

**Worksheet 6.2 Word Equations**

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1. Write the chemical equations and balance each of the following word equations.
- a) Aluminum metal reacts with iron (II) oxide powder to produce aluminum oxide solid and iron metal.
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- b) Aluminum sulphate solution and calcium hydroxide solution produce a precipitate of aluminum hydroxide and solid calcium sulphate.
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- c) Ammonia gas ( $\text{NH}_3$ ) plus oxygen gas yields nitrogen monoxide gas plus water vapour.
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- d) Calcium hydroxide solution and carbon dioxide gas yields solid calcium carbonate and liquid water.
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- e) Aqueous iron (III) chloride and sodium carbonate solution yields aqueous sodium chloride and a precipitate of iron (III) carbonate.
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- f) Solid iron (III) oxide and carbon monoxide gas yields iron metal and carbon dioxide gas.
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- g) Magnesium carbonate solution plus aqueous hydrochloric acid (HCl) yields magnesium chloride solution plus liquid water and carbon dioxide gas.
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- h) Silicon dioxide solid plus aqueous hydrofluoric acid (HF) yields solid silicon tetrafluoride plus liquid water.
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- i) Aqueous sodium hydroxide and carbon dioxide gas yields sodium carbonate solution and liquid water.
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*Substitute symbols and formulas for words, then balance each equation.*

1. sodium chloride + lead (II) nitrate → lead (II) chloride + sodium nitrate
2. iron + chlorine → iron (III) chloride
3. barium + water → barium hydroxide + hydrogen
4. When chlorine gas reacts with methane, carbon tetrachloride and hydrogen chloride are produced.
5. When sodium oxide is added to water, sodium hydroxide is produced.
6. In a blast furnace, iron (III) oxide and carbon monoxide gas produce carbon dioxide gas and iron.
7. Iodine crystals react with chlorine gas to produce iodine trichloride.