

Formulas and Charge Balance

Student Worksheet | g09_u05_w17

I can: write neutral ionic formulas by balancing charge, read subscripts, and explain that formulas show ratios rather than tiny pictures.

Vocabulary: ion, cation, anion, formula unit, subscript, coefficient, charge balance, empirical ratio.

1. Define cation and anion.

2. What total charge has a neutral formula unit?

3. Write charge of Na ion.

4. Write charge of O ion.

5. Balance Mg^{2+} with Cl^- .

6. Balance Al^{3+} with O^{2-} .

7. Balance Ca^{2+} with N^{3-} .

8. Explain why NaO is not neutral.

9. Read atom ratio in Al_2O_3 .

10. What does subscript 2 in CaCl_2 apply to?

11. Why do we reduce 2:2 charge ratio to 1:1?

12. Write formula from K^+ and S^{2-} .

13. Write formula from Ba^{2+} and F^- .

14. Identify total charge in one Al_2O_3 unit.

15. Compare coefficient 2 in 2NaCl to subscript 2 in CaCl_2 .

16. State one limitation of drawing ions as colored balls.

17. Make a charge-balance table for lithium oxide and aluminum sulfide.

18. A student cross-multiplies Fe^{3+} and O^{2-} to Fe_3O_2 . Diagnose and correct.

19. Explain why a formula ratio does not tell melting point or reaction speed by itself.

20. Critique: “The formula CaCl_2 shows three atoms permanently bonded as a tiny molecule.”
