

# Chemistry Combined 20 Minute Tasks

## Unit 1 – Atomic Structure and the Periodic Table

### Task 1

Summarise the following separation methods. Name equipment in your summaries and give an example of when this separation method would be used.

- Filtration
- Crystallisation
- Simple distillation
- Fractional distillation
- Paper chromatography

Use this link to help (read all the pages): <https://www.bbc.com/bitesize/guides/z3iy6yc/revision/1>

### Task 2

Describe the properties of each of the following groups in the Periodic Table and state how reactivity changes as you go down each group.

- Group 1 – The Alkali Metals
- Group 7 – The Halogens
- Group 0 – The Noble Gases

Use this link to help (read all the pages): <https://www.bbc.com/bitesize/guides/ztrxdxs/revision/1>

## Chemistry Unit 2 – Bonding, Structure and the Properties of Matter

### Task 1

Represent the ionic bonding of magnesium oxide with a dot and cross diagram. Underneath, describe what has happened in terms of electron transfer.

Use this link to help: <https://www.bbc.com/bitesize/guides/ztc6w6f/revision/2>

### Task 2

Draw a dot and cross diagram to represent the covalent bonding in Chlorine ( $\text{Cl}_2$ ). Describe why the chlorine atoms share electrons and state the properties of simple covalent molecules, such as chlorine.

Use this link to help: <https://www.bbc.com/bitesize/guides/z373h39/revision/1>

## Chemistry Unit 3 – Quantitative Chemistry

### Task 1

Use your periodic table to calculate the relative formula masses ( $M_r$ ) for the following compounds:

- a.  $\text{MgO}$
- b.  $\text{CaCl}_2$

- c. CO<sub>2</sub>
- d. H<sub>2</sub>SO<sub>4</sub>
- e. Mg(OH)<sub>2</sub>

Use this link to help: <https://www.bbc.com/bitesize/guides/z2bfxfr/revision/1>

#### Task 2 – Higher Tier Only

Watch the video and answer the questions below:

<https://www.bbc.com/bitesize/guides/zyjk3k7/video>

1. What is a mole?
2. What is the Avogadro constant?
3. Write the equation to calculate amount of moles
4. Calculate how many moles of sulfuric acid molecules there are in 4.9g of sulfuric acid.

#### Unit 4 – Chemical Changes

##### Task 1

Write down what is produced when the following react together:

1. Metal and water
2. Metal and acid
3. Metal and oxygen
4. Acid and metal
5. Acid and metal oxide

Use the following links to help (read all the pages):

<https://www.bbc.com/bitesize/guides/zy7dgdM/revision/1>

<https://www.bbc.com/bitesize/guides/ztv2dxs/revision/3>

##### Task 2

Watch the video below to answer the questions:

<https://www.bbc.com/bitesize/guides/z9h9v9g/video>

1. What is electrolysis?
2. Draw and label a diagram to show how to set up electrolysis for a beaker of calcium chloride.
3. What is the positive electrode also called?
4. How can you test for chlorine?
5. Which electrode are the copper ions attracted to?
6. What happens to chlorine ions at the positive anode?
7. Why does hydrogen form at the cathode when carrying out electrolysis in a solution of sodium chloride?

#### Unit 5 – Energy Changes

### Task 1

Watch this video and then complete the tasks below:

<https://www.bbc.com/bitesize/guides/z2b2k2p/video>

Summarise what endothermic and exothermic reactions are and give an example for each.

Define what activation energy is.

Sketch a reaction profile diagram for an endothermic reaction. Add labels the reactants, the products, the activation energy and the overall energy changes.

### Task 2

A student is trying to find out how changing the concentration of sulfuric acid affects its reaction with magnesium. They are going to measure the temperature change. Write a method and a risk assessment for the investigation. Identify the independent, dependent and control variables as part of your method.

Use this link to help: <https://www.bbc.com/bitesize/guides/z2b2k2p/revision/2>