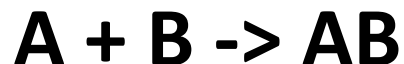


TYPES OF REACTIONS

1. Synthesis: two substances combine to form another substance



2. Decomposition: one substance breaks down or decomposes to two or more substance



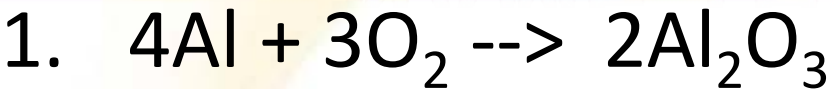
3. Single Displacement: one element replaces another



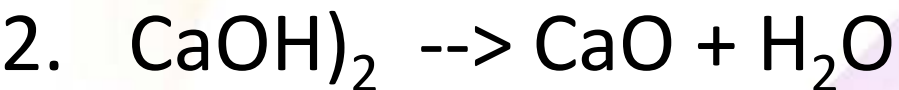
4. Double Displacement: positive ion of one compound replaces positive ion of another



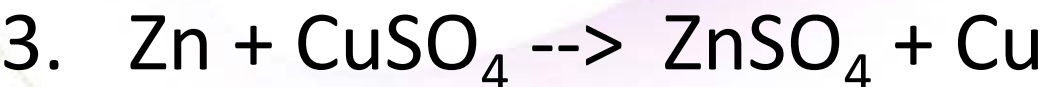
NAME THAT EQUATION!



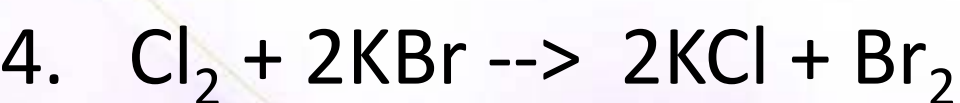
Synthesis



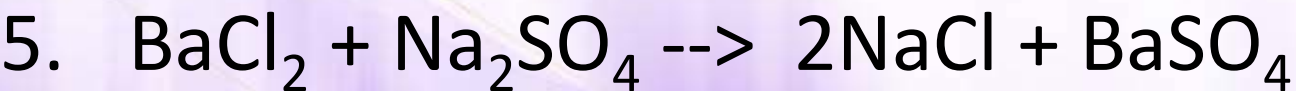
Decomposition



Single Displacement



Single Displacement



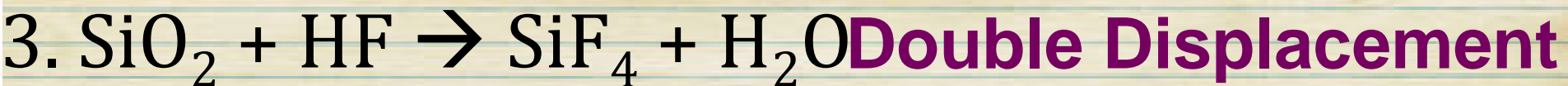
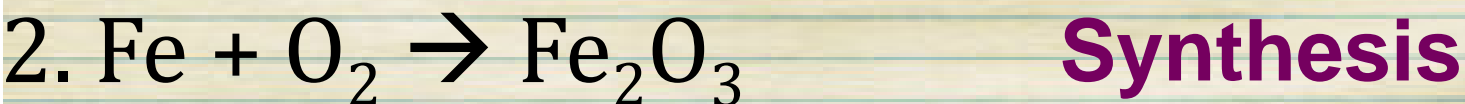
**Double
Displacement**



