mystery science

Grades K-5
Mini-Lesson: “Can you make lava?”

VIDEO TRANSCRIPT

Hi, it's Doug! I find lava fascinating. I've never gotten to see lava flowing out of a volcano in real life, but I'd love to go somewhere like Hawaii and actually get to see it. This is a lava lamp. It's not real lava, of course. That stuff is made out of wax, the same stuff that crayons are made out of. But it looks like lava.

Someone named Dayshaun has a question about lava. Let's give him a call now.

[Video Call]
- Hi, Doug!
- Hi, Dayshaun!
- I have a question for you. Can you make lava?
- That's a great question.

Have you ever seen lava up close? You might think you could never get very close, that it'd be super dangerous, but there are some places where the lava just kind of slowly oozes out, and it is possible for people, if they're careful, to get very close. You definitely wouldn't want to touch it.

Just watch what happens in this video. Someone in Hawaii put a camera on a rock near flowing lava. The lava gets closer and closer, and when it touches the camera, you can see it catches fire. The lava's *that* hot. You can see that lava is really, really hot, so hot that it glows.

But what is lava? Now would be a good time to pause the video and discuss.

Okay. You ready?

We can get one big clue by looking at what happens to the lava after a few days—after it stops erupting. Like, here's what lava looks like when it's red-hot and oozing over things. We call that molten, or liquid lava. Before, it looked like this, but after a few days, it looks like this. Once lava cools down, it looks like it turns black. What is that?

If we look up close, it's rock. Scientists call this kind of rock a lava rock because, well, that's where the rock came from. Lava starts as a hot flowing liquid, but once it cools down, we can see it becomes solid rock.

Here's another way to think about it. You probably know that when you pour water into an ice cube tray and put it in the freezer, the liquid water freezes into solid ice. It's not like the ice cubes just appear out of nowhere. Ice comes from frozen water. Well, these rocks are the frozen form of lava. As liquid lava cools down, it becomes a solid just like how if you cool liquid water down, it becomes a solid, too.

The difference is that you don't have to put lava in a freezer for it to cool down. As soon as lava comes out of the volcano—it's starting to cool down enough to become solid rock.

Okay, so we know that we can turn lava into rock by cooling down the lava. But what if we did the reverse? Could we create lava by heating up a rock?

The answer is yes. In fact, this is exactly what some scientists do. They create lava by heating up rocks in a really hot oven. These scientists are nowhere near a volcano, but they've made their own lava, and they pour it into different things, like sand, dirt, or ice, to try to learn more about how lava flows.

Deep down in the Earth it's hot enough down there to melt solid rock into liquid lava. But there's a lot we still don't understand—which scientists are excited to figure out, like why volcanoes appear in certain places and not others.

When lava starts to form deep underground, scientists call it magma. Then if it reaches the surface of the Earth, like if it comes out of a volcano, we call it lava.

So in summary, lava is created by solid rock getting heated up so hot that it melts into a liquid. This happens naturally deep down in the Earth, but you can also make your own lava in a really hot oven.

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