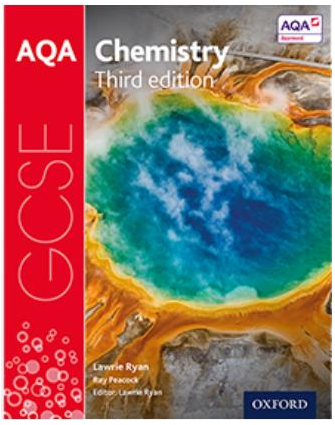
Extended Homework Task

Chemistry C14 - The Earth's resources

Name ……

Please hand in a completed printed version at the end of the topic



The online text book access to support this homework can be accessed through your Kerboodle account at www.kerboodle.com.

The username is your first initial and sir name (no gap).

If you have not accessed the book before the password will be the same as your username. If you have logged on before you will have changed the password to your own choice.

Click onto the science 9-1 tile and then onto the digital book.

Resources to support this homework can be found in the online student book

- **The Earth's resources pages 206 to 219**

Aims

In this activity you will produce a script or presentation for a short ‘mini-programme’ for television or an online video channel about potable water and how we obtain it.

Learning outcomes

After completing this activity, you should be able to:

- Describe what potable water is
- Describe how potable water can be obtained using distillation
- Describe how potable water can be obtained by passing fresh water through filter beds and sterilisation.

Task

You are going to write a script or a PowerPoint presentation all about potable water. It should explain what it is and how we can obtain it using distillation, or by passing fresh water through filter beds and sterilising it.

There are some facts and useful information shown below about potable water. You can also refer to the student book. Select facts from these to use in your script. Remember to put them into your own words.

Your teacher will also demonstrate how an impure sample of water is distilled to obtain pure water.

You may like to break up your script into the following sections:

- What is potable water?
- What is in water that would make it not potable?
- How can salt water be distilled using distillation?
- How can fresh water be purified using filter beds and sterilisation? *(8 marks)*

Useful information

Water can contain many other substances. Water found in the natural environment is unlikely to be pure.

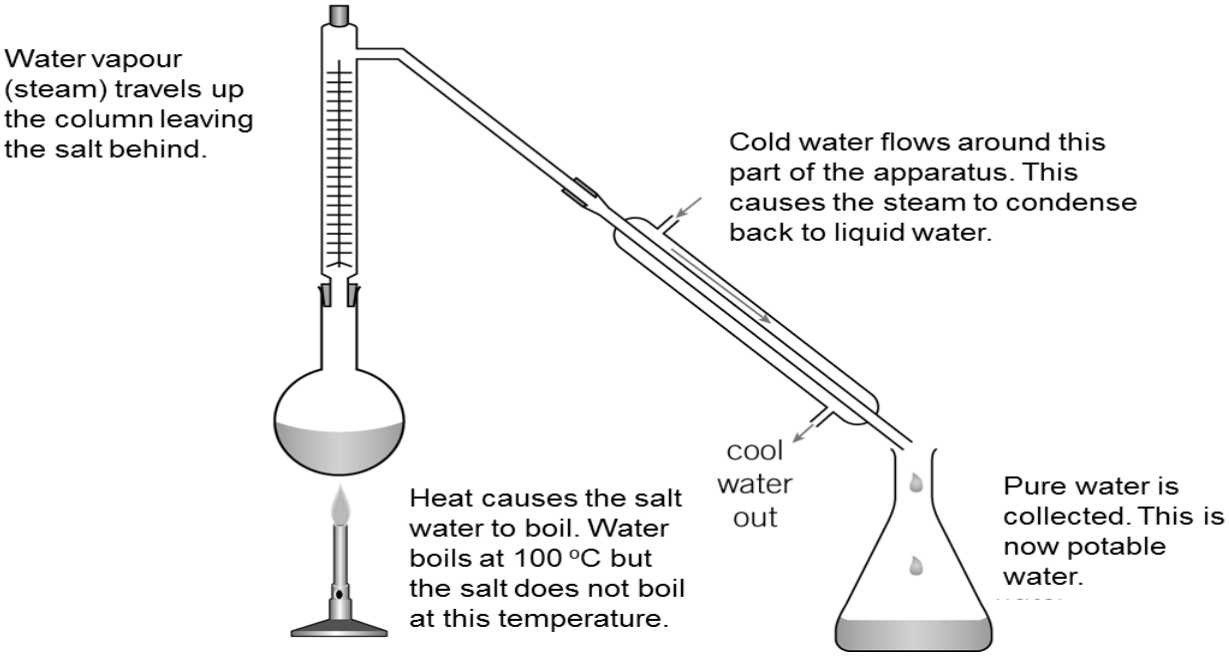
It may have dissolved substances in it, like fertilisers used by farmers or gases from the air. It could contain microorganisms like bacteria, which could make us ill if there are lots present. It may also have some solids in it, for example mud or silt, or pieces of rubbish.

