mystery science

Grades K-5
Mini-Lesson: “Why do we have tears when we cry?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Doug! It might sound like I've been crying, but I haven't been. If my voice sounds funny, it's because I've had a cold. Someone named Poppy has a question about crying though. Let's give Poppy a call now.

[Video Call]

- Hi, Doug!

- Hi, Poppy!

- I have a question for you. Why do we have tears when we cry?

- Ooh, that's a great question.

Feeling sad is never fun, and neither is seeing another person feeling sad. But don't worry, in this video, those are fake tears—just drops of water put on an actor to make it look like they're sad because I don't want you to feel sad as you see any of this. Instead, I want you to feel curious about tears. When we stop and think about it, tears are really kind of weird, aren't they? Why is this that when we cry, when we're really sad, water comes out of our eyes and drips down our face? It's possible to think, well, that's just what crying is. But when we have other feelings or emotions, most of them, we just express using our faces. Think about it—emotions like feeling happy, feeling angry, or feeling surprised—is there something special about feeling sad that explains why our eyes fill up with water? Do tears have any purpose? Do they help our

body in some way? Well, we know at least a couple of things for sure that tears help us to do. One important clue is to notice where your tears get made. Right here on each side of the top of your eye, you have a little tiny organ inside your body called the lacrimal gland, or a simpler name for that is the tear gland. It's what creates tears and then it sends them through little tubes connected to the inside of your eyelid. If you've ever gotten a little piece of hair or dust in your eye and started tearing up, by releasing tears from up here at the top of your eye, the tears then flow downwards over your eye and help your body wash your eye off when you've got something on it. In fact, it's not just when you've got something on your eyes that tears are helpful. It's important for the whole surface of your eye to always stay somewhat wet. If your eyes get too dry, they can get damaged. So even when you're not crying, your lacrimal gland is actually always making tears. It sends them down these tubes in tiny amounts to make sure your whole eye always stays wet. With all those tears flowing constantly, you might expect they would eventually pool up and make it look like you're crying. But there's a second set of tubes right here called the tear ducts which collect the tears that have flowed down over the eyes and drain those tears into your nose. It's like a drainage system for your tears. Weird, huh? But this totally explains why if you've ever noticed when you start crying a lot, you get a runny nose. Okay, so tears help us wash our eyes out, and they keep our eyes from getting too dry, but tears when we get sad too?

VIDEO 2

People have come up with lots of different ideas. Some of these ideas, scientists have been able to test. For example, one idea people used to have about why we get tears when we're sad is that maybe, when you get sad, your body gets hotter, and so maybe crying is something our bodies do to help cool us down. It's like sweating for when you're sad. But once thermometers

were invented, this was an idea that was pretty easy to test. And guess what? It turns out our bodies don't get hotter when we're sad. So why do we have tears when we're sad? Scientists have lots of other ideas, but so far, a lot of these ideas have been hard to test. Most scientists agree the truth is nobody knows, at least not yet. Why we cry tears when we're sad is one of the great mysteries of the human body. Maybe someone out there watching this video will be one of the people who figures it out. One thing that might be an important clue is what we notice when we compare human beings with other living things. Do animals have tears? Apparently, lots of animals do. Dogs get tears. Cats get tears. Elephants get tears. Look there. Even crocodiles get tears. But so far at least, it seems like all of these animals' tears are only to keep their eyes from getting too dry and to wash their eyes if something gets on them. As far as we know, no animals cry tears when they feel sad. Crying tears when we feel sad seems to be something that's unique to people. So if there is some purpose to our sad tears, some reason that they're helpful, whatever it is, maybe it has something to do with being human. Maybe some special way that we form bonds with each other or some way we let each other know that we need some friendship or help. So in summary, tears are something lots of animals have, which help their eyes, including us, but tears of sadness—that's unique to us, and so far, we're not sure why. That's all for this week's question. Thanks, Poppy, for asking it!