

**COUNTING ATOMS AND
DETERMINING
WHETHER EQUATIONS
ARE BALANCED OR
UNBALANCED**

OBJECTIVE

- To be able to explain that in a chemical reaction, no atoms are created or destroyed.

RESEARCH:

- ⊙ Atom/Element- Substance that cannot be broken down; 92 occur naturally.
- ⊙ Molecule/Compound- Two or more atoms of ***DIFFERENT*** elements chemically bonded.
- ⊙ Subscript - A number that appears *after* an element to show how many of atoms are present in a molecule.
- Coefficient - a number placed in front of a chemical symbol or formula to show how many of that molecule need to be in the chemical reaction to make it balanced.
- Ex- $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$

ACTIVITY

- ◉ The following atoms are represented by the following colors: **pink = oxygen (O), purple = carbon (C) white = hydrogen (H), yellow = sodium (Na), orange = calcium (Ca), and green = chlorine (Cl)**
- ◉ Please share the atoms with your table. You may not need all of the different types of atoms.
- ◉ Pull out the atoms you need for the reactant side, and create a model for each reactant molecule (left side of equation). Count out the amount of atoms you have in your reactant side of the equation .
- ◉ Pull out the atoms you need for the product side, and create a model for each product molecule (right side of equation). Count out the amount of atoms you have in your product side of the equation.
- ◉ Determine whether your equation is balanced or not. If it is balanced, you should have the same number of atoms for each atom type.
- ◉ Answer the questions in complete sentences and define the words not mentioned in the beginning of the lesson.

COLORS OF THE ATOMS

| Atom | Color |
|----------|--------|
| Oxygen | Pink |
| Carbon | Purple |
| Hydrogen | White |
| Sodium | Yellow |
| Calcium | Orange |
| Chlorine | Green |