



# Changes in matter

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## Unit 6

# History

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- We have used **natural resources & materials** for a LONG time
- We collected rock, wood, & food and used them as we found them
  - We did **NOT** adapt them



# Now

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- We know how to extract **MORE** resources from nature
  - Example: **OIL**
    - We extract it from underground
    - **Oil** → **petrol/ plastics**
    - Horses → cars running on petrol



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**ALL THANKS TO  
CHANGES IN  
MATTER!!!!!!**



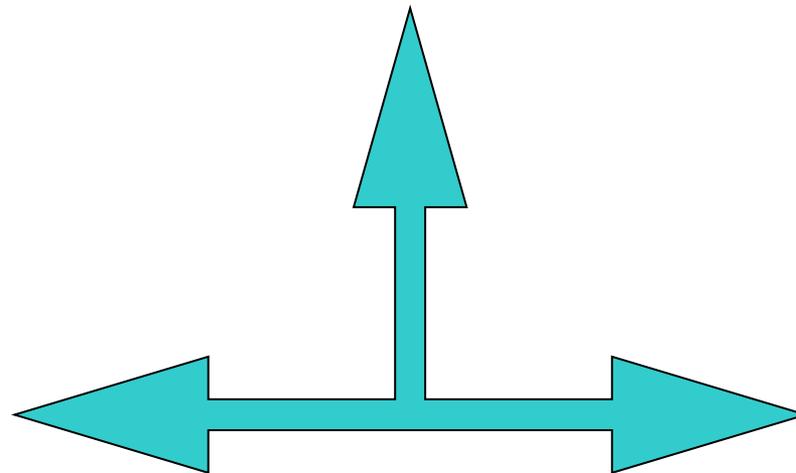
# What is MATTER?

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- **Matter** is everything that **forms the universe** and **occupies space**.

MATTER

GENERAL  
PROPERTIES



SPECIFIC  
PROPERTIES

# General properties of matter

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- **Common to all** types of matter

- **Mass**



- **Quantity** of matter
- Measured in kilograms (**kg**) and grams (**g**)

- **Volume**



- **Space occupied** by matter
- Measured in cubic metres (**m<sup>3</sup>**) and cubic centimetres (**cm<sup>3</sup>**)
- Volume of LIQUID measured in litres (**l**) and millilitres (**ml**)

# Volume

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Measured in **cubic metres ( $\text{m}^3$ )** and **cubic centimetres ( $\text{cm}^3$ )**



Volume of LIQUID measured in **litres (l)** and **millilitres (ml)**



# Specific properties of matter

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- Permit us to **differentiate** between different **types of matter**



- **Density =**

MASS

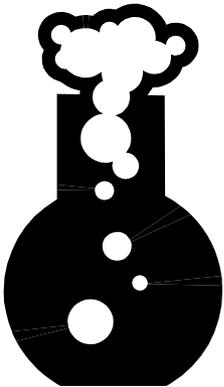
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VOLUME

# Changes in matter

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- Matter **can change**
- 2 types of changes:
  - **Physical**
    - **Mass is unchanged**
    - **Type of matter unchanged**
    - Changes in **shape, state, volume**
  - **Chemical**
    - 2+ **substances combined**
    - Substances react to each other
    - **New substances (products)** created



