

Grades K-5

Mini-Lesson: “Why does hair turn gray?”

VIDEO TRANSCRIPT

VIDEO 1

Hey, it's Danni! I want to show you a picture of someone very special to me. That's my grandma. This was taken on her birthday when she turned eighty-three years old. Someone named Yusra is curious about a change that happens as people get older. Let's give Yusra a call now.

[Video Call]

- Hi, Danni.
- Hi, Yusra.
- I have a question for you. Why does hair turn gray?
- That's a great question.

Humans have so many cool hair colors, all different shades of brown, red, black, and blonde. And along with all this natural variety, there are also colors that people dye their hair, like pink, green, and rainbow swirl. As people get older, their hair color can also change. Today, my grandma's hair is silvery white, but here's a picture of when she was younger. Back then, her hair was brown. Maybe you know someone whose hair has turned gray over time as well. So why is it that someone whose hair is naturally brown, or red, or black, or blonde can end up with hair that's gray? To figure this out, let's start with how hair grows. If you look closely at a single strand of someone's hair, you can follow it back to their head. Right? Here's what that looks like up close. See if you can tell where the strands of hair are coming from. What do you notice?

VIDEO 2

I'm not sure how you answered, but maybe you noticed how each strand comes out of a tiny hole in the skin, like this one here. If you could look inside that tiny hole underneath the skin, you'd see where hair starts growing. Inside each hole is a little thing called a follicle.

A follicle produces material that your hair is made out of. The material builds up bit by bit, creating the strand of hair we see. This part of your hair isn't alive. It only grows from this end. That's where the follicle keeps adding more material, which makes the strand longer. Then, eventually, that strand falls out, and the follicle starts forming a new strand in its place. If you're curious to know more, we have a lesson all about how hair grows. But those are the basics, except for one very important detail. You see, as each follicle makes hair material, your body adds a substance called melanin. Melanin is what gives your hair its color. It's what gives your skin and eyes their color too. Hair color comes from two main kinds of melanin, one that's more black brown and one that's more red yellow. That means from just two kinds of melanin, we get all of these natural hair colors. How amazing is that? All that variety comes from different amounts and combinations of the two. So your hair has its own particular melanin mix. But now check out this person's hair that's starting to go gray. See how they have some strands that are dark and some that are lighter? What's going on there? Well, over time, when new strands form, less and less melanin gets added to the hair material. A strand with less melanin ends up looking lighter. That's because the material our hair is made out of is pretty much colorless, as in no color. Without melanin, a strand of hair is basically clear, but when light hits it, the strand ends up looking more silvery white. So even though we call them gray hairs or white hairs, we're really talking about nearly clear hairs. Sounds strange, but it's true. And when a person's hair turns gray, it's because they're growing more of those nearly clear hairs with less melanin.

Scientists are still studying why less melanin gets made and added to hair material over time. But overall, growing gray hairs is just a normal part of getting older, and it's not something you have much control over. If your grandparents and parents got gray hairs in their twenties, there's a good chance you will as well. Or if they have dark hair into their seventies, that might be you someday too. That's because people who are related tend to get gray hairs around that same age. So in summary, hair has color because of a substance called melanin. Over time, less melanin gets added as new strands of hair form. Strands with less melanin look lighter because the material our hair is made of is pretty much clear. So when someone's hair looks gray or white, it really means they're growing more of those nearly clear strands instead of colorful ones. Without melanin, we'd all be rocking clear hair. That's all for this week's question. Thanks, Yusra, for asking it.