# Rock salt

Chemistry - Key Stage 3

Particles - Lesson 10

Miss Mason

# Recap

1. Which separating technique should be used to separate an insoluble solid from a solution?

2. Which separating technique should be used to separate a soluble solid from a solution?

3. Define the words 'soluble' and 'insoluble'.
**Soluble is used to describe something that can be d_____ and insoluble is used to describe something that can't be d_____.**

4. What is the missing mass value in this chemical reaction?
Acid + Alkali → Salt + Water
**[15g]    [13g]    [8g]     [???]**

5. Compare melting to freezing.
**Melting is the change of state that takes place from a _____ to a _____ whereas freezing is the change of state that occurs from a _____ to a _____. In melting, the particles move _____ _____ but in freezing, the particles move _____ _____.**

# Put the following steps in the correct order

Tip the salt solution into an evaporating basin and leave in a drying oven overnight

Add the mixture to a beaker and stir using a stirring rod

Measure the mass of salt in the evaporating basin once all of the water has evaporated off

Measure the mass of the rock salt mixture

Filter mixture into a conical flask using a funnel and filter paper

Grind the mixture using a pestle and mortar to crush the rocks and release any salt they may have trapped inside them

# Independent task

1. Starting mass of rock salt: **11g**
Final mass of pure salt: **7.3g**
*Percentage yield (to whole number) =*

2. Starting mass of rock salt: **33.1g**
Final mass of pure salt: **18.2g**
*Percentage yield (to whole number) =*

3. Starting mass of rock salt: **254g**
Final mass of pure salt: **178.6g**
*Percentage yield (to 1 decimal place) =*

4. Starting mass of rock salt: **3124.9g**
Final mass of pure salt: **2298.65g**
*Percentage yield (to 2 decimal places) =*

1. **Describe how you would use various separating techniques to obtain pure salt from rock salt.**
2. **Calculate the percentage yield if the starting rock salt mass was 34g and the final mass of pure salt was 16.8g (give your answer to 1 decimal place).**

**Equipment list:**
- Stirring rod
- Beaker
- Filter paper
- Evaporating basin
- Funnel
- Pestle and mortar
- Conical flask

| Problem | Possible cause | Suggestion for improvement |
|---|---|---|
| Salt at the end was still dirty | Filter f_____ overfilled | Make sure solutions do not reach the top of f_____ p_____ |
| Salt at the end was still dirty | H____ in filter paper caused by stirring | Don't s____ while filtering |
| Salt at the end was still dirty | D_____ conical flask or evaporating dish | C_____ all equipment before starting |
| % salt was low | Not all the salt d_____ in the water | Use ____ water (to increase chance of dissolving) |
| % salt was low | Some salt left in the b_____ | Rinse out the b_____ |
| % salt was low | Some salt left on the f_____ p_____ | Rinse the f_____ p_____ |

[Source: Miss Mason]