Synthesis

TUESDAY 10/20 - BELLRINGER

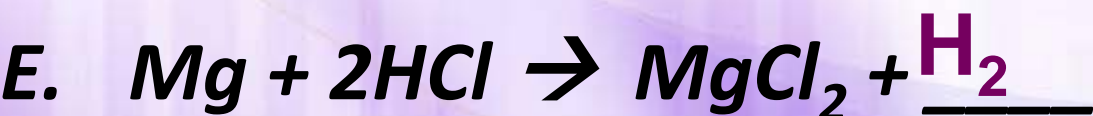
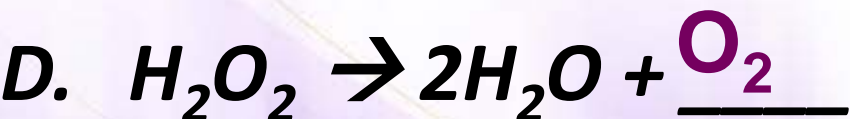
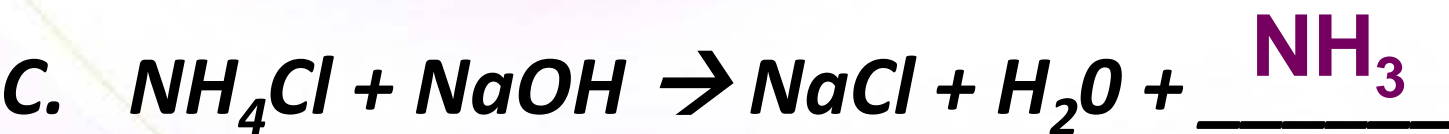
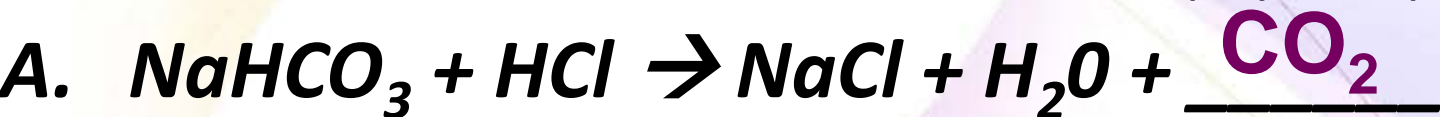
Label the following equations: (4types)



5. In lab yesterday, what gas produced the signature “popping” sound?

COMMON GAS LAB!

You will be conducting reactions to produce 5 different common gases and observe their chemical and physical properties.



BALANCING CHEMICAL EQUATIONS

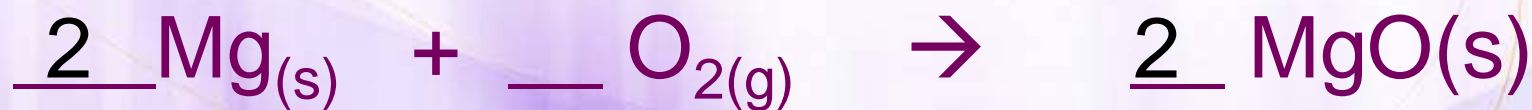
EQUATIONS

CHEMICAL REACTIONS

- **Chemical reaction** - is the process of changing reactants to products by a chemical change
- Chemical reactions are symbolized by
 - Reactants \rightarrow Products
- (s) solid; (l) liquid; (g) gas; (aq) aqueous are the physical states of the reactants and products

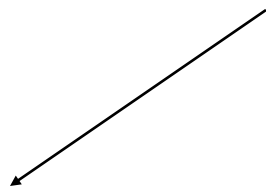
EQUATIONS SHOW...

- The reactants which enter into a reaction.
- The products which are formed by the reaction.
- The amounts of each substance used and each substance produced.



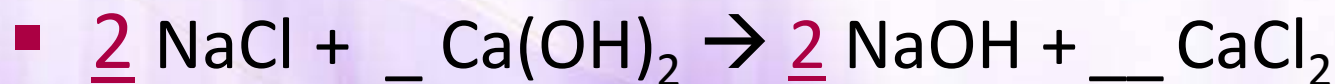
SUBSCRIPTS AND COEFFICIENTS

- We use subscripts to balance compounds



- **subscripts cannot be changed**

- We use coefficients to balance equations



BALANCING EQUATIONS!

