

Rules on How to Balance Chemical Equations

- Write the correct formulas for all reactants and products.
- Count the number of atoms of each element in the reactants and the products.
- Place coefficients in front of the chemical formulas to balance the number of atoms of each element on both sides of the equation.
- If the reactants and products contain a mixture of elements and oxygen or hydrogen atoms balance the oxygen atoms last, the hydrogen atoms second last and balance the other elements present in any order.
- Check Your Work: Ensure that the same number of atoms of each element are present on both sides of the equation.

Answer all the questions below and then check your answers.

Balance the following equations by inserting numbers in the front of each of the reactants and products where appropriate.

Do not change any of the chemical formula if you do you will get it wrong!!!

- 1. Mg + $O_2 \rightarrow MgO$
- 2. Al + $O_2 \rightarrow Al_2O_3$

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3. Na +
$$Cl_2 \rightarrow NaCl$$

4. K + $O_2 \rightarrow K_2O$
5. $SO_2 + O_2 \rightarrow SO_3$
6. $C_2H_6 + O_2 \rightarrow CO_2 + H_2O$
7. Mg + HCl $\rightarrow MgCl_2 + H_2$
8. Na + $O_2 \rightarrow Na_2O$
9. $C_3H_8 + O_2 \rightarrow CO_2 + H_2O$
10. HCl + $Ca(OH)_2 \rightarrow CaCl_2 + H_2O$

Answers

- 1. $2Mg + O_2 \rightarrow 2MgO$
- 2. $4Al + 3O_2 \rightarrow 2Al_2O_3$
- 3. $2Na + Cl_2 \rightarrow 2NaCl$
- 4. 4K + $O_2 \rightarrow 2K_2O$
- 5. $2SO_2 + O_2 \rightarrow 2SO_3$
- 6. $2C_2H_6$ + $7O_2 \rightarrow 4CO_2$ + $6H_2O$
- 7. Mg + 2HCl \rightarrow MgCl₂ + H₂
- 8. $4Na + O_2 \rightarrow 2Na_2O$
- $9. \quad C_3H_8 \quad + \quad 5O_2 \quad \rightarrow \quad 3CO_2 \quad + \quad 4H_2O$
- 10. 2HCl + $Ca(OH)_2 \rightarrow CaCl_2 + 2H_2O$

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