

Lesson - SPS04B

Chemical Equations

Use the

Google

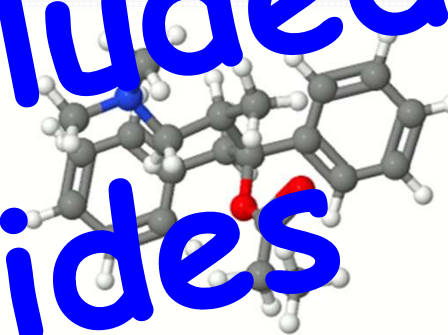
and PowerPoint

from the

included slides

Why is this important?

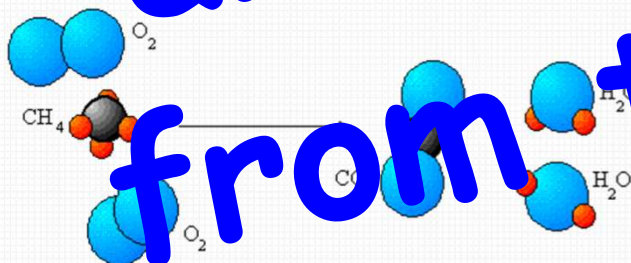
- Predicting what will happen when two or more chemicals are combined would be a good thing to know
- You can tell how much of each chemical is needed to produce a certain amount of the new chemical compound



2

Did You Know?

- Chemical reactions** happen when atoms break old chemical bonds and form new substances with new chemical bonds
- Chemicals are named** by common name or a formula and symbol
- Using mathematics** we can predict that will happen in a chemical reaction by counting the atoms and balancing chemical equations
- Elements** are chemicals that can not be divided into smaller parts



3

What is important to know about chemical equations?

Describing a chemical reaction

Write it out

- Using words

Dihydrogen Monoxide - Two molecules of hydrogen gas react with one molecule of oxygen gas to produce two molecules of water.

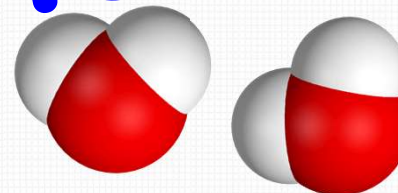
Use a shorthand

- Shows mathematical relationships



Draw a picture or model

- Helps visualize



4

What is important to know about chemical equations?

Naming Elements

H	Hydrogen	Greek	hydro- and -gen, 'water-forming'
C	Carbon	Latin	Carbo - 'coal'
O	Oxygen	Greek	oxy- and -gen, meaning 'acid-forming'
Na	Sodium	Latin	natrium
Fe	Iron	Latin	ferrum
Ag	Silver	Latin	argentum
Au	Gold	Latin	aurum
Hg	Mercury	Latin	Hydrargyrum, meaning 'Water-Silver'
Es	Einsteinium	English	Albert Einstein, German physicist

What is important to know about chemical equations?

Writing Chemical Equations

- There are two numbers to watch the coefficients and the subscripts
- Two water molecules have six total atoms
- Two hydrogen and one oxygen makes three atoms in one molecule of water
- Two molecules have six atoms total

Large numbers first:

- The number of molecules
- Coefficient



Small number under letters:

- The number of atoms in each molecule
- Subscript (sub = under)

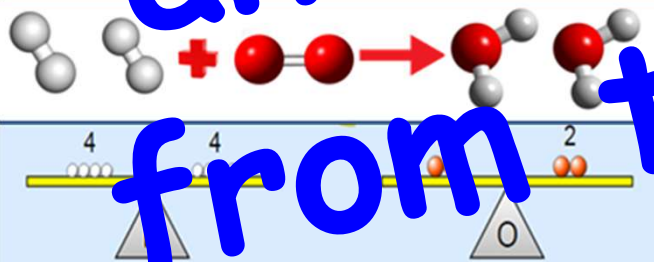
These are always 1:

- If there are no coefficients, the coefficient is 1
- If there are no subscripts, the subscript is 1

What is important to know about chemical equations?

Balancing Chemical Reactions

- There are two numbers to watch the coefficients and the subscripts
- The equation must balance in the reaction



What is important to know about chemical equations?

Types of Chemical Reactions

- Atoms are combined chemically
- Reactants are what you start with
- Products are the result of chemical reaction
- Different types of reactions



Law of Conservation of Mass

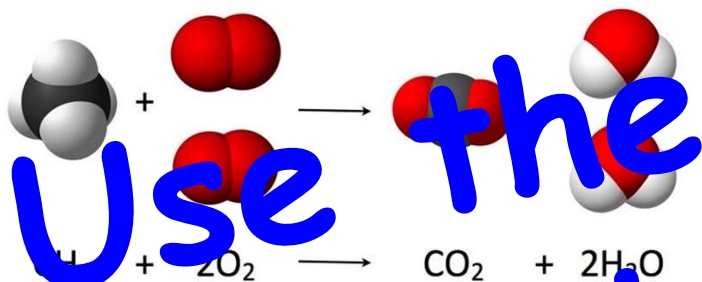
- No material is destroyed in a reaction
- No new material is created in a reaction

Use the included slides from the Google PowerPoint and PowerPoints from the video.

What is important to know about chemical equations?

Law of Conservation of Mass

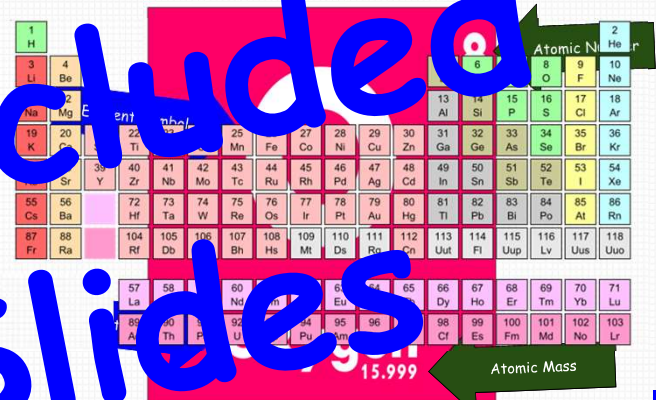
- In a reaction, no new atoms are made or destroyed
- Chemical bonds break
- Atoms recombine in a new way
- New bonds are made



What is important to know about chemical equations?

Periodic Table

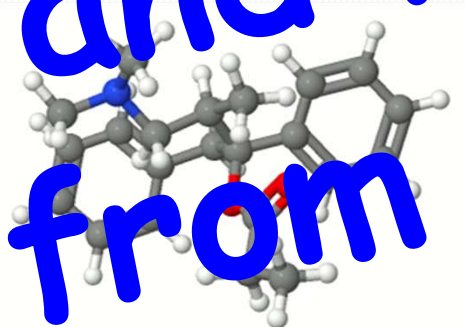
- Contains important information
- Element Name and Element Symbol
- Atomic Number and Atomic Mass



Use the included Google Slides and PowerPoint from the Chemical Equations video.

Why is this important?

- Predicting what will happen when two or more chemicals are combined would be a good thing to know
- You can tell how much of each chemical is needed to produce a certain amount of the new chemical compound



Chemical Equations