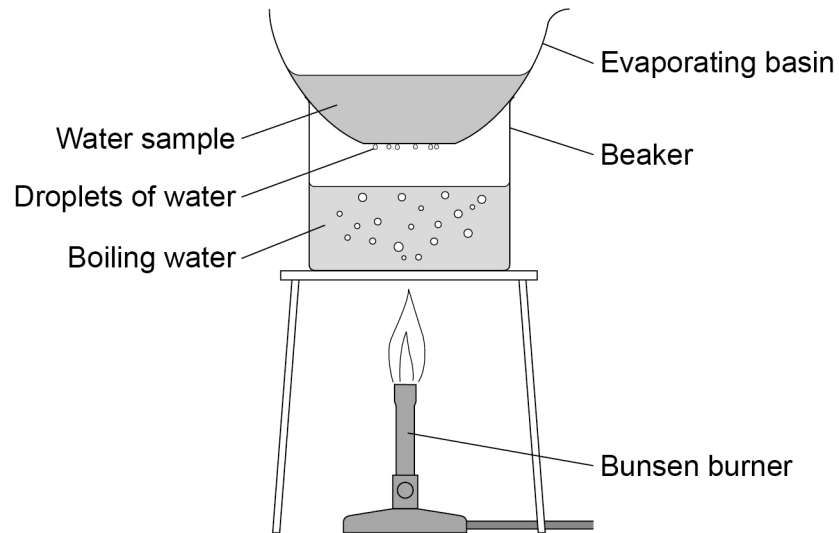


0 3

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

**Figure 4** shows the apparatus used.

**Figure 4**



This is the method used.

1. Record the mass of a dry evaporating basin.
2. Pour 25 cm<sup>3</sup> of the water sample into the evaporating basin.
3. Place the evaporating basin on the beaker for 10 minutes.
4. Record the mass of the evaporating basin and contents.

0 3 . 1

What is used to find the mass of the evaporating basin?

**[1 mark]**

Tick (✓) **one** box.

Balance

Beaker

Measuring cylinder

Thermometer



One error is that droplets of water collect on the bottom of the evaporating basin.

0 3 . 2

Suggest how this error affects the mass of the evaporating basin and contents.

[1 mark]

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0 3 . 3

How can this error be corrected?

[1 mark]

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0 3 . 4

Another error in the method is that not all the water was removed from the water sample.

How can this error be corrected?

[1 mark]

Tick (✓) **one** box.

Add more boiling water to the beaker.

Heat until the mass of the evaporating basin and contents is constant.

Stir the water sample in the evaporating basin with a glass rod.

**Question 3 continues on the next page**

**Turn over ►**



**0 3 . 5** The water in the water sample turns into steam.

What is the name of this process?

[1 mark]

Another student did the experiment correctly with three water samples **A**, **B** and **C**.

**Table 2** shows the results.

**Table 2**

Water sample	Mass of dissolved solids in g			
	Test 1	Test 2	Test 3	Mean
<b>A</b>	0.23	0.23	0.20	<b>X</b>
<b>B</b>	0.03	0.07	0.02	0.04
<b>C</b>	1.45	1.60	1.45	1.50

**0 3 . 6** The range is the difference between the largest value and the smallest value.

Which water sample has the greatest range of results?

[1 mark]

Tick (✓) **one** box.

**A**

**B**

**C**



**0 3 . 7** Calculate the mean mass **X** for water sample **A**.

Use **Table 2**.

**[2 marks]**

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**X** = \_\_\_\_\_ g

**0 3 . 8** What is the dependent variable in this experiment?

**[1 mark]**

Tick (✓) **one** box.

Mass of dissolved solids

Time taken for water to heat

Type of water sample

Volume of boiling water

**0 3 . 9** A different water sample contains 3.6 g of dissolved solids in 150 cm<sup>3</sup>

Calculate the mass of dissolved solids in 25 cm<sup>3</sup> of this sample.

**[2 marks]**

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Mass = \_\_\_\_\_ g

**11**

**Turn over ►**



Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	balance		1	AO1 5.10.1.2 RPA13
03.2	mass was greater / more than expected		1	AO3 5.10.1.2 RPA13
03.3	dry the bottom of the evaporating basin  or  use an electric heater		1	AO3 5.10.1.2 RPA13
03.4	heat until the mass of the evaporating basin and contents is constant.		1	AO3 5.10.1.2 RPA13
03.5	evaporation	ignore boiling	1	AO1 5.10.1.2 RPA13
03.6	C		1	AO2 5.3.1.4 5.10.1.2 RPA13

<b>03.7</b>	$\frac{0.23 + 0.23 + 0.20}{3} \text{ or } \frac{0.66}{3}$ = 0.22 (g)		1  1	AO2 5.10.1.2 RPA13
<b>03.8</b>	mass of dissolved solids		1	AO1 5.10.1.2 RPA13
<b>03.9</b>	$\frac{25}{150} \times 3.6 \text{ or } \frac{1}{6} \times 3.6$ = 0.6 (g)		1  1	AO2 5.3.2.5 5.10.1.2 RPA13
<b>Total</b>			<b>11</b>	