

## Matter

What is matter? states of matter  
solid, liquid, gas, plasma, fire  
→ anything with particles  
→ something that takes up space

How do we measure it?  
- volume (the space it takes up)  
- mass  
- weight

Matter - Any substance that has mass and takes up space by having a volume

Not matter — light ( $\leftarrow$  particle, but has no mass, takes up no space)  
 - vacuum (empty space) - takes up space, but has no mass

On Earth, we can determine the amount of matter by *weighing* it (on Earth, mass and weight are linked together, but are NOT the same thing).

Mass - a measure of how much stuff there is (chem)  
 - a measure of how hard it is to change what an object  
 is doing (physics)

Weight - How hard Earth is pulling on the object  
 (Force of gravity)

$$F_g = mg \quad (\text{on Earth})$$

force of gravity  $\rightarrow$   $F_g$        $\uparrow$  mass       $\nwarrow$  acceleration due to gravity

Classification of Matter

MATTER

MIXTURE

PURE SUBSTANCE

Science Classroom

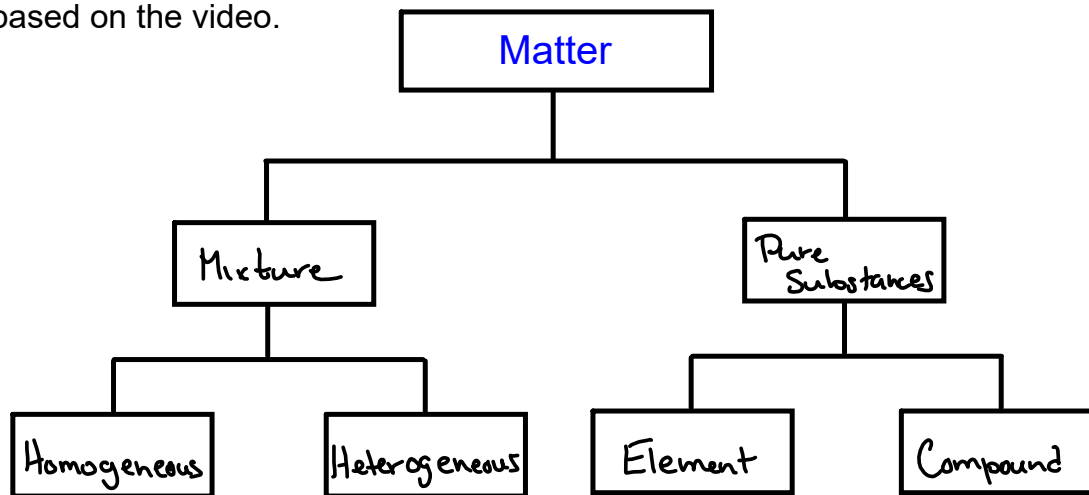
Classification of Matter

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1:05 / 4:22 Purity

YouTube

Fill in the table based on the video.



Define each of the terms in the boxes.

Mixture - a combination of more than one substance (pizza)

Pure Substance - only made up of one type of matter (Aluminum foil)

Homogeneous Mixtures - appear the same throughout (tap water)

Heterogeneous Mixtures - we can see different substances (pizza)

Elements - one type of atom (carbon)

Compounds - molecules made up of more than one type of atom ( $H_2O$ )

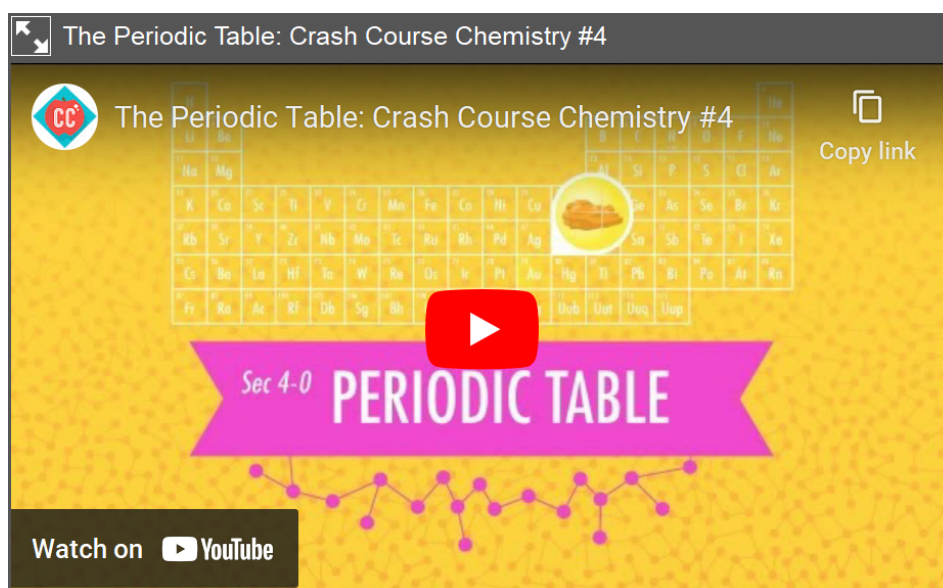
## Elements

- Made of only one type of atom
- 90 naturally occurring elements

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## Organizing the Elements - The Periodic Table

The Periodic Table: Crash Course Chemistry #4



The image shows a YouTube video thumbnail. At the top, the title 'The Periodic Table: Crash Course Chemistry #4' is displayed. Below the title is a Creative Commons license icon and a 'Copy link' button. The main content of the thumbnail is a periodic table of elements on a yellow background. A red play button is centered over the table. Below the table, a purple banner contains the text 'Sec 4-0 PERIODIC TABLE'. At the bottom left, there is a 'Watch on YouTube' button. The background of the video frame features a molecular structure with purple and pink spheres.

CC The Periodic Table: Crash Course Chemistry #4 Copy link

Sec 4-0 PERIODIC TABLE

Watch on YouTube

Homework:

- Finish and submit the Energy Changes Lab on Teams (due tonight)
- Finish WHMIS training (for those of you who haven't)