

Chapter 6 notes  
Indicators of chemical reactions

Chemical bonds break, atoms rearrange and \_\_\_\_\_

Chemical formula

- Shorthand method for writing a \_\_\_\_\_
- Ex:  $CO_2$      $C_6H_{12}O_6$
- \_\_\_\_\_ tell you how many atoms are bonded in the compound or molecule

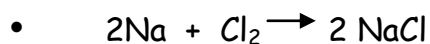
Chemical equation

- Shorthand way to show a \_\_\_\_\_ with symbols and formulas
- EX: photosynthesis
- 
- Starting materials are \_\_\_\_\_
- Ending materials are \_\_\_\_\_
- Use a \_\_\_\_\_ sign in between "
- $C + O \rightarrow CO$
- Carbon + oxygen yields carbon monoxide
- Equation must be \_\_\_\_\_
- Number of atoms in \_\_\_\_\_ must = number of atoms in \_\_\_\_\_
- Law of conservation of \_\_\_\_\_
- Mass is \_\_\_\_\_ (MASS IS RELATED TO THE NUMBER OF ATOMS SINCE EACH ATOM HAS A SET ATOMIC MASS)  
Use \_\_\_\_\_ to balance equations
- Number used in front of symbol or formula
- $2H_2 + O_2 \rightarrow 2H_2O$
- Multiply coefficients times number of atoms (subscripts) to get total atoms
-

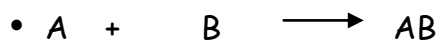
## Types of chemical reactions section 2

- Synthesis

- 2 or more \_\_\_\_\_ to form single compound



- Sodium + Chlorine yields \_\_\_\_\_



### Decomposition

- Single compound breaks down into \_\_\_\_\_



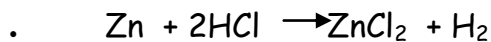
- Carbonic acid yields water + carbon dioxide



### Single replacement

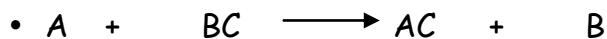
- One element takes the \_\_\_\_\_

- Product is a different element and new compound



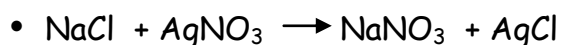
- Zinc + Hydrochloric acid yields Zinc chloride + hydrogen

- ZINC SWITCHES WITH HYDROGEN

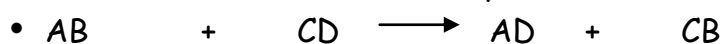


### Double replacement

- \_\_\_\_\_ in 2 compound switch places



- Sodium chloride + silver \_\_\_\_\_ yields sodium \_\_\_\_\_ + silver chloride



## Section 3 Energy and rates of chemical reactions

- All chemical reactions involve energy

- Chemical bonds break - absorb energy

- Chemical bonds form- release energy

- Overall energy may be either absorbed or released depending on reaction

### Exothermic

- Exo= exit, released thermic = \_\_\_\_\_

- Overall \_\_\_\_\_

- Energy of reactants \_\_\_\_\_ energy of products

- Energy can be released in form of heat, electricity, light

- Energy released originally stored in \_\_\_\_\_

### Endothermic

- Endo = into

- Overall energy \_\_\_\_\_
- Energy of reactants less than energy of \_\_\_\_\_
- Energy stored in products
- Energy absorbed from surrounding area (heat) Surrounding area \_\_\_\_\_ decreases with a loss of heat

Law of conservation of energy

Energy is not \_\_\_\_\_

Activation energy

- Energy needed to \_\_\_\_\_ (both endothermic and exothermic)
- Ex: striking a match, shaking a day glow necklace
- Exothermic reaction can continue to occur because released energy

Factors affecting reaction rates

- \_\_\_\_\_
- More collisions of particles, move faster
- Concentration (amount of substance dissolved in another)
- increase \_\_\_\_\_, \_\_\_\_\_ reaction rate (# of particle collisions )

Surface area (exposed surface)

- \_\_\_\_\_ surface area, \_\_\_\_\_ reaction rate (# of particle collisions )
- Can \_\_\_\_\_ substance to increase

Catalyst

- Speeds up chemical reaction by \_\_\_\_\_
- Catalysts in body include \_\_\_\_\_
- Inhibitors
- Slows down \_\_\_\_\_
- \_\_\_\_\_