

Science 1.8 AS 90947 Investigate selected chemical reactions

Changing compound words into formulas – Visual balancing

Success Criteria: complete each level before moving onto the next

- Basic: write **ion formula** for the following named ion compounds
- Proficient: write **the number of each ion** required to balance the charges
- Advanced: **balance the ion compounds** to create a neutral compound

Cation		Anion	
1+	2+	2-	1-
H Hydrogen	Mg Magnesium	O Oxide	Cl Chloride
Na Sodium	Ca Calcium	SO ₄ Sulfate	OH Hydroxide
K Potassium	Cu Copper	NO ₃ Nitrate	HCO ₃ Hydrogen Carbonate
NH ₄ Ammonium		CO ₃ Carbonate	

Cation		Anion	
1+	2+	3+	1-
H Hydrogen	Fe Iron (II)	Al Aluminium	Cl Chloride
Ag Silver	Zn Zinc		OH Hydroxide
K Potassium	Pb Lead	Fe Iron (III)	NO ₃ Nitrate
NH ₄ Ammonium			HCO ₃ Hydrogen Carbonate

Example

Name of compound	calcium hydroxide
Formula of ions	Ca ²⁺ OH ⁻
Number of each ion required to balance charges	1 2
Formula of compound	Ca(OH) ₂

Remember:

+ charge means electrons are missing from the ion compared to when they were atoms, the number by the + tells us how many electrons are missing. Each missing electron is a space.

- charge means electrons are added to the ions compared to when they were atoms, the number by the – tells us how many electrons are added. Each added electron is a tab.

The total number of tabs and spaces in the ions must match to make a neutral compound.

We don't write the number 1 in compounds.

Put brackets around a compound ion (that has more than one type of atom in it) if you need 2 or more of them to balance in a compound

Name of compound	magnesium chloride
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	sodium carbonate
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	copper nitrate
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	iron (II) hydroxide
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	lead oxide
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	silver nitrate
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	calcium carbonate
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	iron (III) nitrate
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	zinc oxide
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	

Name of compound	lead chloride
Formula of ions	
Number of each ion required to balance charges	
Formula of compound	