What is Chemistry?

- Science of **matter, it's properties and it's make up**
- Looks at: - what substances are made of and how they are **structured**
  - the **properties** of substances
  - the conditions under which substances can change and form **new** substances

Properties of Matter

Matter = anything that has mass and **occupies space**

- can be found in three states: solid, liquid and gas
- is divided into - pure substances: **elements and compounds**
  OR - mixtures: solutions and mechanical **mixtures**
- has different properties

Physical Properties

- properties such as: color, taste, malleability, ductility, melting and boiling points
- certain properties are unique to each substance & can help identify them (like a finger print) called: **characteristic physical properties**
  Ex. melting and boiling points

Chemical Properties

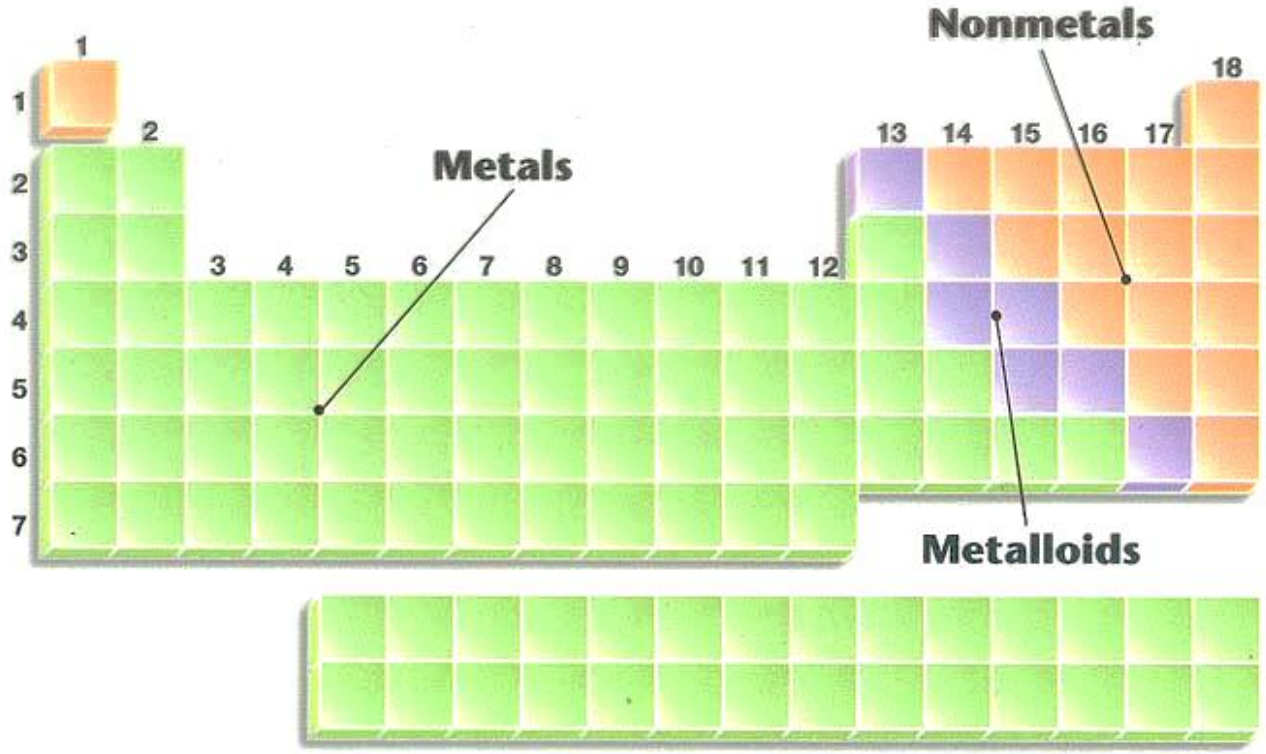
- properties which result from the **chemical make up** of a substance
  Ex. Reactivity

What are Elements?

