mystery science

Grades K-5
Mini-Lesson: “How do you know if you need glasses?”

VIDEO TRANSCRIPT

VIDEO 1

Hey, it's Esther! When I was in kindergarten, something happened that changed my life. One morning, my teacher taped a piece of paper to the wall that looked like this. She had us all take turns standing in front of the paper. When it was my turn, the teacher told me to cover one eye and tell her what letters I saw. Then she had me do the same thing covering the other eye. At the time, this seemed like a strange class activity. But now I know that it's a really common thing to do, especially at the start of a school year. Someone named Luna has a question about why we do stuff like this. Let's call Luna now.

[Video Call]

- Hi, Esther.
- Hey, Luna.
- I have a question for you. How do you not finger glasses?
- Great question.

I didn't know it then, but the poster my teacher taped up was actually the beginning of my journey to getting glasses. This is an eye chart. This eye chart has letters, but they make different kinds. This one has pictures. Instead of reading the letters, you say what shapes you see. This one has the letter e tipped in different directions. You point in the direction the e is

facing. Maybe you've used an eye chart before. What do you know about why people use eye charts?

VIDEO 2

When I used the eye chart in kindergarten, I could see the first row of letters. But by the second row, it looked blurry. When I stepped closer, I could see all the letters clearly. I was worried that I'd done something wrong, but teacher let me know I'd actually use the eye chart exactly right. The purpose of an eye chart is to find out what you see clearly and what looks blurry. I could see near clearly, but further away, even just a few feet away, things looked blurry. This was a sign that I'm nearsighted. Some people, when they use an eye chart, they find out the opposite. They can see clearly from several steps away, but when they step up close, the chart looks blurry. That's a sign that they are farsighted. Some people see blurry both near and far or see pretty clearly from both distances. Some find out that one eye sees more clearly than the other. There's lots of possible differences. Okay. But why these differences? For a person to see, lots of different parts of their eye and brain have to work together. When I look at my eye in the mirror, Some of those parts are really easy to notice. I see a black dot at the center. I see a brown part around that. And I can see a white part in the corners, but there are more parts that are harder to see. At the very front of your eyes, there's a layer that see through. And that white part in the corners, most of that layer is actually inside your head. It goes around your entire eyeball. Here's what your eyeball might look like sitting inside your head. The inside of your eyeball has even more layers from this extra see through layer at the front to this one at the back. To the gel that gives your eyeball its roundish and squishy shape. How each of these parts is shaped matters. Think of it this way. When you look through the glass in a window, you can usually see what's on the other side clearly, but try looking through a glass that's not built for

windows. Like the glass at the bottom of this cup. The view through this is blurry. The glass in this cup is shaped just slightly differently from the glass in the window, but that tiny difference is enough to make things look blurry. When all the parts of a person's eye are shaped in a specific way, they can usually see clearly. But for many people, One or more parts of their eye are shaped just slightly differently. The result, things look blurry. Eyeglasses act like an extra layer of someone's eye. The lenses inside glasses are carefully shaped so that they help adjust for the unique way the wearer's eyes are shaped. The result, things look clear. You can't always tell just by looking at someone's face whether they see clear or blurry. That's why people use eye chart and other tools for studying sight. When you know exactly how you see and don't see, you can find the right tools to help you get around your daily life. For me, that meant getting my first pair of glasses. When I put on my first pair of glasses, the way I saw changed Before I had to sit up super close to the board to see writing on it. With my glasses on, I could see it clearly from the front and back row. So in summary, the parts of every person's eyes are shaped differently, and that means we see differently. Glasses are tools that help some people see more clearly. To learn more about how your eyes work, you can ask an adult to help you use an eye chart. That's all for this week's question. Thanks for asking, Luna.