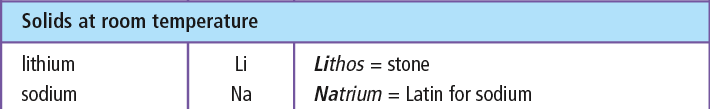
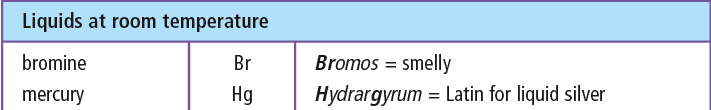
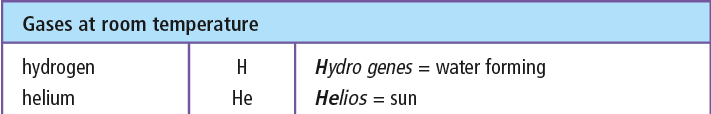
**2.1 Elements**

* Why are elements studied in chemistry?
  + Chemistry is the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Elements make up an incredible variety of different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + By studying elements, we can learn more about the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* An element is a pure substance that cannot be broken down or separated into simpler substances. Each element is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

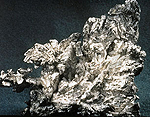
**Chemical Symbols.**

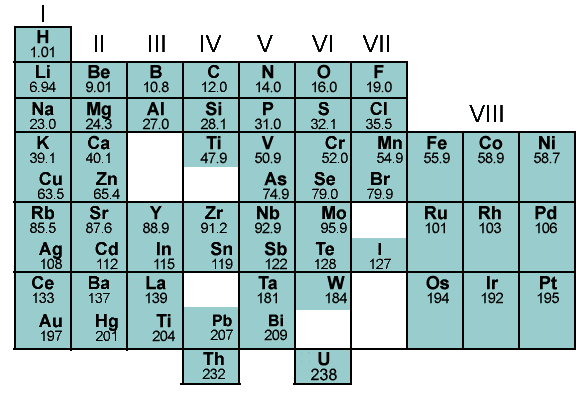
* Element names and symbols
  + Because elements have different names in different languages, chemists use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for them.
  + Chemical symbols consist of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are used as the source of many of the symbols.
    - Example: Mercury - **Hg** - **H**ydra**g**yrum (*Latin for liquid silver)*
* All elements are represented by \_\_\_\_\_\_\_\_\_\_.

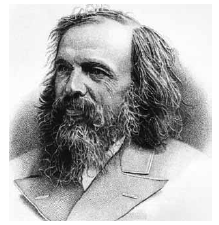




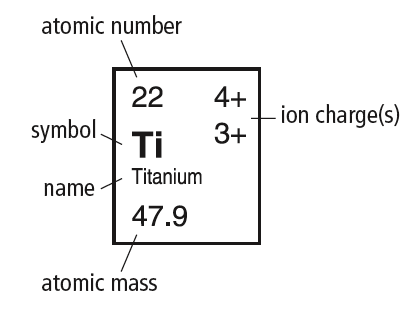
**Common Elements.**

* Hydrogen
  + Colourless, odourless, tasteless, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gas.
  + Makes up over \_\_\_\_ percent of the atoms in the universe
  + Used in producing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Lighter than \_\_\_\_\_\_\_.
  + Can be separated from water or gasoline and be used as a source of \_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Mixed with carbon to make \_\_\_\_\_\_\_\_\_.
  + Good structural material, but can \_\_\_\_\_\_\_\_\_ when mixed with water.
* \_\_\_\_\_\_\_\_\_\_\_\_
  + Gaseous element we \_\_\_\_\_\_\_\_\_\_.
  + \_\_\_\_\_ % of the atmosphere.
  + Reacts with most other \_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_
  + soft metal that reacts with water
* \_\_\_\_\_\_\_\_\_\_\_\_\_
  + yellow-green gas that is highly toxic
* \_\_\_\_\_\_\_\_\_\_\_\_\_
  + liquid at room temperature metal.
* \_\_\_\_\_\_\_\_\_\_\_\_\_
  + precious metal mined in British Columbia
* \_\_\_\_\_\_\_\_\_\_\_\_\_
  + brittle, grey, semiconductor that is second most common element in Earth’s crust.

**2.2 Periodic Table.**

* Origin of The Periodic Table
  + Chemists in the 10th century wished to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + ****Attempts focused on grouping elements with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + In 1867, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ found patterns in the elements and organized them into a table.
  + The resulting table had holes for elements not yet \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

