

Limestone

Read the information above each set of questions and answer the questions as fully as you can.

Limestone, marble and chalk are mainly calcium carbonate, CaCO_3 . Limestone can be quarried and used as a building material. Powdered limestone can be used to neutralise acids in lakes and soil.

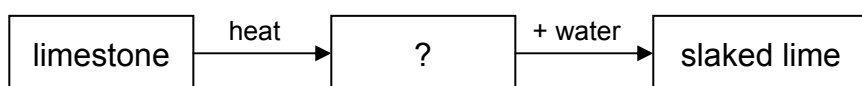
1. Name three sources of calcium carbonate.
2. What is the chemical formula of calcium carbonate?
3. Which three elements are found in calcium carbonate?
4. Give two uses of limestone.

When limestone is heated in a kiln, the calcium carbonate in it breaks down into calcium oxide and carbon dioxide. This type of reaction is called thermal decomposition.

5. a) Copy and complete this word equation: calcium carbonate $\xrightarrow{\text{heat}}$... ? ... + ... ? ...
b) What type of reaction is this?
c) Calcium oxide is CaO and carbon dioxide is CO_2 .
Write the symbol equation for your answer to part a).

Calcium oxide is also called quicklime. Quicklime reacts with water to produce calcium hydroxide, which is also called slaked lime. Slaked lime is used to reduce the acidity of soil.

6. Copy and complete this flow chart to show how slaked lime is made from limestone.



7. a) What is the common name for calcium oxide?
b) What is the common name for calcium hydroxide?
c) Give one use of slaked lime.

Cement is produced by roasting powdered limestone with powdered clay in a rotary kiln. Concrete is made by mixing cement with water, sand and crushed rock. A slow chemical reaction makes concrete set into a hard, stone-like building material.

8. Explain how cement is made.
9. Explain how concrete is made.
10. What makes concrete set hard?