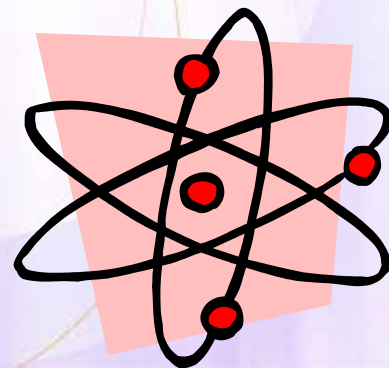
- Goal: to get the same number of atoms on both sides of the equation



WHAT'S THE POINT?????

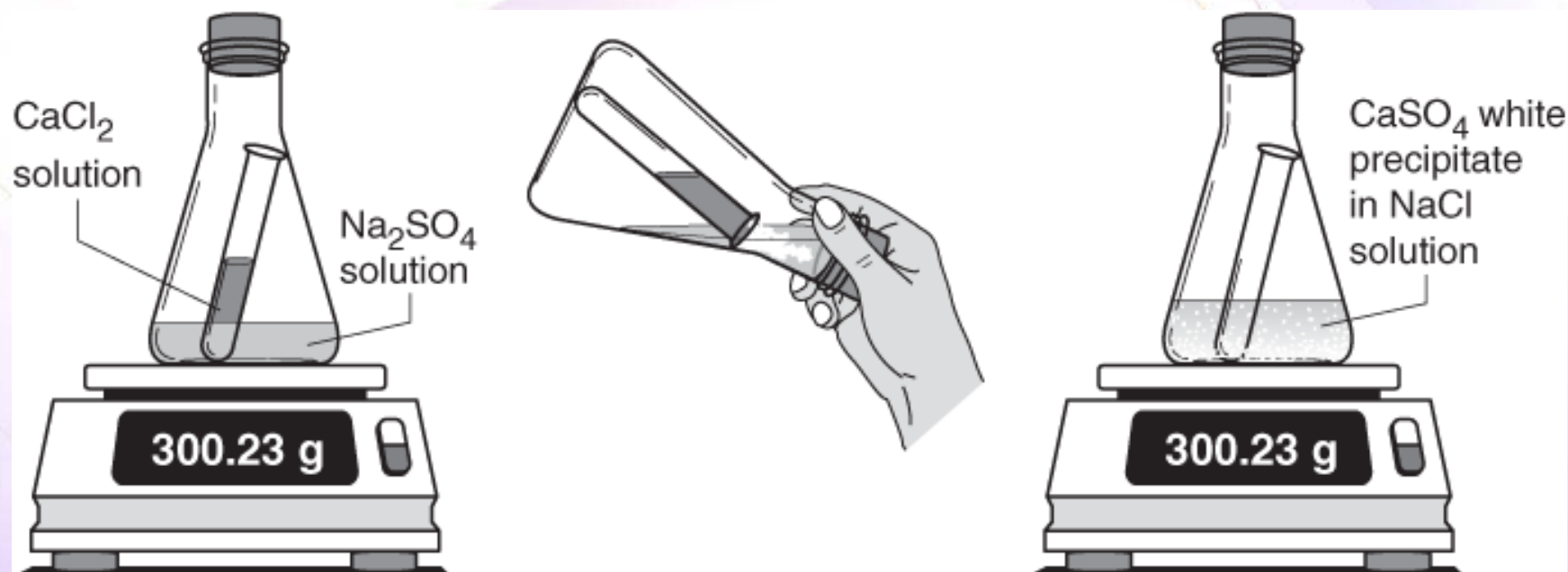
A. A balanced chemical equation represents the process of a chemical reaction in which *atoms are rearranged but not created or destroyed.*

B. *By balancing chemical equations, you show that mass is conserved... Law of Conservation of Mass!*



Law of Conservation of Mass

Mass is neither created nor destroyed in an ordinary chemical or physical reaction



Mass of Reactants

=

Mass of Products

LAB:

Looking at the...

Law of Conservation
of mass!!!



Chemical and Physical Changes

Chemical Reactions and Equations:

What do they mean?
What do they show?