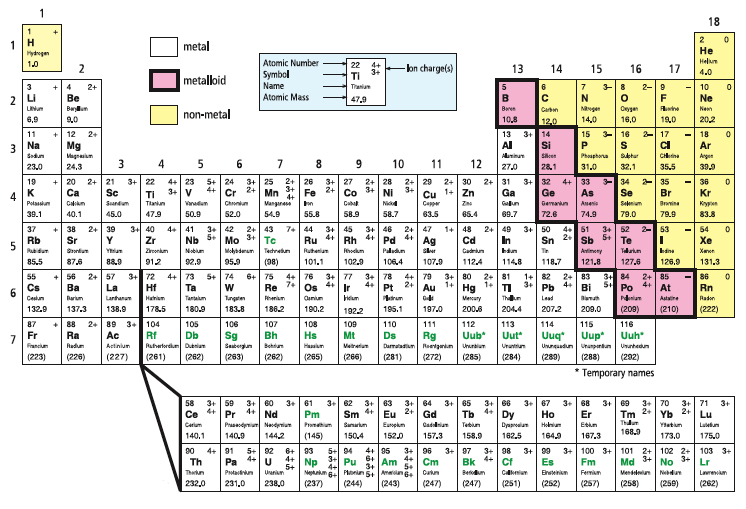
**Periodic Table.**

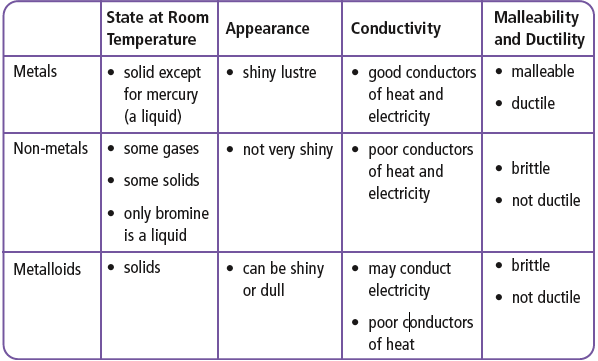
* The Periodic Table provides information on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of elements.

**Atomic Mass** - mass of average atom

**Atomic Number** - number of protons

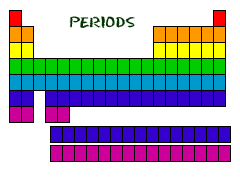
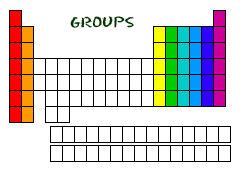
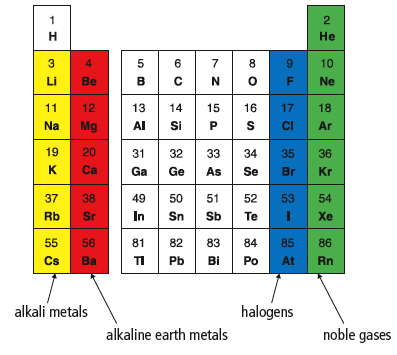
**Ion Charge** - electric charge that forms when an atom gains or loses electrons



**Metals, Non-metals, Metalloids.**

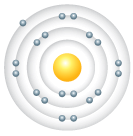
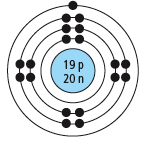
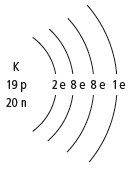
**Periods and Families.**

* Each horizontal row in the periodic table is a **\_\_\_\_\_\_\_\_\_\_.**
* Vertical columns form \_\_\_\_\_\_\_\_\_ or **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**



* **Alkali metals** - highly reactive group 1
* **Alkaline earth metals** - group 2, burn in air if heated
* **Halogens** - group 17, highly reactive non-metals
* **Noble gases** - group 18, stable and unreactive

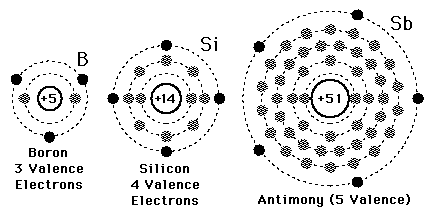
non-metals

**2.3 Periodic Table and Atomic Theory.**

**Bohr Model.**

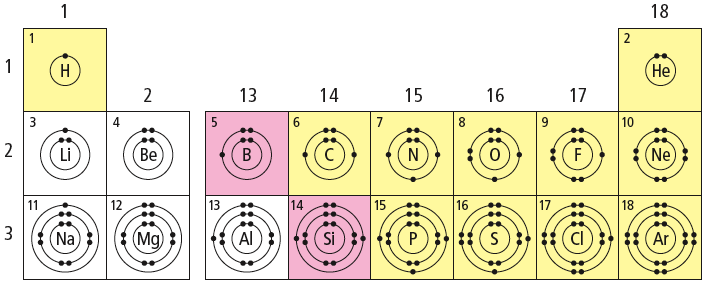
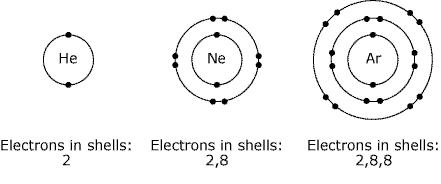
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ show electron

arrangement in shells.

* Elements with similar properties have similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Chemical families on the periodic table have the same number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Bohr Model Patterns.**

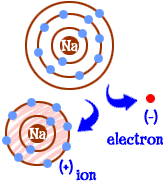
* Elements in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ indicates the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



**Atom Stability.**

* Noble gases are very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because their

have filled \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* Filled shells make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Atoms with filled shells do not easily trade or share \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Other atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in order to achieve the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of noble gases. Gaining or losing electrons makes atoms into \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_lose electrons to form \_\_\_\_\_\_\_\_\_\_\_\_\_ ions.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gain electrons to form \_\_\_\_\_\_\_\_\_\_\_\_\_ ions.
* Ions have a similar electron arrangement to the nearest \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.