Balancing Act

Compounds are formed from rearrangements and new combinations of atoms. These rearrangements are represented by balanced equations. Coefficients are used to balance chemical equations. Remember, subscripts are used to write formulas, and coefficients are used to balance equations.

As a start, here is a nonchemical equation to balance. This equation is for the formation of a typical basketball team unit.

unbalanced: Guards + Forwards + Center
$$\rightarrow$$
 G₂F₂C balanced: 2 Guards + 2 Forwards + Center \rightarrow G₂F₂C

Try to write another nonchemical equation for the formation of a baseball team unit with a pitcher, catcher, infielders, and outfielders.

To become acquainted with balancing chemical equations, examine the following equations and supply the missing coefficients needed to balance the equation. One equation is already balanced, so look carefully!

1. NaCl + SO₂ + H₂O + O₂
$$\rightarrow$$
 Na₂SO₄ + HCl

$$2. \qquad C_5H_{12} \qquad + \qquad O_2 \qquad \rightarrow \qquad CO_2 \qquad + \qquad H_2O$$

3.
$$Fe_2O_3$$
 + CO \rightarrow CO_2 + Fe

4. HgO
$$\rightarrow$$
 Hg + O_2

$$\textbf{5.} \hspace{0.5cm} \text{H}_2\text{SO}_4 \hspace{0.5cm} + \hspace{0.5cm} \text{Pb} \hspace{0.5cm} + \hspace{0.5cm} \text{PbO}_2 \hspace{0.5cm} \rightarrow \hspace{0.5cm} \text{PbSO}_4 \hspace{0.5cm} + \hspace{0.5cm} \text{H}_2\text{O}$$

6.
$$C_6H_{12}O_6$$
 + O_2 \rightarrow CO_2 + H_2O

7.
$$Ca_3(PO_4)_2$$
 + C + SiO_2 \rightarrow $CaSiO_3$ + CO + P_4

8. Ca +
$$H_2O$$
 \rightarrow $Ca(OH)_2$ + H_2

9.
$$C_6H_{12}O_6 \rightarrow C_2H_5OH + CO_2$$

10.
$$HC_2H_3O_2$$
 + $NaHCO_3$ \rightarrow CO_2 + $NaC_2H_3O_2$ + H_2O