# Changes in matter

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PHYSICAL



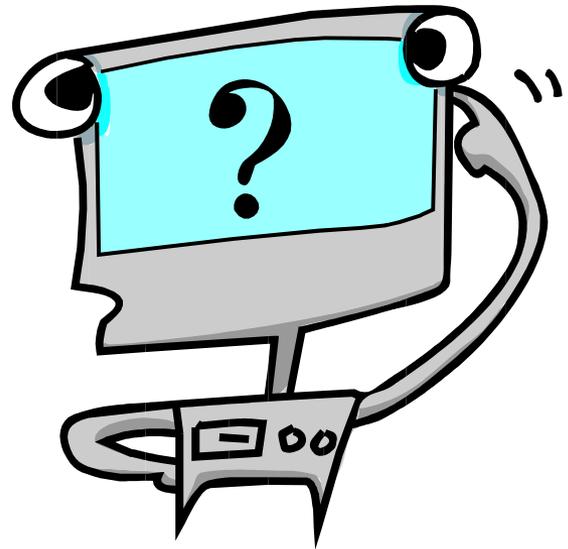
CHEMICAL



# Questions

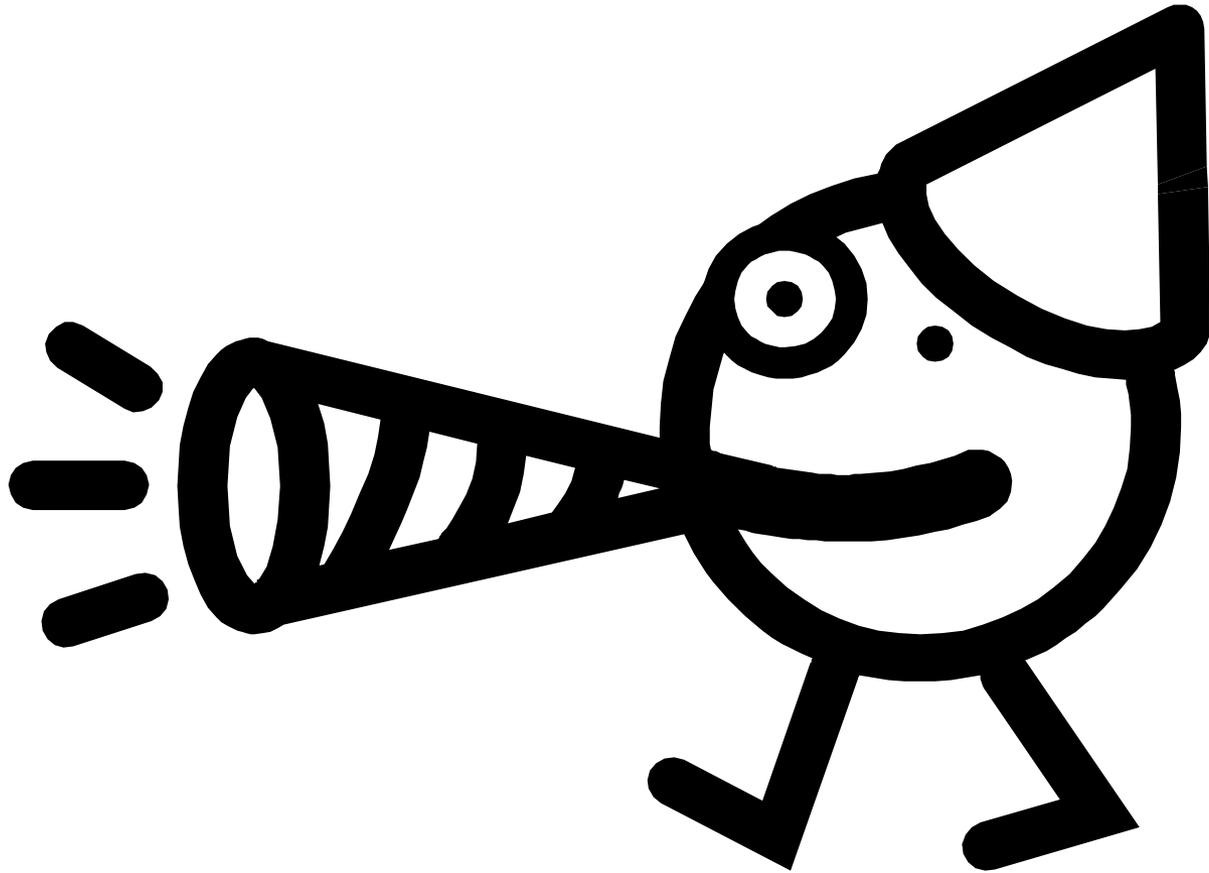
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- What is matter?
- What are the general properties?
- What are the specific properties?
- What are the 2 types of changes in matter? Explain.



# Pure substances & mixtures!

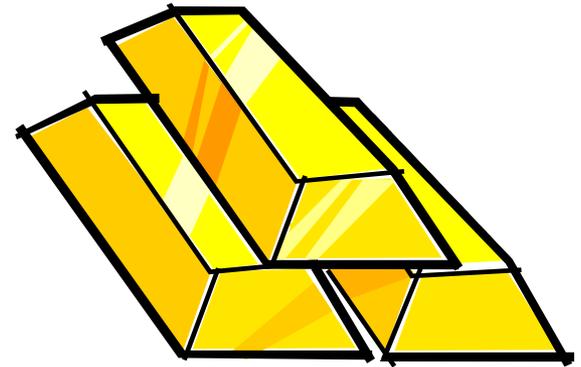
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# Pure substances

