Grouping The Elements
Chapter 5 Section 2 Pages 114-120

http://www.youtube.com/watch?v=5lSqNbqhROk
Group 1 – Alkali Metals

- **Most** reactive metals
- 1 **valence** electron
- Often stored in **oil**
- Found in nature in **compounds**.

**Physical Properties** –

- Soft
- **Silver**
- Shiny
- **Low density**

http://www.youtube.com/watch?v=JAPWCJEo9Iw
http://www.youtube.com/watch?v=uixxJtJPVXk
http://www.youtube.com/watch?annotation_id=annotation_251030&feature=iv&src_vid=5lSqNbgqROk&v=SRfVhFhYu3Y
Group 2 – Alkaline Earth Metals

- **Less** reactive than G1
- **2 valence** electrons

**Physical Properties** –

- Silver
- **Higher** density than G1

**Example:**

- Mg – Used in *Airplane* Manufacturing
- Ca – Found in *chalk* and cement

[http://www.youtube.com/watch?v=V8W-sVkPONA](http://www.youtube.com/watch?v=V8W-sVkPONA)
1 or 2 valence electrons – do not let go as easily as G1 and G2
Less reactive than G1 and G2
Shiny
Good Conductors
Higher Density and Melting Point than G1 and G2

http://www.youtube.com/watch?v=BJGG8LH5qWc
Lanthanide and Actinide Series

Appears at the bottom to keep the PT from being too wide.

- **Lanthanide:**
  - **Shiny**
  - **Reactive**
    - [http://www.youtube.com/watch?v=WF1kPUqqxyI](http://www.youtube.com/watch?v=WF1kPUqqxyI)

- **Actinide:**
  - **Radioactive** /Unstable
  - **After #92** – made in labs
    - [http://www.youtube.com/watch?v=x_qUudR8WMA](http://www.youtube.com/watch?v=x_qUudR8WMA)
Group 13 – Boron Group

- 1 ml and 5 m
- 3 valence electrons
- Solids at room temperature
- Most Common – Al
- Reactive
  - http://www.youtube.com/watch?feature=player_detailpage&v=5i8qNbgHR0k
Group 14 – Carbon Group

- 1 nm, 2 ml, 3 m
- 4 valence electrons
- Varying reactivity
- Solids at room temperature
- Si and Ge used for computer chips

http://www.youtube.com/watch?annotation_id=annotation_865037&feature=iv&src_vid=SiSqNhRhROk&v=cq5oOXuJ_WA
Group 15 – Nitrogen Group

- 2 nm, 2 ml, 2 m
- 5 valence electrons
- N – 80% of the gas we breathe
- P – extremely reactive

http://www.youtube.com/watch?v=T8MsXZRpY8s
Group 16 – Oxygen Group

- 3 nm, 1 ml, 1 m
- 6 valence electrons
- O – 20% of the air we breathe

[YouTube Video](http://www.youtube.com/watch?annotation_id=annotation_773656&feature=iv&src_vid=5lSqNbzhoRk&v=ub394sgVkl4)
Group 17 - Halogens

- All \textbf{nm}
- 7 \textbf{valence} electrons
- Very \textbf{reactive}
- Need to gain only \textbf{one} outer electron
- Form compounds with \textbf{metals} very easily
- Chemical properties \textbf{similar}
- Physical properties \textbf{quite} different

http://www.youtube.com/watch?v=J7b2aBKa6-U
http://www.youtube.com/watch?v=hktSwNiFZDY
Group 18 – Noble Gases

- All **nm**
- 8 **valence** electrons
- Exception is He – 2 **valence** electrons
- **Un-reactive**
- Stable!

http://www.youtube.com/watch?v=weJigc0UJOs
Hydrogen

- **Reactive**
- 1 **valence** electron
- Set a part because the **properties** do not match any other group
- Is placed above **G1** because its **number** of valence electrons matches **G1**
- Most **abundant** element