

Year 10 Revision
Homework Booklet:
Chemistry

Name: _____

Week commencing:	Topic of revision	Completed?
28 th March	<p style="text-align: center;">Separating Mixtures</p> <p>Summarise the information from the revision mat into the space provided.</p> <p>Complete 5 self-quizzing questions in grid provided.</p> <p>Complete the past exam paper question.</p>	
4 th April	<p style="text-align: center;">The Periodic table</p> <p>Complete 8 self-quizzing questions in grid provided.</p> <p>Complete the past exam paper question.</p>	
18 th April	EXAM	

Summarise the above information from the **separating mixtures** section of the revision mat in the box below using the format:

Subheading

- ***Trigger word***
- ***Trigger word***

Focus on key words and definitions rather than copying the text word for word.

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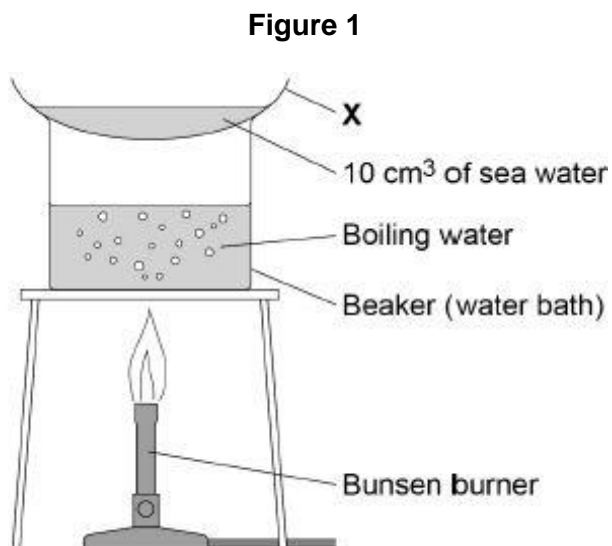
Complete 5 self-quiz questions using the information you have summarised above in the box below.

Question	Answer

Q1.

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 | <input type="checkbox"/> |
| Condenser | <input type="checkbox"/> |
| Funnel | <input type="checkbox"/> |
| Watch glass | <input type="checkbox"/> |

(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.

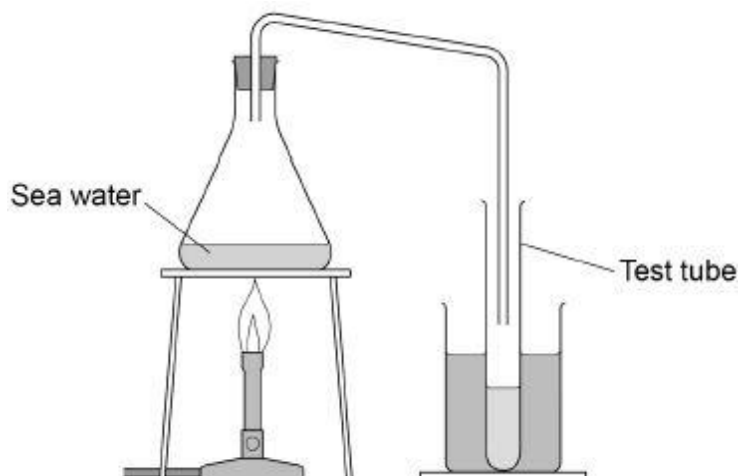
Give your answer to 2 significant figures.

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**?

(1)

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

(1)

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

(1)

(Total 7 marks)

Week 2: The Periodic Table

History

Early periodic tables arranged in order of atomic weight

ⓐ Some elements were in the wrong groups so didn't follow the pattern

ⓑ Mendeleev left gaps for undiscovered elements.

ⓒ The elements were discovered that filled the gaps and proved him right.

ⓓ Isotopes were discovered which explained why order based on weight didn't work.

Modern periodic table – order of atomic (proton) number.
Elements with similar properties in columns (groups).
Elements in same group have the same number of electrons in their outer shell and so have similar chemical properties.

I. Mendeleev's Table
Discovered new chemical properties

II. Present-day Table
Not same new chemical properties as Mendeleev's table

C2 Periodic Table

Metals vs Non-metals

Metals: Many electrons in outer shell so form **positive ions**.
Hard, high melting and boiling points.

Non-metals: Many electrons in outer shell so form **negative ions**.
Low melting and boiling points.

Group 0

Noble gases.
Unreactive (due to full outer shell)

Increasing atomic mass

Increasing boiling point

Group 1

Alkali Metals

Very reactive (due to single electron in outer shell)

- Metals
- React with oxygen to form **oxides**
- React with water to form the **hydroxide and hydrogen**
- React with chlorine to form **chlorides**

sodium + oxygen → sodium oxide

 $4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$

sodium + water → sodium hydroxide + hydrogen

 $2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq) + H_2(g)$

sodium + chlorine → sodium chloride

 $2Na(s) + Cl_2(g) \rightarrow 2NaCl(s)$

Group 7

Halogens

Very reactive (due to having 7 electrons in outer shell)

- Non-metals
- Exist in pairs as molecules (diatomic molecules)
- React with metals to form white solid crystals
- React with non-metals to form small molecules

Alkali metals get **MORE** reactive

Halogens get **MORE** reactive

Complete 8 self-quiz questions using the information above in the boxes below.

Question	Answer

Complete the past exam paper question:

Q1.

This question is about the periodic table.

In 1864 John Newlands suggested an arrangement of elements.

Figure 1 shows the arrangement Newlands suggested.

Figure 1

1	2	3	4	5	6	7
H	Li	Be	B	C	N	O
F	Na	Mg	Al	Si	P	S
Cl	K	Ca				

- (a) Give **two** differences between column 1 in **Figure 1** and Group 1 in the modern periodic table.

Use the periodic table to help you.

1. _____
2. _____

(2)

- (b) In 1869 Mendeleev produced his periodic table.

(d) Complete the sentences about the elements in **Figure 2**.

Choose the answers from the box.

A	D	E	G	J
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Sodium is an alkali metal and is represented by the letter _____.

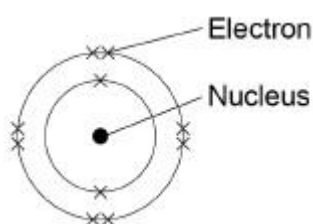
An element in group 3 is represented by the letter _____.

A gaseous non-metal element is represented by the letter _____.

(3)

(e) **Figure 3** shows the electronic structure of an atom.

Figure 3



This element is in the shaded group on **Figure 2**.

Why is this element unreactive?

(1)

(f) Name the group of elements in the shaded column on **Figure 2**.

(1)

(Total 9 marks)

Mark schemes

Q1.

- (a) any **two** from:
- hydrogen is in group 1 on Newlands table
 - fluorine / chlorine / halogens are in group 1 on Newlands table
 - alkali metals are in group 2 on Newlands table
- allow converse arguments relating to modern table*
allow lithium / sodium / potassium for alkali metals
- 2
- (b) undiscovered
- 1
- (c) atomic number
- 1
- (d) **D**
- 1
- E**
- 1
- A**
- 1
- must be in this order*
- (e) has a complete outer shell of electrons
- allow because has a stable arrangement of electrons*
- 1
- (f) noble gases
- 1
- [9]**