

Chemical Symbols and Formulae

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Why is Co the symbol for cobalt but CO the formula for carbon monoxide?

Step 1 · Rule for symbols

A symbol has one capital letter, sometimes followed by a small letter.

Step 2 · Co

Capital C then small o: one symbol, so one element — cobalt.

Step 3 · CO

Two capitals: two symbols, C (carbon) and O (oxygen) — a compound.

Answer: Each capital letter starts a new element

Check: Count the capitals to count the elements.

2. Now try one with the steps

What does the formula NH_3 tell you about ammonia?

Step 1 · Elements

Step 2 · Numbers

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is the chemical symbol for carbon? [1]

2. What is the chemical symbol for sodium? [1]

3. Which element has the symbol Cl? [1]

4. Which element has the symbol K? [1]

5. How many different elements are in CaCO_3 ? [1]

6. How many oxygen atoms are in one molecule of CO_2 ? [1]

7. How many atoms in total are in one molecule of CH_4 ? [1]

8. How many atoms in total are in H_2SO_4 ? [1]

9. Write the formula for a compound with 1 magnesium atom and 1 oxygen atom. [1]

10. Write the formula for a molecule with 1 sulfur atom and 2 oxygen atoms. [1]

11. How many hydrogen atoms are in one molecule of glucose, $\text{C}_6\text{H}_{12}\text{O}_6$? [1]

12. How many oxygen atoms are shown by $3\text{H}_2\text{O}$? [1]

13. How many hydrogen atoms are shown by $3\text{H}_2\text{O}$? [1]

14. Explain the difference between 2O and O_2 . [2]

15. Calcium hydroxide is $\text{Ca}(\text{OH})_2$. How many hydrogen atoms does it contain? [1]

4. Before you hand it in

Writing CO when you mean cobalt (Co).

Only the first letter of a symbol is a capital.

Writing H₂O with a normal-sized 2, or putting it before the H.

Write a small number after and below the symbol it belongs to: H₂O.

Thinking the small number applies to every symbol.

A subscript belongs to the one symbol (or bracket) just before it.

Thinking symbols always match the English name.

Learn the odd ones: Na sodium, K potassium, Fe iron, Cu copper, Ag silver, Au gold, Pb lead, Sn tin, Hg mercury.