MONDAY 10/19 - BELLRINGER

EOC WORKBOOK

Pg. 41 (all)

- A. An exothermic reaction _____ heat.**
- B. An endothermic reaction _____
heat.**
- C. ($A + B \rightarrow AB$) is an example of a _____
reaction**

ENERGY CHANGES IN REACTIONS

During any chemical reaction, there is an energy change.



1. **Exothermic reaction**: heat is released during the reaction, the area becomes warmer

2. **Endothermic reaction**: heat is absorbed during the reaction, the area becomes cooler



Everyday Exothermic and Endothermic Reactions

• Instant Cold Packs

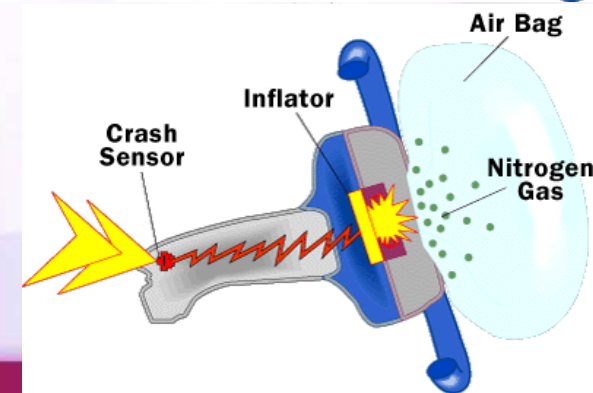
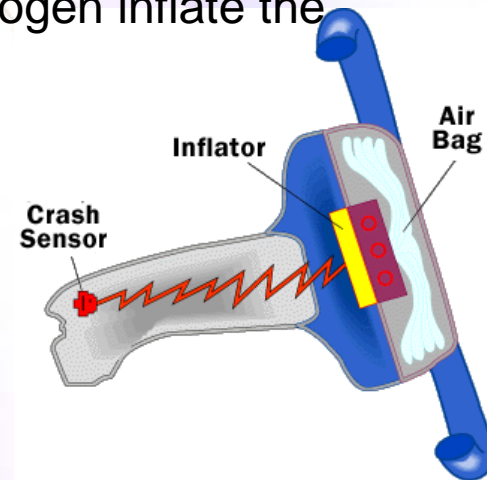


• Instant heat packs



• AIRBAGS!

The airbag's inflation system reacts sodium azide (NaN_3) with potassium nitrate (KNO_3) to produce **nitrogen gas**. Hot blasts of the nitrogen inflate the airbag.



Videos

- [Exothermic vs. Endothermic](#)
- [Endothermic Reaction](#)

Equation Terms

- A. Reactants: original substances entering into a chemical rxn
- what you started with, on the left side
- B. Products: the resulting substances from a chemical rxn
- what you end with, on the right side

Reactants --> Products

Endothermic vs. Exothermic

Hot!

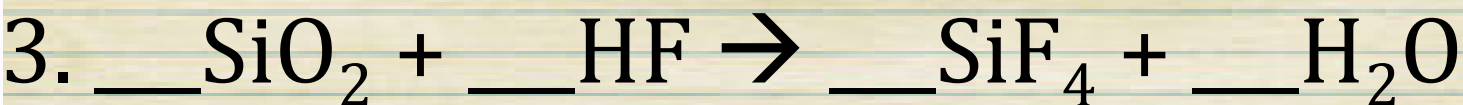
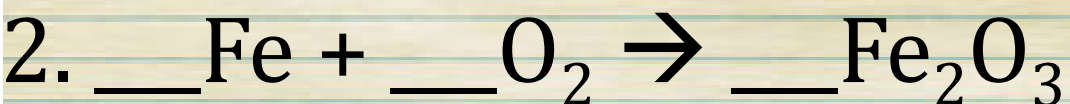
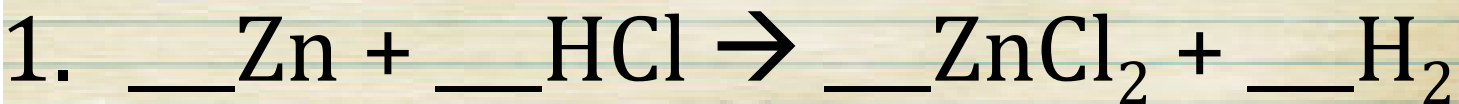
Calcium Chloride vs. Sodium Bicarbonate... who will win the temperature war???