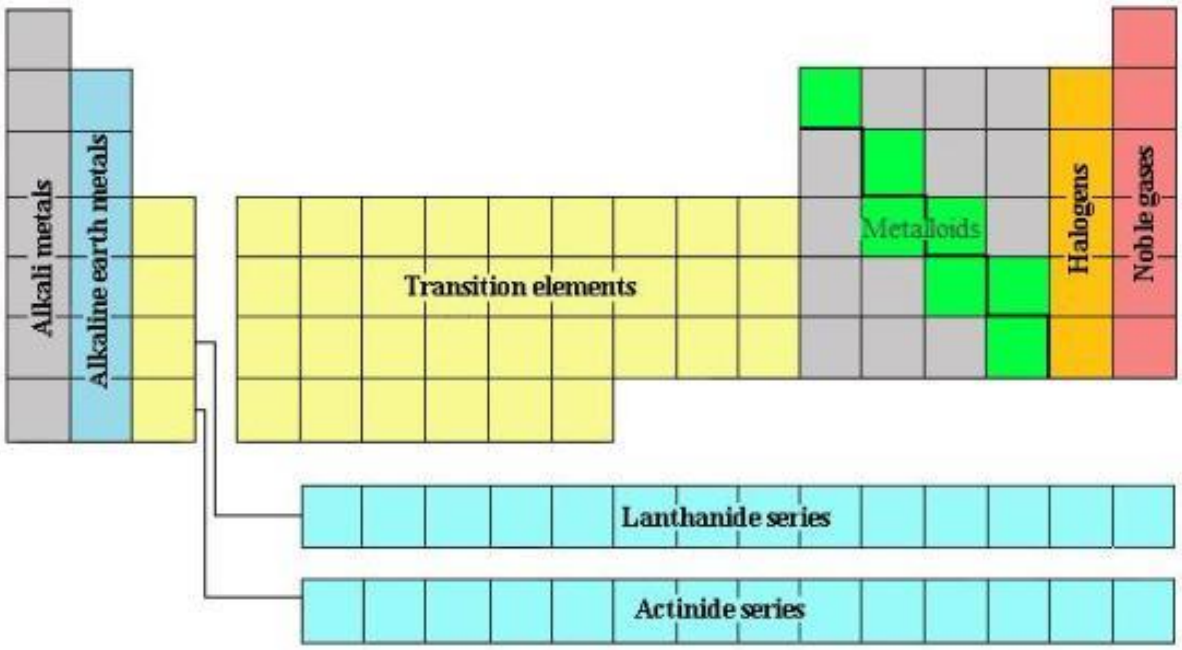
- simplest pieces of matter made up of **only 1 type of atom**
- cannot be broken down into simpler substances & keep their characteristics
- combine chemically with other elements to make more complex substances
- there are currently 118 named elements
- 92 are natural, the rest are man made
- arranged into a chart called the **Periodic Table**
- are represented by a 1 or 2 letter **symbol**

Arrangement of the Periodic Table

- Elements are listed according to their **atomic number**
- Vertical columns ( ) are called **groups** or **families**.
- Horizontal rows ( )are called **periods**.
- When the periodic table was organized, certain elements ended up together.
  - Metals are on the **LEFT**
  - Non-metals on the **RIGHT**
  - Metalloids are along the **STAIRCASE**



- Elements in the same family have similar properties.
  - Group 1 = alkali metals (highly reactive)
  - Group 2 = alkaline earth metals (reactive)
  - Groups 3-12 = transition metals
  - Group 17 = the halogens (very reactive)
  - Group 18 = noble gases (unreactive)



What is Chemistry?

- Science of _____
- Looks at: - what substances are made of and how they are _____
  - the _____ of substances
  - the conditions under which substances can change & form _____ substances

Properties of Matter

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- certain properties are unique to each substance & can help identify them (like a finger print) called: _____
  Ex. melting and boiling points

Chemical Properties

- properties which result from the _____ of a substance
  Ex. reactivity

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Arrangement of the Periodic Table

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- Vertical columns (⇕) are called _____ or _____
- Horizontal rows (⇔)are called _____.
- When the periodic table was organized, certain elements ended up together.

  Metals are on the _____

  Non-metals on the _____

  Metalloids are along the _____
- Elements in the same family have similar properties.

  Group 1 = alkali metals (highly reactive)

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