

# Counting Atoms Notes

## SUBSCRIPTS

1. **SUBSCRIPTS** only refer to the atom that they are **FOLLOWING**. For example...



There are **TWO** atoms of **HYDROGEN** and only **ONE** atom of **SULFUR**.

## COEFFICIENTS

2. **COEFFICIENTS** apply to the entire compound. You **MULTIPLY** the coefficients and **SUBSCRIPTS**.



**ATOMS OF HYDROGEN: 4**

**ATOMS OF SULFUR: 2**

**IF THERE ISN'T A SUBSCRIPT FOLLOWING AN ELEMENT, ASSUME THERE IS ONLY ONE ATOM OF THAT ELEMENT!**

## PARENTHESES

3. If elements or compounds are inside of **PARENTHESES**, then the **SUBSCRIPT** after the parentheses applies to everything inside.

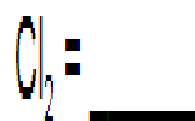


ATOMS OF BARIUM: 1  
ATOMS OF OXYGEN: 2  
ATOMS OF HYDROGEN: 2

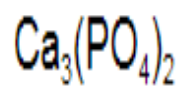
1. The **symbol** of an element represents one atom of that element.

**Ba** = \_\_\_\_\_

2. A **subscript** is a number written at the *lower right corner* behind the symbol of an element. If there is more than one atom of the element, then a subscript is used to indicate the number of atoms.



3. A **subscript** *outside a bracket multiplies* all the elements inside the brackets.



Ca = \_\_\_\_\_

P = \_\_\_\_\_

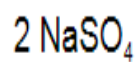
O = \_\_\_\_\_

Total Number of Atoms \_\_\_\_\_

4. A **coefficient** is a number written *in front* of a chemical symbol and indicates the *number of atoms of that element or number of molecules*



Cl = \_\_\_\_\_



Na = \_\_\_\_\_

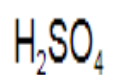
S = \_\_\_\_\_

O = \_\_\_\_\_

Total Number of Atoms \_\_\_\_\_



5. A subscript is a number written after an atom in a formula and indicates the number of atoms of the kind in the molecule.



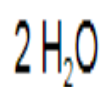
H = \_\_\_\_\_

S = \_\_\_\_\_

O = \_\_\_\_\_

Total Number of Atoms \_\_\_\_\_

*Note: a coefficient multiplies the number of atoms of each element in the formula*

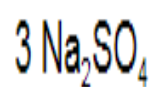


\_\_\_\_\_ molecules of  $\text{H}_2\text{O}$

\_\_\_\_\_ H (hydrogen)

\_\_\_\_\_ O (oxygen)

Total \_\_\_\_\_



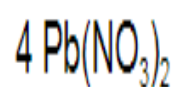
\_\_\_\_\_ molecules of  $\text{Na}_2\text{SO}_4$

\_\_\_\_\_ Na (sodium)

\_\_\_\_\_ S (sulfur)

\_\_\_\_\_ O (oxygen)

Total \_\_\_\_\_



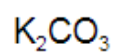
\_\_\_\_\_ molecules of  $\text{Pb}(\text{NO}_3)_2$

\_\_\_\_\_ Pb (Lead)

\_\_\_\_\_ N (nitrogen)

\_\_\_\_\_ O (oxygen)

Total \_\_\_\_\_



Type of Atoms

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Total

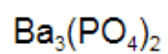
# of Atoms

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Type of Atoms

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Total

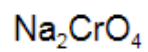
# of Atoms

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Type of Atoms

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Total

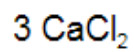
# of Atoms

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Type of Atoms

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Total

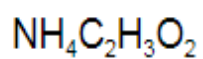
# of Atoms

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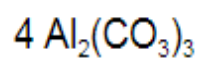
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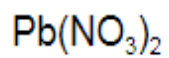
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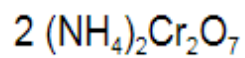
Type of Atoms	# of Atoms
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Total	_____



Type of Atoms	# of Atoms
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Total	_____



Type of Atoms	# of Atoms
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Total	_____



Type of Atoms	# of Atoms
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Total	_____