Turn into me:
Half sheet of paper



MONDAY 10/26 - BELLRINGER

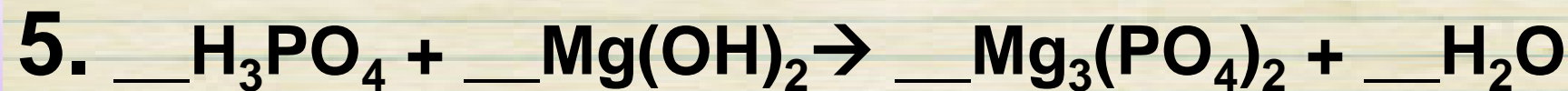
Balance the following equations:



5. What is the overall goal of balancing equations?

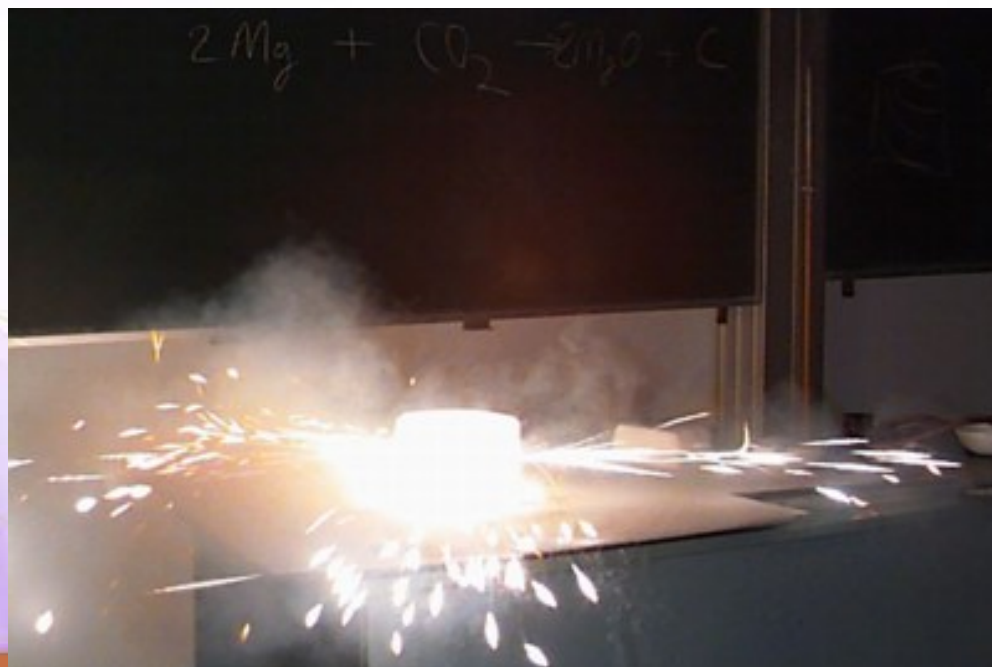
TUESDAY 10/27 - BELLRINGER

Balance the following equations:



Reaction Rates!

Reactions occur when particles of reactants collide with energy



FACTORS AFFECTING REACTION RATES

1. **Temperature**: higher temperature, reaction rate increases

1. Particles moving faster, more collision between particles

2. **Concentration**: when reactants are more concentrated, rate of reaction increases

1. More particles mean more collisions

FACTORS AFFECTING REACTION RATES

3. **Surface Area**: more surface area, reaction rate increases
4. **Catalyst**: presence of catalyst speeds up reaction without being permanently changed
[Inhibitor: slows down a reaction]

Video!