mystery science

Grades K-5
Mini-Lesson: “How is glass made?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Doug! I recently came across this unbelievable video. It was taken at a hotel, where on the roof of the hotel, they have this pool that hangs off the edge and it has a glass bottom! Look at this. Would you go in there? Would you trust this glass?

Someone named Benjamin has a question about glass. Let's give him a call now.

[Video Call]
- Hi, Doug!
- Hi, Benjamin!
- I have a question for you. How is glass made?
- That's a great question.

It's funny, right? Think about just how many objects around you are made of glass. Without glass, we'd have no windows, no windshields for our cars, no drinking glasses, or eyeglasses. No skyscrapers or smartphones. And yet, it's really not obvious at all where glass comes from.

Like, if you're sitting there, and you have a table or a desk in front of you like this, that's wood. I'm guessing you know that wood comes from a tree. Or this statue here is carved from stone.

You know where that comes from. But glass? Glass is a material that has to be made. How do they make it? Where does it come from?

VIDEO 2

Well, believe it or not, glass is made by taking a bunch of sand and getting it so hot that it melts. It's one of the most amazing things to watch how it's made because, in order to melt sand, you have to use a special type of oven that can get super hot. It's called a *furnace* or a *kiln*.

Here, you can see someone loading some sand into the furnace. Once it gets hot enough, it will melt, or become liquid. And when you get something this hot, you can see it glows just like lava. This isn't lava, though—it's *molten sand*. And as it cools, it will start to look more familiar to you. It becomes solid glass.

To make a flat sheet of glass like you'd use for a window, they melt sand until it's molten, then they pour it out and roll it into a flat shape like this, and carefully allow it to cool.

More fancy objects like a glass vase are even more fun to watch. This involves a special skill called glass blowing. You can see here, it starts with this person taking a big glob of molten sand and getting it on the end of a hollow pipe. Then she blows air into the pipe. You can actually blow a bubble into it, which might end up being the open part of the vase. The molten glass has a similar thickness to honey. They carefully shape it the way they want it and keep turning it and turning it. As it cools, it becomes solid. Artists can make amazing sculptures with glass. Believe it or not, this artist is making a glass swan.

So that's how glass is made. But it's kind of weird, isn't it? I mean, how did people ever discover that if you melt sand, it makes glass? We've been making glass for a long time—so long ago now that no one knows for sure who was the first person to discover that if you melt sand, it makes glass.

But some of the earliest objects made of glass come from ancient Egypt, a place covered in desert sand. Could it be that someone long ago had a campfire and noticed that the heat of their fire melted the sand beneath it? No one knows for sure, but it's possible.

That's all for this week's question. Thanks, Benjamin, for asking it!