

## DESERT ISLAND SURVIVAL

You have been stranded on a desert island with very little survival equipment and no water. It will be four days before the nearest ship can come and save you. You need to survive until then.

You look in your bag and find some blotting paper which can be used for filtering, some meths, and some basic equipment. The only water around is dirty sea water. Your aim is to make some pure water to keep you alive for four days.

### You have 2 sets of equipment to hand.

Distillation: will separate and keep both the salt and the water - separates according to different boiling points;  
Filtration will separate soluble substances from insoluble substances and keep both parts. You must decide in which order to use them, and why.

## Method

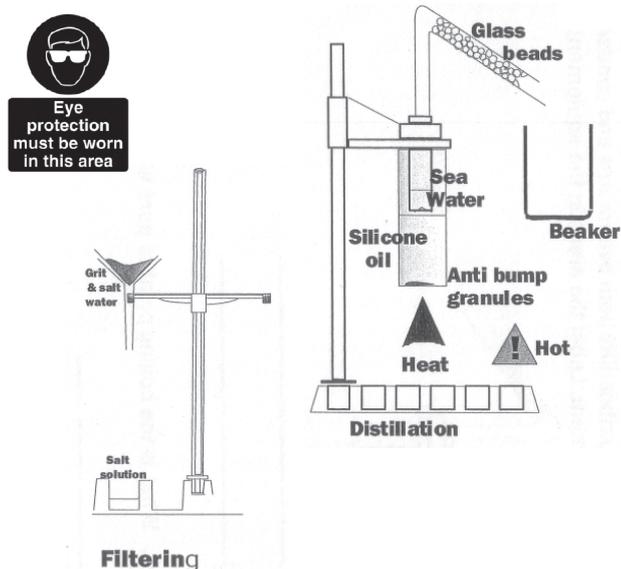
### Filtering

1. Set the equipment as shown in the diagram.
2. Remember to add the filter paper and collect the solution in the large wells below.

### Distillation:

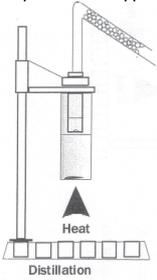
1. Half fill the small inner container with sea water and 1 or 2 anti bump granules.
2. Half fill the larger container with silicone oil and a few anti bump granules.
3. Attach both containers to the plastic head.
4. Fill the distillation tube with glass beads and attach to the head.
5. Heat the large container using the microburner - adjust the height of the still on the stand as needed. Always keep the microburner in a large well when lit.

Use the diagram opposite to help you.



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NAME:

QUESTION	ANSWER
<p>1. You used 2 separating techniques to purify the sea water. What were they called?</p>	
<p>2. What is the boiling point of pure water at sea level? Remember the units.</p>	
<p>3. The Combostill® both evaporates and condenses liquids in different parts of the equipment. label the areas in the equipment where these processes happen.</p> 	
<p>4. Distillation is used in the making of whisky, to increase the amount of alcohol in the drink. Knowing that ethanol (a type of alcohol) has a boiling point of 78°C and the boiling point of water (answer 2), which liquid will appear first in the beaker? <b>Explain your answer.</b></p>	