Science 1.8 AS 90947 Investigate selected chemical reactions

Thermal Decomposition Reactions – Writing Word and Symbol Equations Answers

Success Criteria: complete each level before moving onto the next

- Basic: write **word equations** for the following thermal decomposition reactions
- Proficient: write **symbol equations** for the following thermal decomposition reactions
- Advanced: **balance the symbol equations** for the following thermal decomposition reactions

> Remember: **metal carbonate → metal oxide + carbon dioxide gas**
>
> **metal hydrogen carbonate → metal carbonate + carbon dioxide gas + water**

1. calcium carbonate powder is heated. Calcium carbonate is found in limestone rock and mollusc shells.

Word equation calcium carbonate → calcium oxide + carbon dioxide gas

Symbol equation $CaCO_3 \rightarrow CaO + CO_2$

2. sodium hydrogen carbonate powder is heated.

Word equation sodium hydrogen carbonate → sodium carbonate + carbon dioxide gas + water

Symbol equation $2NaHCO_3 \rightarrow Na_2CO_3 + CO_2 + H_2O$

3. copper carbonate powder is heated.

Word equation copper carbonate → copper oxide + carbon dioxide gas

Symbol equation $CuCO_3 \rightarrow CuO + CO_2$

4. magnesium hydrogen carbonate powder is heated.

Word equation magnesium hydrogen carbonate → magnesium carbonate + carbon dioxide gas + water

Symbol equation $Mg(HCO_3)_2 \rightarrow MgCO_3 + CO_2 + H_2O$

5. iron (II) carbonate powder is heated. Iron carbonate is an important iron ore.

Word equation iron carbonate → iron oxide + carbon dioxide

Symbol equation $FeCO_3 \rightarrow FeO + CO_2$

6. potassium carbonate powder is heated. Potassium carbonate is used in the production of glass.

Word equation potassium carbonate → potassium oxide + carbon dioxide

Symbol equation $K_2CO_3 \rightarrow K_2O + CO_2$