Balancing Equations Challenge

Part A: Parts & Pieces
(1) Circle each subscript in each chemical formula.
(2) Draw a square around each coefficient.
(3) Answer the questions related to each chemical formula.

O₂
What element does the O represent? ______________

CO₂
How many atoms of each element are in the formula shown?
C = _____  O = _____

5H₂
How many atoms of Hydrogen are in this formula as shown? _____

2C₂H₆
How many atoms each element are in the formula shown?
C = _____  H = _____

2Na₂SO₄
How many atoms each element are in the formula shown?
Na = _____  S = _____  O = _____

Part B: Label the chemical equation using PRODUCT, REACTANTS, SUBSCRIPT, COEFFICIENT, and YIELDS.

2 Mg + O₂ → 2 MgO

Name _____________________________
Part C: Balance each of the following equations. Remember → List the atoms, count, and solve!

\[
\begin{align*}
\text{H}_2 + \text{O}_2 & \rightarrow \text{H}_2\text{O} \\
\text{H}_2\text{O}_2 & \rightarrow \text{H}_2\text{O} + \text{O}_2 \\
\text{Na} + \text{O}_2 & \rightarrow \text{Na}_2\text{O} \\
\text{N}_2 + \text{H}_2 & \rightarrow \text{NH}_3 \\
\text{P}_4 + \text{O}_2 & \rightarrow \text{P}_4\text{O}_6 \\
\text{C} + \text{H}_2 & \rightarrow \text{CH}_4 \\
\text{Al}_2\text{O}_3 & \rightarrow \text{Al} + \text{O}_2 \\
\text{Fe} + \text{H}_2\text{O} & \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2 \\
\text{C}_2\text{H}_6 + \text{O}_2 & \rightarrow \text{CO}_2 + \text{H}_2\text{O} \\
\text{Na}_2\text{SO}_4 + \text{CaCl}_2 & \rightarrow \text{CaSO}_4 + \text{NaCl}
\end{align*}
\]
Answer Key

Balancing Equations Challenge

Part A: Parts & Pieces
(1) Circle each subscript in each chemical formula.
(2) Draw a square around each coefficient.
(3) Answer the questions related to each chemical formula.

$\text{O}_2$

What element does the O represent?
OXYGEN

$\text{CO}_2$

How many atoms of each element are in the formula shown?
C = 1  O = 2

$\text{H}_2$

How many atoms of Hydrogen are in this formula as shown? 10

$\text{C}_2\text{H}_6$

How many atoms each element are in the formula shown?
C = 4  H = 12

$\text{Na}_2\text{SO}_4$

How many atoms each element are in the formula shown?
Na = 4  S = 2  O = _8

Part B: Label the chemical equation using PRODUCT, REACTANTS, SUBSCRIPT, COEFFICIENT, and YIELDS.

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

T. Trimpe 2006  http://sciencespot.net/
Part C: Balance each of the following equations. Remember → List the atoms, count, and solve!

\[
\begin{align*}
2\text{H}_2 + \text{O}_2 & \rightarrow 2\text{H}_2\text{O} \quad 2\text{H}_2\text{O}_2 & \rightarrow 2\text{H}_2\text{O} + \text{O}_2 \\
4\text{Na} + \text{O}_2 & \rightarrow 2\text{Na}_2\text{O} \\
\text{N}_2 + 3\text{H}_2 & \rightarrow 2\text{NH}_3 \\
\text{P}_4 + 3\text{O}_2 & \rightarrow \text{P}_4\text{O}_6 \\
\text{C} + 2\text{H}_2 & \rightarrow \text{CH}_4 \\
2\text{Al}_2\text{O}_3 & \rightarrow 4\text{Al} + 3\text{O}_2 \\
3\text{Fe} + 4\text{H}_2\text{O} & \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2 \\
2\text{C}_2\text{H}_6 + 7\text{O}_2 & \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O} \\
\text{Na}_2\text{SO}_4 + \text{CaCl}_2 & \rightarrow \text{CaSO}_4 + 2\text{NaCl}
\end{align*}
\]