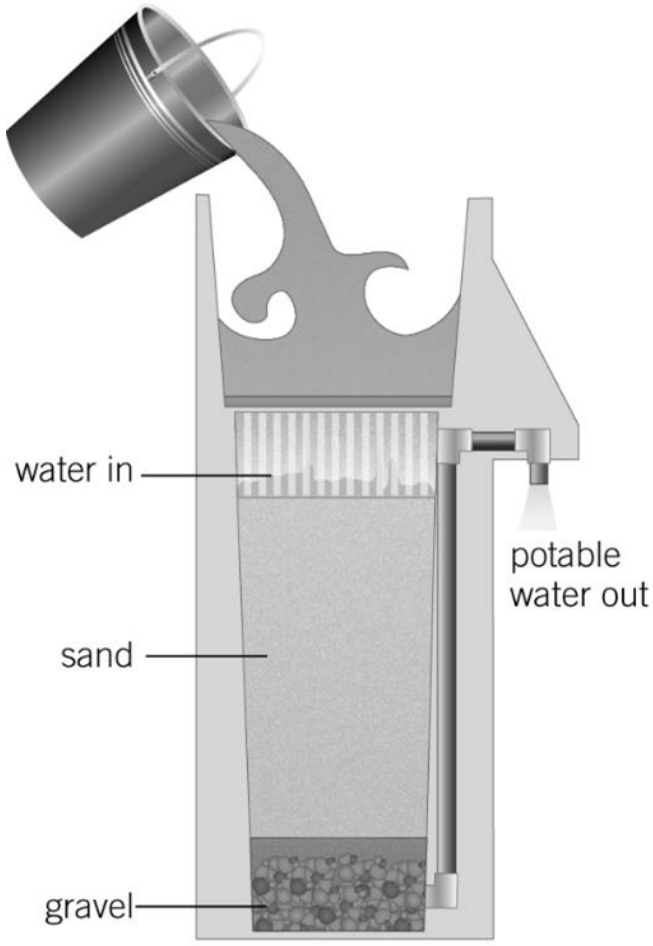
Water that is fit for us to drink is called potable water. Potable water does not have to be pure, but it must have low enough levels of dissolved substances and microorganisms so that it will not make us ill.

Water that contains impurities can be filtered through beds of sand and gravel. This filters the impurities off.

The water that is obtained this way can also be sterilised with chemicals (e.g., chlorine) or with ultraviolet light to kill microorganisms.

This method is usually used to obtain potable water from freshwater, not from salt water.





How to write a script

Your script should show who is speaking, what they will say, and if they need to do anything. For example, if Person 1 needs to say that water can be impure and to hold up a photo of dirty water, your script would look like this:

PERSON 1 (*holding up photo of dirty water*): Water can be impure.

C15 Using our resources – Aiming for Grade 8

Aims

In this activity you will produce a poster explaining the importance of the Haber process and how the reaction conditions for the Haber process are chosen.

Learning outcomes

After completing this activity, you should be able to:

explain why the Haber process is economically important (H)

explain how the conditions for the Haber process need to be chosen to give acceptable yields whilst maintaining acceptable rates (H).

Task

You are going to produce an A4 poster that explains the importance of the Haber process and how the reaction conditions are chosen.

Your poster should include the following:

- Why the Haber process is important.
- A balanced equation showing the key reaction, the catalyst used and the conditions under which the reaction is carried out.
- A detailed explanation of why these conditions are chosen (i.e. what would the optimum conditions be, are these optimum conditions used, and if not then why not). *(14 marks)*