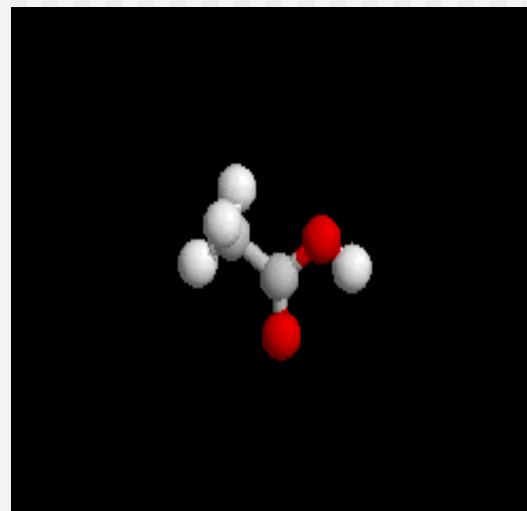


# Chemistry Unit

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Matter

Chapter 2.1



# What is Chemistry?

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- The study of matter and how it changes.

## What is Matter?

- Anything that has mass and occupies space.

# Examples of Matter

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## **Matter:**

- **Wood**
- **Sand**
- **Glass**
- **Water**
- **Air**

## **Non-matter:**

- **Sound**
- **Light**
- **Electricity**

# What Is an Element?

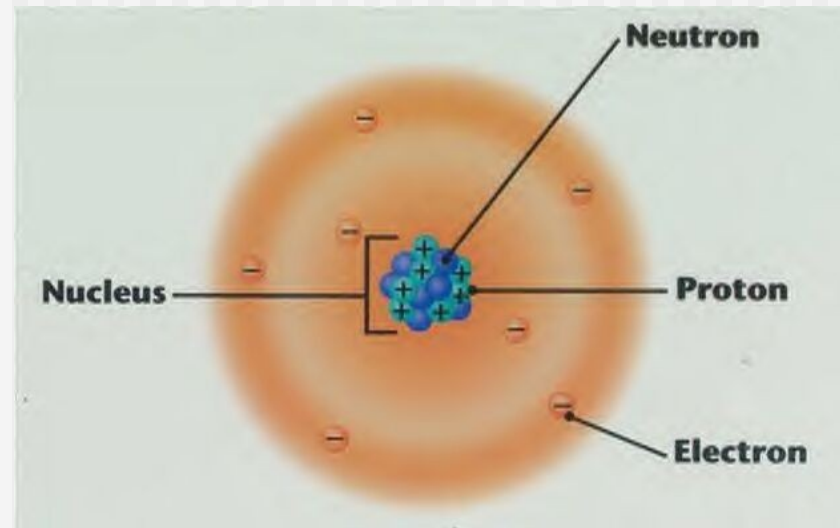
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- A substance that cannot be broken down into simpler substances
- Each Element is unique and behaves differently
- Some Examples –
  - Carbon (C)
  - Iron (Fe)
  - Copper (Cu)
  - Aluminum (Al)

# What Is an Atom?

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- The smallest particle that has the properties of an element
  - Elements are made of Atoms



# What Is a Compound?

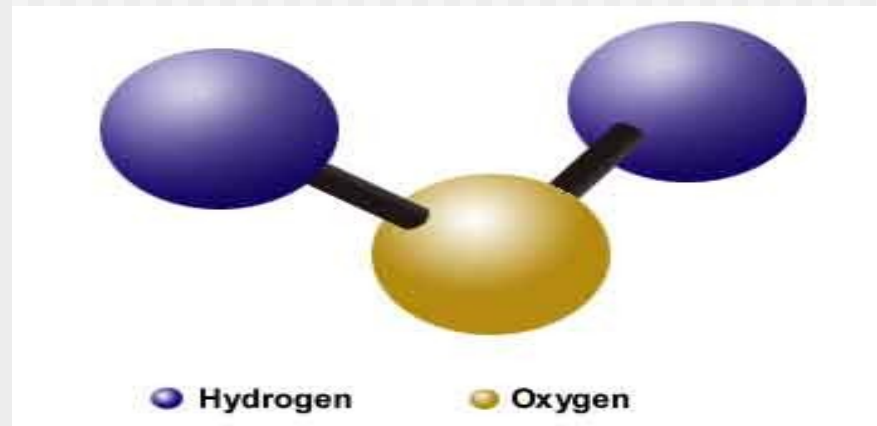
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- A substance made of atoms of more than one element bound together
  - Example – Nylon
    - Made of carbon, hydrogen, nitrogen and Oxygen atoms

# What is a Molecule?

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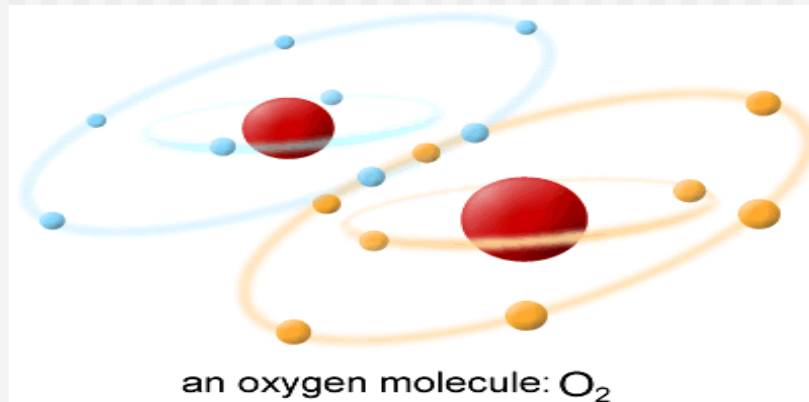
- The smallest unit of a substance that exhibits all of the properties of that substance
  - Example – Water ( $H_2O$ )
    - Made of two hydrogen atoms and one oxygen atom



# Molecules

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- Can form from atoms of different elements
  - As water does
- Can form from atoms of the same element
  - Example – Oxygen





# Chemical Formulas

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- The chemical symbols and numbers indicating the atoms contained in the basic unit of a substance
  - Example: Carbon Dioxide =
    - $\text{Co}_2$

# Chemical Formulas (cont.)

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- Subscript indicates how many atoms of each element
  - $\text{CO}_2$  = 1 atom of carbon and 2 atoms of oxygen
    - No subscript = 1 atom of the element

# Chemical Formulas (3)

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- Numbers placed in front of the chemical formula indicate the number of molecules
  - Example:  $2\text{CO}_2 =$   
2 molecules of carbon dioxide