

## Fish Teach Humans to Make Better Ceramics

When scientists finally learn how to make ceramics that can endure high temperatures and conduct electricity without resistance, they may have to thank the sea urchin for teaching them how to do it.

While the ceramics that humans manufacture are fairly strong and resist forces that destroy other materials, they have their imperfections. They are not shatter resistant. And it takes a lot of heat to create them. On the other hand, mollusks like the nautilus and sea urchin make shatterproof ceramics out of calcium carbonate—which is chalk—using no heat and a little water. And the mollusk-created ceramics come in intricate shapes often much more complex than those made by humans.

Scientists are now studying how mollusks make their ceramics so that we can also make better ones. The processes they are learning will enable the manufacture of strong ceramic materials that conduct electricity without resistance. They will be cheap and easy to make, yet they will provide us with better building materials and even artificial bones.

Scientists are learning that the secret to making superior ceramics uses cheap materials and a very complex series of chemical reactions carried out by special cells in ceramic-making mollusks. It's definitely not a system that was worked out by no one at all through chance and accident. In effect, science is seeking to learn how the Creator made ceramics, so that we can do it too!

### **Genesis 1:31**

**"And God saw every thing that he had made, and, behold, it was very good. And the evening and the morning were the sixth day."**

Prayer: Father; I often forget that Your wisdom extends to very material things, things which I don't usually associate with the spiritual. Teach me not to separate the spiritual and material, but see them both as coming from Your Hand. Help me to glorify You in spiritual as well as material matters. In Jesus' Name. Amen.

REF.: Amato, Ivan. Better ceramics through biology. *Science News*.