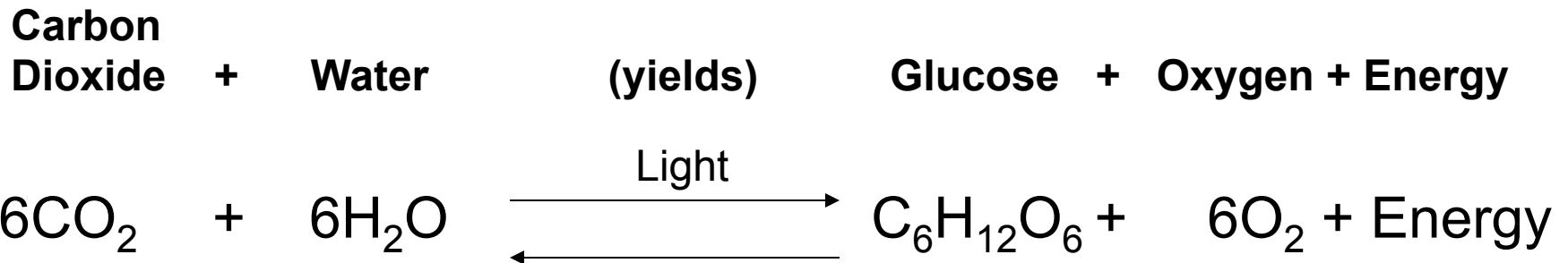


Do Now:

In what type of chemical bond are electrons shared?

Chemical Equations



Describing Chemical Reactions

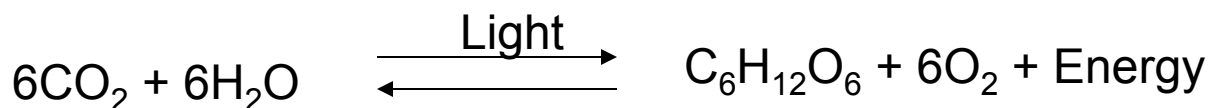
- Cellular phone messages make use of symbols and abbreviations to express ideas in shorter form. Similarly, chemists often use chemical equations in place of words.



◀ A message on a cellular display

Chemical Equations

What does the information from the first slide represent?



The substances that undergo a change are called the **REACTANTS**. They are written before the “yields” arrows.

The new substances that are formed are called the **PRODUCTS** and are written after the arrows.

Practice

1. Write a chemical equation showing the formation of carbon dioxide from carbon and oxygen.
2. Write a chemical equation showing the formation of water from hydrogen and oxygen.
3. Write a chemical equation showing the formation of table salt from sodium and chlorine.

Conservation of Mass

Created by Antoine Lavoisier, this law states that:

- mass is neither created nor destroyed in a chemical reaction.
- the total mass of the products must always equal the total mass of the reactants.
- the total number of atoms on one side of the equation **MUST** equal the total number of atoms on the other side.

Conservation of Mass

- The principle of conservation of mass states that in a chemical reaction, the total mass of the reactants must equal the total mass of the products.

Fe
Iron

+

S
Sulfur



FeS
Iron Sulfide



Balancing Chemical Equations

Balancing Equations

1 Write the Equation
 $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$

2 Count the Atoms
 $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
1 2 1 1

3 Use Coefficients to
Balance the Atoms
 $\text{Mg} + \text{O}_2 \rightarrow 2 \text{MgO}$
 2 2

$2 \text{Mg} + \text{O}_2 \rightarrow 2 \text{MgO}$
2 2 2 2

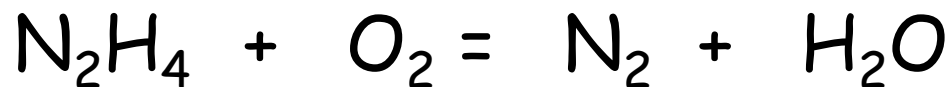
4 Look Back and Check

• Magnesium metal (Mg) reacts with oxygen gas (O_2), forming magnesium oxide (MgO). To write a balanced equation for this reaction, first write the equation using the formulas of the reactants and products, then count the number of atoms of each element.

• Balance all C-H-O elements 1st. The remaining elements will usually balance themselves after.

Practice

The Burning of Hydrazine Balance the equation and then explain:



1. What are the reactants?
2. What are the products?
3. How many molecules of each element or compound are needed for this reaction to take place?

Closure:

What elements should you always try to balance first in a chemical equation?