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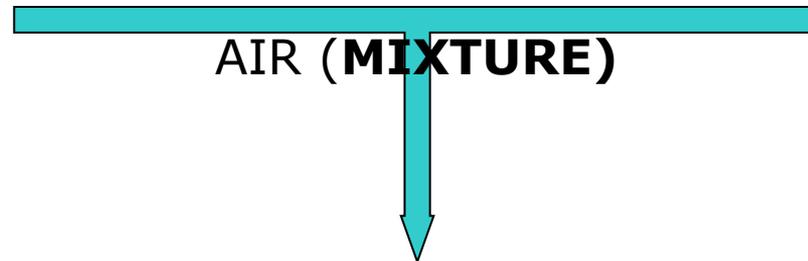
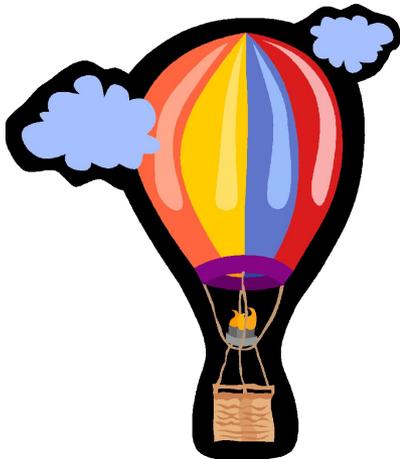
- Formed of only **ONE** type of matter
  - Water, iron, gold, quartz, etc.



# Mixtures

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- Formed of **MORE than 1** type of matter
  - Air, salt water, olive oil, etc. These are called **MIXTURES**.
  - Each type of matter that forms a mixture is called a **COMPONENT**.



**COMPONENTS:** NITROGEN,  
OXYGEN, WATER VAPOUR, OTHER  
PURE SUBSTANCES

# Solutions

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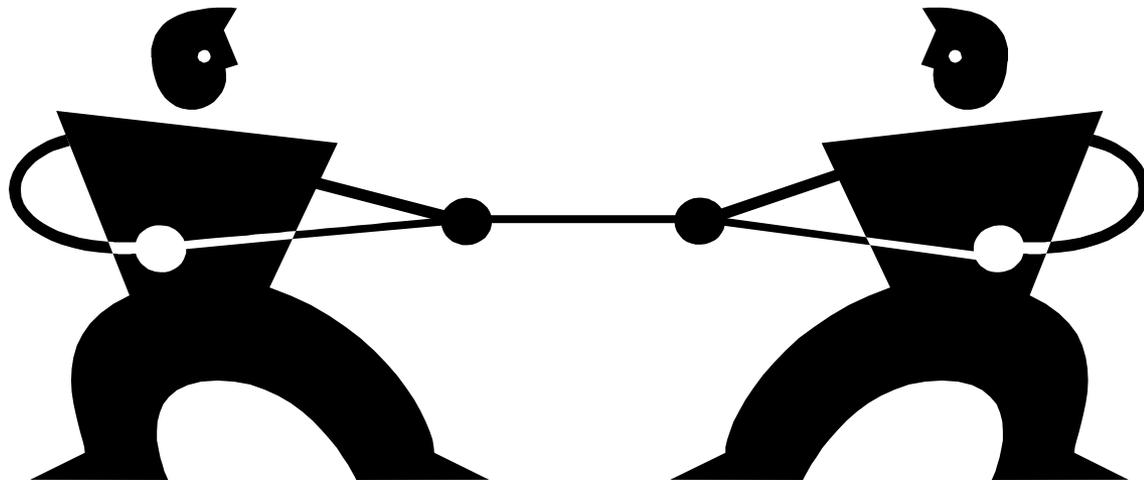
- **Mixtures** where it's **NOT** possible to **distinguish** the different components
  - E.g. salt & water



