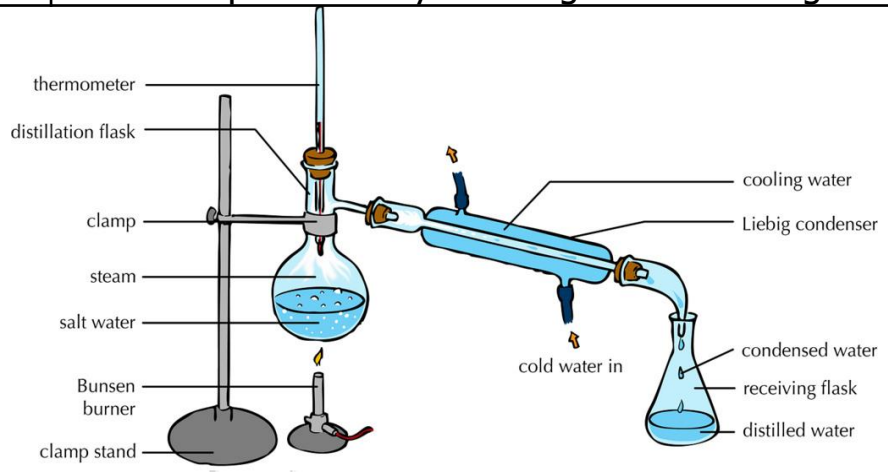
Knowledge Organiser – Using the Earths Resources

Finite resource	A resource that cannot be replaced once it has been used.
Renewable resource	A resource that we can replace once we have used it.
Sustainable development	Using resources to meet the needs of people today without preventing people in the future from meeting theirs.
Life cycle assessment	An examination of the impact of a product on the environment throughout its life.
Value judgement	An assessment of a situation that may be subjective, based on a persons opinion and / or values.
Desalination	Process to remove dissolved substances from sea water.
Ore	A rock from which a metal can be extracted for profit.
Phytomining	The use of plants to absorb metal compounds from soil as part of metal extraction.
Bioleaching	The use of dilute acid to produce soluble metal compounds from insoluble metal compounds.
Leachate	A solution produced by leaching or bioleaching.



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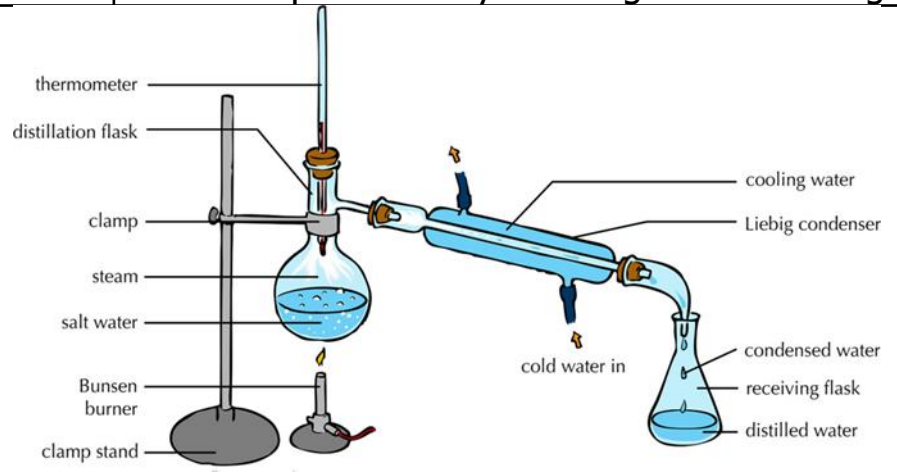


C10 The Earth's Resources

Finite and Renewable

What do the words mean??

Finite = Will run out eventually
Renewable= We can replace them as we use them
Sustainable = meets the needs of the current generation without compromising he ability of future generations to meet their needs.

What do we use the earth's resources for?
- **Warmth**
- **Shelter**
- **Food**
- **Transport**

We can use them as natural resources or process them.

'Natural resources' + agriculture provides
- **Food**
- **Timber**
- **Clothes**

Finite resources are processed to get us
- **Energy**
- **materials**

e.g. Cotton is natural and we grow cotton plants. OR we can use synthetic materials e.g. nylon

e.g. Coal, oil and gas are used for energy.
e.g. metal ores are mined to get metals.

Treating water

Potable water must have low levels of SALTS and MICROBES (it isn't PURE water)

Rainwater in lakes, rivers and reservoirs

Filter

Why? To remove insoluble solids

Sterilise – chlorine, ozone, or UV light

Why? To kill microbes

Sewage

Screening and grit removal

Sedimentation

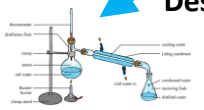
Anaerobic digestion of sludge

Aerobic treatment of effluent

Industrial and agricultural waste water – remove organic matter and harmful chemicals

Salt water

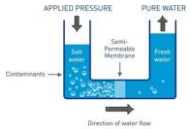
Desalination



Distillation

☹ Both use a lot of energy

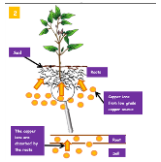
Reverse osmosis



HT ONLY: Alternative Metal Extraction

Why bother?
Running out of metal ores

Phytomining



Plants take in copper

- BURN plants
- React ASH with sulphuric acid

Bioleaching

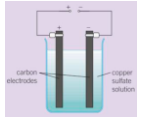
Bacteria feed on metal ore

- 'leachate solution' contains copper compounds

How to get the copper from the compound

Displacement using scrap iron

Electrolysis



LCA and RRR

Life Cycle Assessments

Water | Resources | Energy sources

Waste

Reducing use of resources

Why bother? Reduce…use of limited resources

Why bother? Reduce…use of energy resources

Why bother? Reduce…waste and environmental impacts

mining

landfill