# Separation of Mixtures Lab Flowchart

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Container

Electronic balance

16

Iron Filings

Magnet

Stirring rod

Water

Scoopula

Naphthalene

Naphthalene

Sand

Funnel

Naphthalene
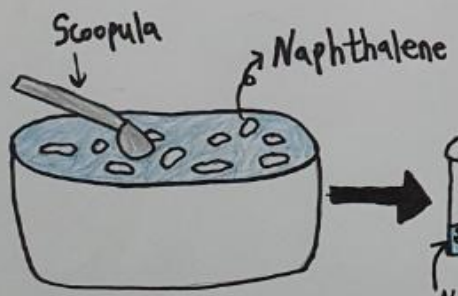
Hot plate
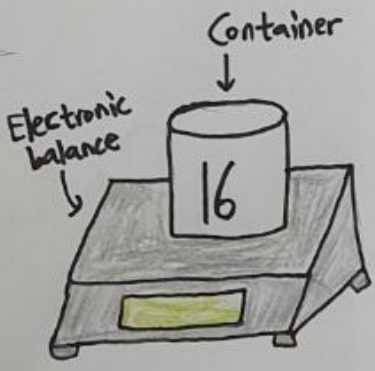
1. Record the number assigned to the container (Recording)

2. Measure the total mass of the mixture initially including the container using the electronic balance (Measuring)

3. Empty the container and measure the mass of the empty container to obtain the exact mass of the mixture (Measuring)
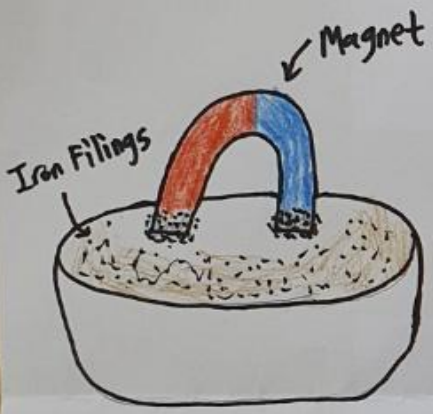
4. Use a magnet to separate the Iron Filings from the mixture (Magnetism)

5. Measure the mass of the Iron Filings (Measuring)

6. Pour water into the mixture (Solubilizing)

7. Let the salt totally dissolve in the water by stirring the mixture using a stir bar (Solubilizing)

8. Scoop up the substance floating on top of the solution, which is naphthalene, using a scoopula (Sorting)

9. Use the gravimetric filtration system to separate the saltwater and sand with a funnel and a filter paper and naphthalene and saltwater (gravimetric filtration)
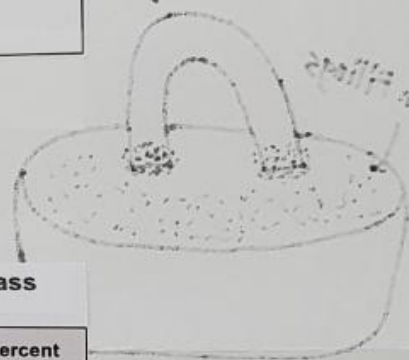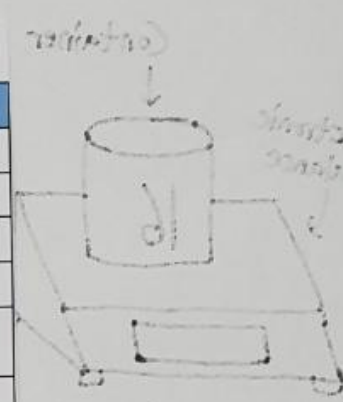
10. Measure the mass of sand and the mass of naphthalene with an electronic balance (Measuring)

11. Heat the saltwater until the water completely evaporates using a hot plate (Evaporation)

12. Measure the mass of salt remaining using the electronic balance (Measuring)

13. Check if the sum of each substance is equal to the mass of the whole mixture measured initially (Confirmation, check)
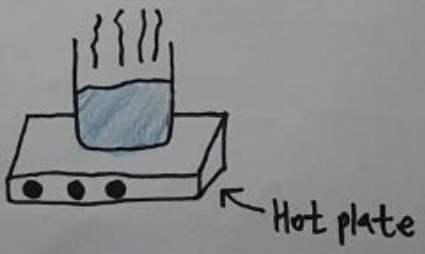
Data Table attached on the back side →

## Expected Mass of the Substances from the Separation Lab

| Substances | Measured Mass (g) |
|---|---|
| Iron Filings | 3.01 |
| Naphthalene | 0.49 |
| Sand | 4.59 |
| Sodium Chloride (NaCl) | 2.21 |
| Initial mass of the mixture including the container | 17.08 |
| Mass of the empty container | 6.78 |
| Initial mass of the mixture (before experiment) | 10.3 |
| Final mass of the mixture (after experiment) | 10.3 |

## Average Percent Error Between the Expected Mass and Actual Mass

| Substances | Measured Mass (g) | Actual Mass (g) | Percent Error (%) | Average Percent Error (%) |
|---|---|---|---|---|
| Iron Filings | 3.010 | 2.930 | 2.730 | |
| Naphthalene | 0.490 | 0.734 | 33.243 | 13.560 |
| Sand | 4.590 | 4.693 | 2.195 | |
| Sodium Chloride | 2.210 | 1.904 | 16.071 | |

# Data Tables

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