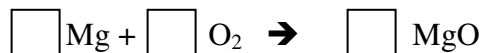


Balancing Act

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 =

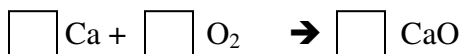
3) Add a coefficient in front of the formula with that element and adjust your counts.

O =

O =

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

Try these:

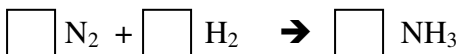


Ca =

Ca =

O =

O =

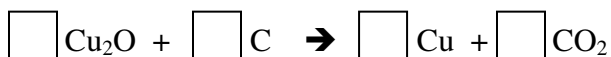


N =

N =

H =

H =



Cu =

Cu =

O =

O =

C =

C =



H =

H =

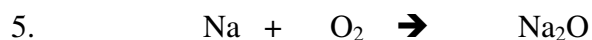
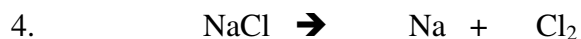
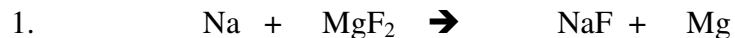
O =

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!

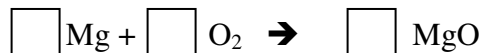


Balancing Act

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.

Mg =

Mg =

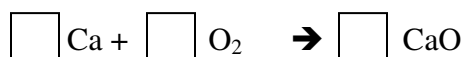
O =

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:

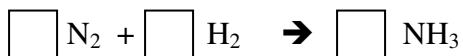


Ca =

Ca =

O =

O =

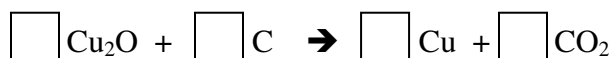


N =

N =

H =

H =



Cu =

Cu =

O =

O =

C =

C =



H =

H =

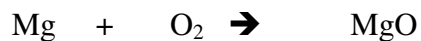
O =

O =

Step-by-Step Example Problem:

Balancing Act Teacher Notes

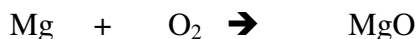
Step 1: Determine number of atoms for each element.



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

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

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

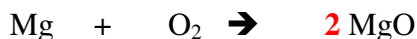


$$\text{Mg} = 1 \qquad \text{Mg} = 1$$

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

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.

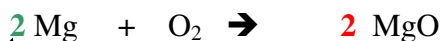


$$\text{Mg} = 1 \qquad \text{Mg} = \cancel{1} 2$$

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

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.



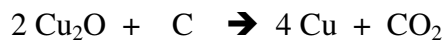
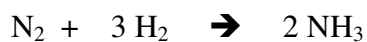
$$\text{Mg} = \cancel{1} 2 \qquad \text{Mg} = \cancel{1} 2$$

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

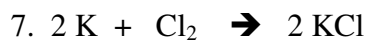
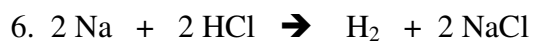
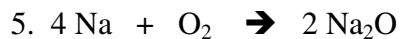
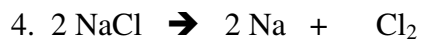
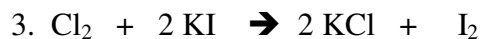
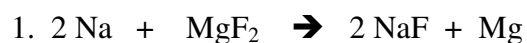
Now we need to increase the
number of Mg atoms we have on the
reactant side. Adding a 2 in front of
Mg will give us 2 atoms of Mg and
balance the equation.

Balancing Act Answer Key:

Page 1 Problems



Page 2 Practice Problems



Challenge: This one is tough!

