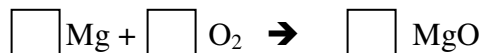


Balancing Act

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. on each side of the equation.



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

Mg =

Mg =

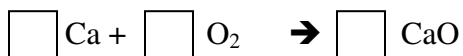
3) Add a coefficient in front of the formula with that element and adjust your counts.

O =

O =

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

Try these:

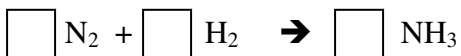


Ca =

Ca =

O =

O =

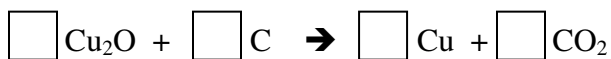


N =

N =

H =

H =



Cu =

Cu =

O =

O =

C =

C =



H =

H =

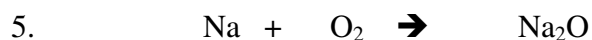
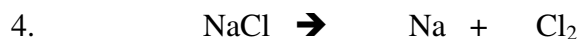
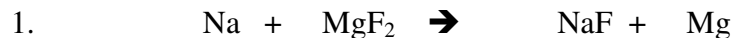
O =

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!

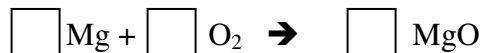


Balancing Act

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.

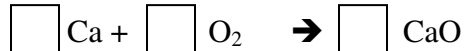
$$\text{Mg} = \qquad \qquad \text{Mg} =$$

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

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

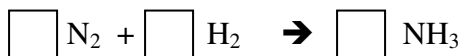
Step 4: Continue adding coefficients to get the same number of atoms of each element on each side.

Try these:



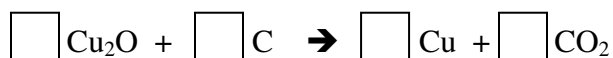
$$\text{Ca} = \qquad \qquad \text{Ca} =$$

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



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

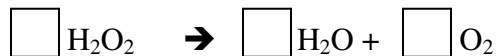
$$\text{H} = \qquad \qquad \text{H} =$$



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

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

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



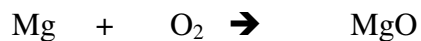
$$\text{H} = \qquad \qquad \text{H} =$$

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

Step-by-Step Example Problem:

Balancing Act Teacher Notes
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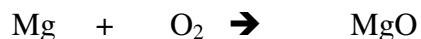
Step 1: Determine number of atoms for each element.



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

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

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

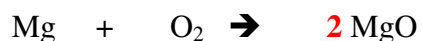


$$\text{Mg} = 1 \qquad \text{Mg} = 1$$

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

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.



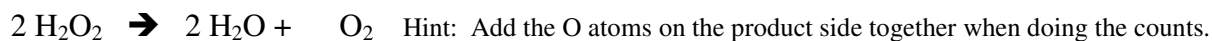
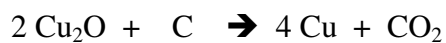
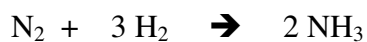
$$\text{Mg} = \cancel{1} 2 \qquad \text{Mg} = \cancel{1} 2$$

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

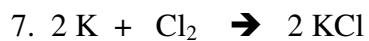
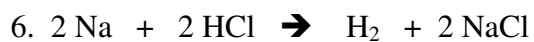
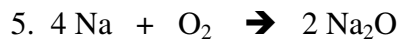
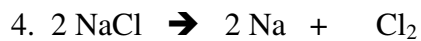
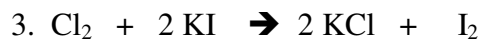
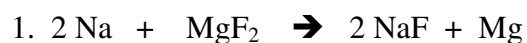
Now we need to increase the number of Mg atoms we have on the reactant side. Adding a 2 in front of Mg will give us 2 atoms of Mg and balance the equation.

Balancing Act Answer Key:

Page 1 Problems



Page 2 Practice Problems



Challenge: This one is tough!

