

5 (or so) sites & 10 videos

# Concrete

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*What can stop a river and hold up a skyscraper?*

*It's not superman -- it's concrete -- an ancient substance that's easy to take for granted. How much do you know about concrete? Is it the same thing as cement? Do you know where the world's largest concrete structure is, or how much a bag of cement costs? Let's find out...*

**1. How long has concrete been around?** Various forms of concrete can be found in the Egyptian pyramids, as well as ancient Rome. The first concrete-like substance was found in the Middle East, used by builders in 1300 BC. Learn concrete's history at <http://www.rumford.com/articlemortar.html>

**2. Is "cement" the same as "concrete?"** No. Concrete is a mixture of sand, crushed rocks and cement. Cement is a fine grey powder made up of calcium, silicon, iron, and aluminum. It reacts with water to bind sand and rocks together, into a single lump of hard rock. Learn about the chemistry of concrete, at <http://bitly.com/2FbTOC7>

**3. How long does concrete last?** At <http://bitly.com/2F6DXE6> you'll learn that the concrete in the Hoover Dam is expected to last 10,000 years. The Pantheon-- an amazing round building in Rome, has a concrete roof that is 2000 years old and is doing just fine.

**4. Do artists use concrete?** Yes! It can be molded, carved or cast, there are many fun project ideas. See [https://www.etsy.com/market/concrete\\_art](https://www.etsy.com/market/concrete_art) for example.

**5. What is the world's largest concrete structure?** At <http://bitly.com/2F9QtmU> you can read about the Three Gorges Dam in China. It was made out of 21 million cubic yards of concrete -- five times the size of the Hoover Dam. That's enough concrete to build a five highways across the USA. Learn more about the concrete in the Hoover Dam at <https://on.doi.gov/2F6uEVA>

## APPLICATION: Make a concrete casting

Start with about \$14 and a strong parent to take you to a building supply store. Pick up a bag of pure Portland Cement (named after the Isle of Portland, in England) and store it in a dry place. It will weigh 94 pounds, so get some help, and remember that cement dust is bad for you. Mix the one part cement powder with about three parts sand, and some gravel (or marbles!); along with enough water so the goop can pour into a mold. Make a handprint or drop in some coins, or scratch a design with a stick before your cement hardens. Here are more ideas <http://bitly.com/2F7Zs8u>. If you happen to own a kiln and a rock crusher, you can make your own concrete. Learn how at <http://bitly.com/2F63NYG>.



## Concrete on YouTube

Want more? Here's a video playlist that go along with this column:

<https://www.youtube.com/playlist?list=PLcBVHzUUEKwKvcbR-4ZGdUQnDBPrgrlW>