# How to separate components of a mixture

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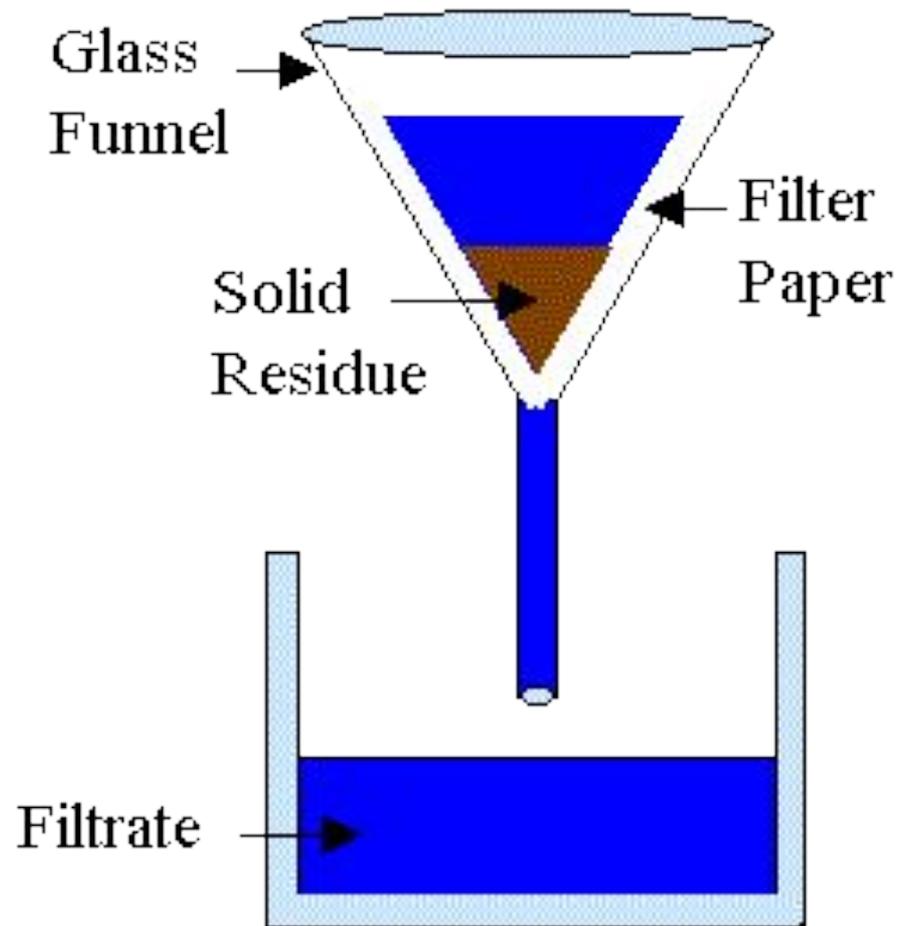
- Filtration
- Decanting
- Magnetism
- Evaporation



# Filtration

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- Separate **solid** from **liquid**
- Use **filters of different thickness** for different components



# Decanting

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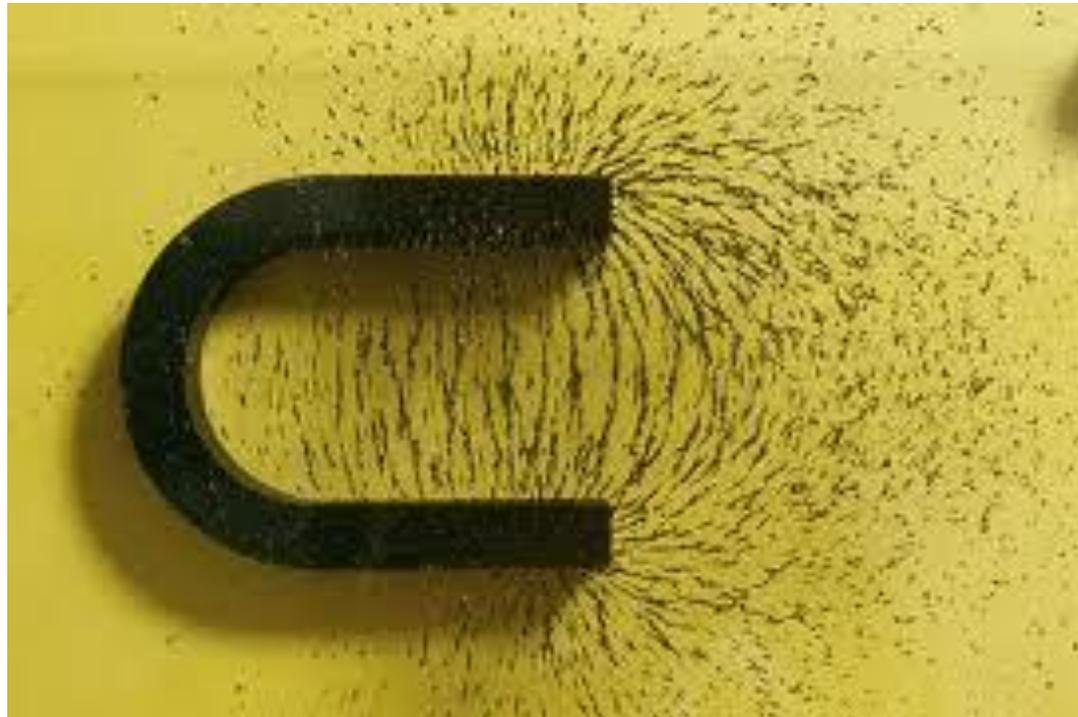
- Separate components with **different weights**, like oil and water
- Leaving the mixture so that **heavier components sinks to bottom**



# Magnetism

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- Separate components **attracted to magnets**, like iron



# Evaporation

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- Obtain **salt from water**, “like in **salt works**”
  - Water **heated up** by Sun
  - **Water evaporates** and leaves **solid salt** on ground





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**THE END**