

Advantages and Disadvantages of Quarrying

- Describe briefly the uses of limestone and how it is quarried.
- Consider and evaluate the environmental, social and economic effects of exploiting limestone and producing building materials from it.
- Evaluate the developments in using limestone, cement and concrete as building materials, and their advantages and disadvantages over other materials.

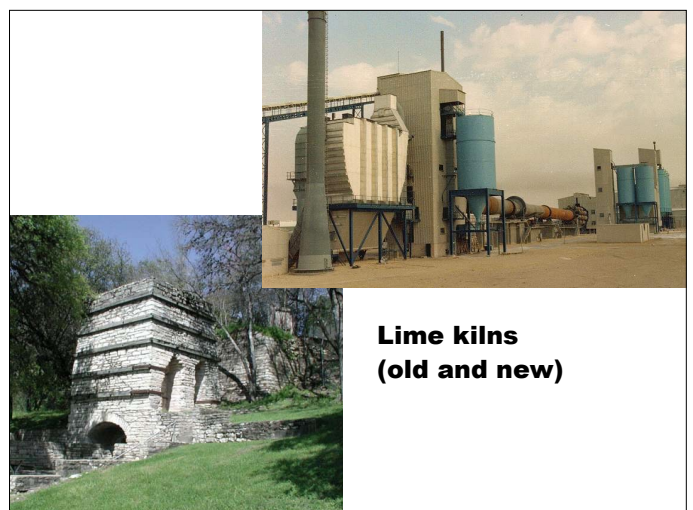
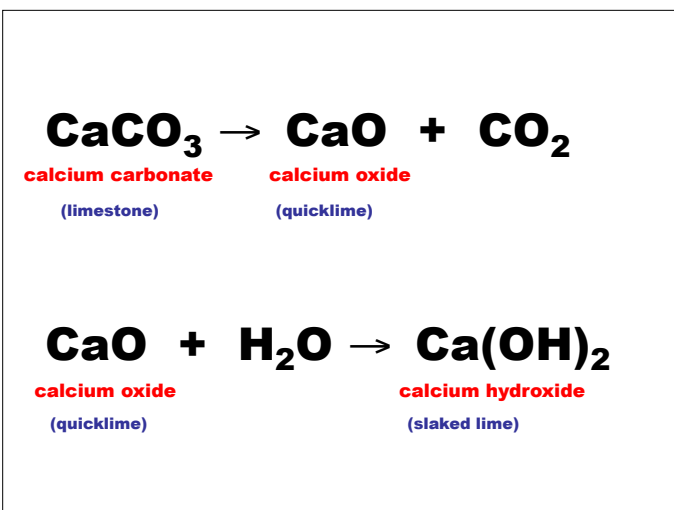
Limestone is a widely available building material and is cheaper than granite or marble. It's also a fairly easy rock to cut, which means it's pretty straightforward to make into different shapes, such as blocks. Limestone is also very hard-wearing.

Limestone can also be used to make other building materials. For example...

- Powdered limestone is heated in a kiln with powdered clay to make cement.
- Cement can be mixed with sand and water to make mortar. (Mortar is the stuff you stick bricks together with.)
- To make concrete you mix cement with sand and aggregate (water and gravel).

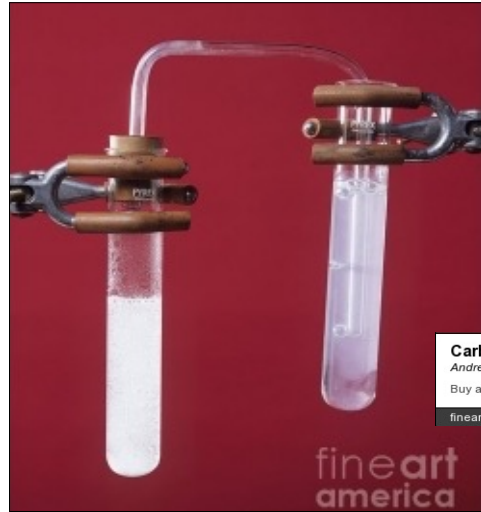
Limestone, concrete and cement have lots of qualities that make them great as building materials. They don't rot when they get wet like wood does. They can't be gnawed away by insects or rodents either. And to top it off, they're fire-resistant too.

Concrete can be poured into moulds to make blocks or panels that can be joined together. It's a very quick and cheap way of constructing buildings. Concrete also doesn't corrode like lots of metals do.





Farmer spreading calcium hydroxide to neutralise acidic soil



Testing for CO₂ with limewater

Limewater = calcium hydroxide solution

Carbon Dioxide Bubbling T...
Andrew Lambert Photography
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Powdered limestone
+
Powdered clay

Heat in rotary kiln

CEMENT



Cement

+

Sand

+

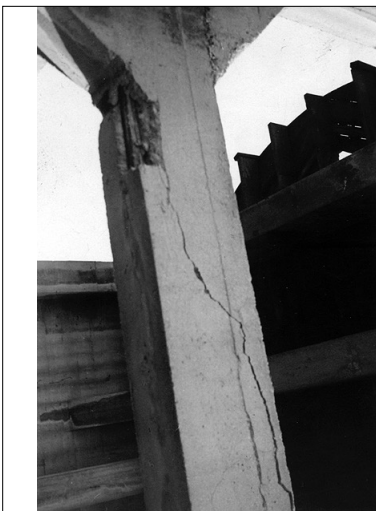
Water

+

Crushed rock



CONCRETE



Concrete can break if stretched or bent



Steel reinforced concrete

Cement

+

Sand

+

Water

MORTAR



Mortar weathers and brickwork must be re-pointed.



Limestone is a key material for providing things that people want — like houses, roads and even schools... but it's also useful in other ways.

- Limestone is used to make chemicals that are used in making dyes, paints and medicines.
- Limestone products are used to neutralise acidic soil. Acidity in lakes and rivers caused by acid rain is also neutralised by limestone products.
- Limestone is also used in power station chimneys to neutralise sulfur dioxide, which is a cause of acid rain.
- Limestone quarries and associated businesses provide jobs for people and bring more money into the local economy. This can lead to local improvements in transport, roads, recreation facilities and health.

Quarrying limestone

Digging limestone out of the ground can cause environmental problems:

- Quarrying involves making huge ugly holes which permanently change the landscape.
- Quarrying processes, like blasting rocks apart with explosives, make lots of noise and dust in quiet, scenic areas.
- Quarrying destroys the habitats of animals and birds.
- The limestone needs to be transported away from the quarry — usually in lorries. This causes more noise and pollution.
- Waste materials produce unsightly tips.

Thankfully it's normally a requirement of the planning permission that once quarrying is complete, landscaping and restoration of the area are carried out.

Limestone products

The production and use of limestone causes problems too.

- Cement factories make a lot of dust, which can cause breathing problems for some people.
- Energy is needed to produce cement. The energy is likely to come from burning fossil fuels, which causes pollution.
- Concrete is a hideously unattractive building material. It also has fairly low tensile strength and can crack — it can be reinforced with steel bars to make it much stronger though

Quarrying is Good for Qatar

Reasons For:

Reasons Against: