Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Homeroom:\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_ **4.3**

**Products and Reactants (SPI.9.10)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Chemical Reactions** | A *chemical change* is a process involving one or more substances changing into NEW SUBSTANCES; this is also called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. |
| **Reactants** | * **Reactants** are what you start or \_\_\_\_\_\_\_ with in a chemical reaction.
* These are the substances that \_\_\_\_\_\_\_\_ into a chemical reaction.
 |
| **Products** | * A substance which \_\_\_\_\_\_\_ as a \_\_\_\_\_\_\_\_\_\_ of a chemical reaction
* **Products** are what you \_\_\_\_\_ with in a chemical reaction
 |
| **Chemical Equations** | We use \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ to show what happens in chemical reactions. Ex: C3H8 + 5 O2 🡪 3 CO2 + 4 H20***A chemical equation identifies the \_\_\_\_\_\_\_\_\_\_\_ chemicals as REACTANTS and the finishing chemicals as*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**“*Reactants on the left, products on the right. I can talk chem equations all night, and you can make whatever you like, yeah, you can make whatever you like” ***C3H8 + 5 O2 🡪 3 CO2 + 4 H20***When you see “\_\_\_\_\_\_\_” or “produces” or “forms,” use an arrow (🡪)When you see “reacts with” or “and,” use a plus sign (+) |
| **Phase Notations** | There are 4 **phase notations** which are used to show which phase of \_\_\_\_\_\_ the reactant or product is in:1. Solid (\_\_)
2. \_\_\_\_\_\_\_\_\_ (l)
3. Gas (\_)
4. In water/\_\_\_\_\_\_\_\_\_\_ (aq)
 |
| **Ways to Write Chemical Equations** | The two ways to write chemical equations:1. \_\_\_\_\_\_ Equations
2. Skeleton Equations

***Word equations:***Use \_\_\_\_\_\_\_ to show chemical reactions. Ex: Solid iron and chlorine gas react to form solid iron(III) chloride***Skeleton equations:***Use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rather than words to identify products and reactants Ex: 2H + O 🡪 H2O |
| **So What?!** |  |

 **“I Own This”**

1. In plants, a process called photosynthesis occurs whereby water (H2O) and carbon dioxide (CO2) get enough energy to make glucose (C6H12O6) and oxygen gas (O2). Write out the chemical equation for this reaction and label each term as a reactant or product

1. Come up with your own real life analogies or examples for chemical reactions and include terms like reactant, product, and activation energy. Good analogies can be found in cooking. One example (that you may not use) is making a cake. You start out with the reactants: sugar, egg, flour, vanilla, baking soda, etc. add enough heat, which will supply the energy to allow the reaction to occur, and you end up with cake as the product.

3. *For each of the following, circle the reactants and underline the products.*

magnesium + vinegar 🡪 magnesium acetate + hydrogen gas

Hyrogen gas reacts with oxygen gas to produce water

Salt is produced from a combination of solid sodium and gasesous chlorine