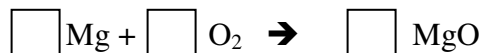


Balancing Act

Name _____

Atoms are not _____ or _____ during a chemical reaction. Scientists know that there must be the _____ number of atoms on each _____ of the _____. To balance the chemical equation, you must add _____ in front of the chemical formulas in the equation. You cannot _____ or _____ subscripts!

1) Determine number of atoms for each element.



2) Pick an element that is not equal on both sides of the equation.

Mg =

Mg =

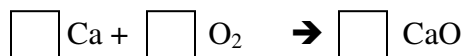
3) Add a coefficient in front of the formula with that element and adjust your counts.

O =

O =

4) Continue adding coefficients to get the same number of atoms of each element on each side.

Try these:

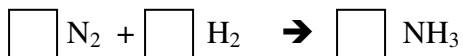


Ca =

Ca =

O =

O =

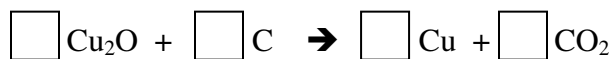


N =

N =

H =

H =



Cu =

Cu =

O =

O =

C =

C =



H =

H =

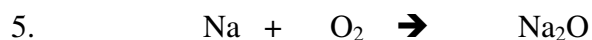
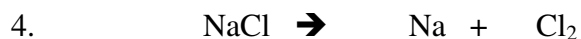
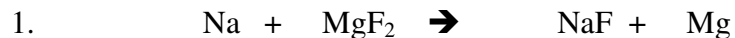
O =

O =

Balancing Act Practice

Name _____

Balance each equation. Be sure to show your lists! Remember you cannot add subscripts or place coefficients in the middle of a chemical formula.



Challenge: This one is tough!

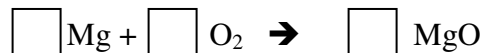


Balancing Act

Overhead Key

Atoms are not **CREATED** or **DESTROYED** during a chemical reaction. Scientists know that there must be the **SAME** number of atoms on each **SIDE** of the **EQUATION**. To balance the chemical equation, you must add **COEFFICIENTS** in front of the chemical formulas in the equation. You cannot **ADD** or **CHANGE** subscripts!

Step 1: Determine number of atoms for each element.



Step 2: Pick an element that is not equal on both sides of the equation.

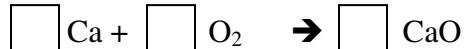
$$\text{Mg} = \qquad \qquad \text{Mg} =$$

$$\text{O} = \qquad \qquad \text{O} =$$

Step 3: Add a coefficient in front of the formula with that element and adjust your counts.

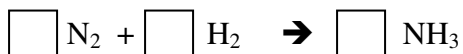
Step 4: Continue adding coefficients to get the same number of atoms of each element on each side.

Try these:



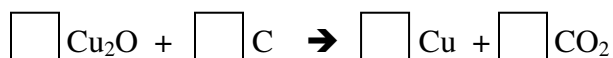
$$\text{Ca} = \qquad \qquad \text{Ca} =$$

$$\text{O} = \qquad \qquad \text{O} =$$



$$\text{N} = \qquad \qquad \text{N} =$$

$$\text{H} = \qquad \qquad \text{H} =$$



$$\text{Cu} = \qquad \qquad \text{Cu} =$$

$$\text{O} = \qquad \qquad \text{O} =$$

$$\text{C} = \qquad \qquad \text{C} =$$



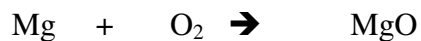
$$\text{H} = \qquad \qquad \text{H} =$$

$$\text{O} = \qquad \qquad \text{O} =$$

Step-by-Step Example Problem:

| |
|--|
| Balancing Act Teacher Notes |
|--|

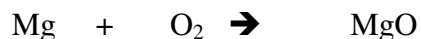
Step 1: Determine number of atoms for each element.



$$\text{Mg} = 1 \qquad \text{Mg} = 1$$

$$\text{O} = 2 \qquad \text{O} = 1$$

Step 2: Pick an element that is not equal on both sides of the equation.

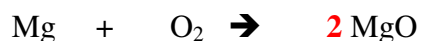


$$\text{Mg} = 1 \qquad \text{Mg} = 1$$

$$\text{O} = 2 \qquad \text{O} = 1$$

| |
|---|
| Since the O atoms are not equal, we'll target those first! |
|---|

Step 3: Add a coefficient in front of the formula with that element and adjust your counts.

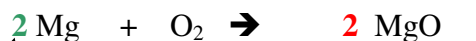


$$\text{Mg} = 1 \qquad \text{Mg} = \cancel{1} 2$$

$$\text{O} = 2 \qquad \text{O} = \cancel{1} 2$$

| |
|---|
| Adding a 2 in front of MgO will change the number of atoms on the product side of the equation. |
|---|

Step 4: Continue adding coefficients to get the same number of atoms of each element on each side.



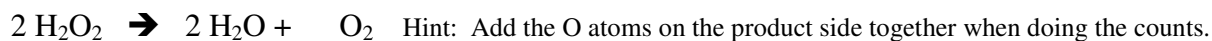
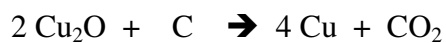
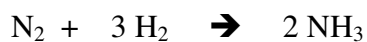
$$\text{Mg} = \cancel{1} 2 \qquad \text{Mg} = \cancel{1} 2$$

$$\text{O} = 2 \qquad \text{O} = \cancel{1} 2$$

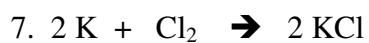
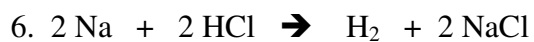
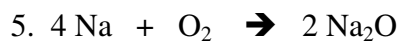
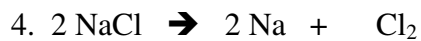
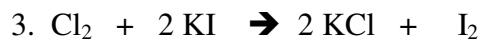
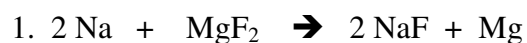
| |
|---|
| Now we need to increase the number of Mg atoms we have on the reactant side. Adding a 2 in front of Mg will give us 2 atoms of Mg and balance the equation. |
|---|

Balancing Act Answer Key:

Page 1 Problems



Page 2 Practice Problems



Challenge: This one is tough!

