



# Friday February 29<sup>th</sup>

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- Chemical Reaction demonstrations
- Notes on Chapter 5 Section 1
- Endothermic and Exothermic Lab
- Review Chapter 5 Section 1 Homework
- No homework this weekend!



## Tuesday September 23<sup>rd</sup>

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- Hand Back Tests – class average 70
- Hand back projects – class average 80
- Bill Nye video on Chemical Reactions
  - Take 15 notes
- Notes on Chemical Reactions
- Chemical reaction sheets



# Wednesday September 24<sup>th</sup>

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- Complete balancing chemical formulas
- Reactants and Products



# Thursday September 25<sup>th</sup>

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- Notes on Molar Math
- Notes on Types of Chemical Reactions
- Endothermic and Exothermic Lab



## Friday September 26<sup>th</sup>

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- Complete Lab write up on Endo/Exo Lab
- Turn in Lab for a grade
- Turn in two balancing sheets (do not staple to Lab report)
- Chemical Reactions Lab (report due at end of class)
- Test on Chapter 7 on Tuesday next week.



# Monday September 29<sup>th</sup>

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- Test on Chapter 7 tomorrow (30<sup>th</sup>)
- Questions from book to completed today, checked by substitute, and turned in at beginning of class tomorrow
  - Page 209 Questions 1-7
  - Page 215 Questions 1-8
  - Page 219 Questions 1-6
  - Page 223 Questions 1-18
  - Page 224 Questions 25-30
  - Page 225 Questions 1-6



# Chapter 5–Chemical Reactions

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- Chemical Reactions change substances
- You will often be able to see changes
  - Change of color
  - Production of a gas
  - Change in temperature
- Chemical reactions rearrange atoms



# Chemical Reactions

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- Reactant – a substance that undergoes a chemical change
- Product – a substance that is the result of a chemical change
- $\text{Mg} + 2 \text{HCL} \rightarrow \text{MgCl}_2 + \text{H}_2$



# Chemical Reactions

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- **Law of Conservation of Mass** – mass cannot be created or destroyed in a chemical reaction
- The total mass of the products is equal to the total mass of the reactants



# Moles and Molar Mass

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- **Mole** – the amount of a substance that contains  $6.022 \times 10^{23}$  particles of that substance
- Molar Mass – the mass of one mole of a substance
- The mass of one Mole of Carbon is 12.011 grams



# Molar Calculations

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- If you have 24 grams of Carbon, you have 2 moles of carbon ( $24/12.011$ )
- If you have 4 moles of Hydrogen, you have 4 grams of Hydrogen ( $1.0079 \times 4$ )



# TYPES OF REACTIONS

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- 1 – Synthesis Reaction
- 2 – Decomposition Reaction
- 3 - Single replacement
- 4 – Double replacement
- 5- Combustion Reaction



# Synthesis Reaction

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- 2 REACTANTS YIELD ONE PRODUCT

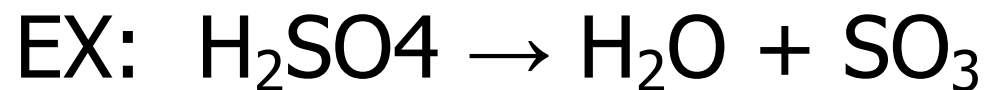




# Decomposition Reaction

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- 1 Reactant breaks down into 2 or more products





# Single Replacement Reaction

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- Single Element on either side
- The single element on the reactant side replaces one of the elements in the compound on the reactant side





# Double Replacement Reaction

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- No uncombined elements
- The first element of the first compound switches with the first element of the second compound





# Combustion Reaction

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- A substance reacts rapidly with oxygen, often producing heat and light
- $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
- $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$

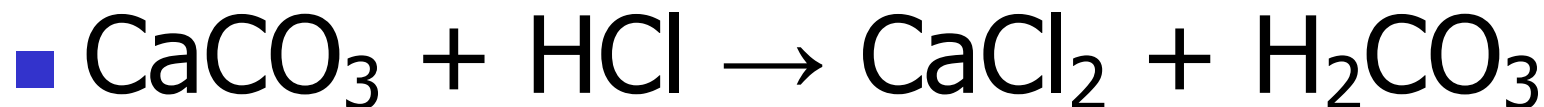
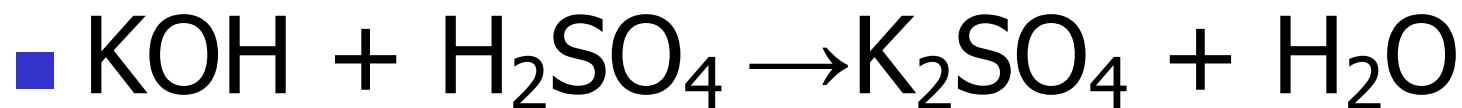
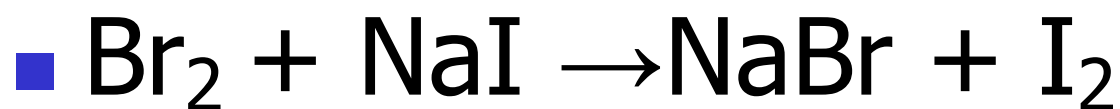
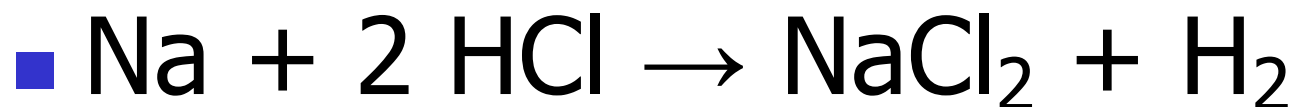
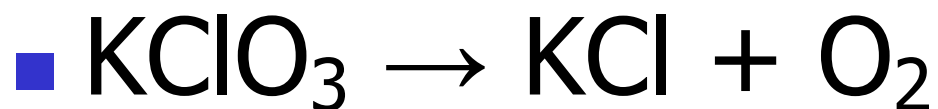


# Electron Transfers (Page 204)

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- Oxidation-reduction reactions – when electrons are transferred from one reactant to another
  - **Oxidation** – any process in which an element loses electrons during a chemical reaction
  - **Reduction** – any process in which an element gains electrons during a chemical reaction

# LIST THE TYPE OF REACTION FOR EACH:





# Chemical Reactions and Energy

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- Energy cannot be created or destroyed
  - Chemical energy – the energy stored within atoms and molecules that can be released when a substance reacts
- Breaking bonds requires energy
- Forming bonds releases energy



# Chemical Reactions

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- Exothermic reactions – reactions that release energy (Get hot)
- Endothermic reactions - reactions where energy is transferred to the reactants usually in the form of heat energy from the surrounding air (get cold)