Name: _____ Date: _____

Two Pictures, One Deep World

Reading level 8 (4th grade) · 800 words

Before anyone puts on a headset, Ms. Okafor asks the group to hold up one finger. "Close your left eye," she says. "Now close your right." The finger seems to jump sideways. Your eyes sit a few centimeters apart, a little over six in a grown-up. Each one sees from a slightly different spot. That jump is the difference between the two pictures.

Your brain joins those two pictures into one. The small difference between them helps it judge how deep things are. In 1838, a man named Charles Wheatstone showed something odd. Two flat drawings can look like one deep picture. Each eye must see only its own drawing. He built a viewer called the stereoscope to do it. Every headset today uses that same old idea.

Inside a virtual reality, or VR, headset there is a small screen for each eye. In front of each screen is a lens. It makes the screen look bigger. The machine draws the view twice. One picture is for the left eye, and one is for the right. They are drawn from two slightly different spots. Your brain joins them, and the room looks deep.

Probably the first headset like this was built in 1968 by Ivan Sutherland. It hung from the ceiling on a long arm. The arm took some of the weight. It also tracked how the wearer's head moved. It showed simple rooms drawn with lines, like boxes made of wire. A Quest 3 headset weighs about half a kilogram. It needs no ceiling at all.

Now Ms. Okafor turns her head, and the picture turns with her. The headset has sensors that feel each move of the head. If the picture came late, your eyes and your body would not agree. So the picture must change very fast. A headset made in 2016 drew new pictures 90 times every second.

Newer headsets also look at the room. Small cameras on the front find the walls and the floor, and the headset works out where you are. When you step forward in the room, you step forward in the game. The cameras need a bright room to work well. In a dark room, the headset can lose track of you.

Here is the rule that Ms. Okafor says first and says most. You cannot see the real room. So the group clears the floor before anyone puts on a headset. Chairs, bags and people move out of the way. The headset draws a boundary for the play area. But a line made of light cannot stop you. You can still walk into a wall.

Some people feel sick in VR. In the game, you may seem to move. But your inner ear says you sit still. The inner ear is where your body feels turning and balance. When your eyes and your ear tell two stories, the brain gets mixed up. It feels a lot like car sickness. Doctors call it cybersickness.

The makers give advice about this. Start with short turns and long breaks. Stop if you feel dizzy or sick, or if your eyes hurt. The American Academy of Pediatrics, a group of children's doctors, suggests breaks of about fifteen minutes. A child may not say when their eyes bother them. So a grown-up can help watch the clock.

Headsets come with age rules, and the makers write them. Meta says children under ten cannot use its Quest 2 and Quest 3 headsets. For ages ten to twelve, a parent has to set up and run the account. Meta also says its age rules can differ by country.

Other makers pick other ages. Sony says its PlayStation VR2 is not for children under twelve. Apple says its Vision Pro is for ages thirteen and up, and that even thirteen-year-olds should be watched by an adult. These rules were on their pages in November 2026, and makers can change them.

Why the rules? Meta's safety page says headsets are not recommended for younger or smaller children. Children's doctors say most makers pick twelve or thirteen. They say a headset may be heavy. It may also not fit a child well.

What does the research say? In one small study, fifty children played two half-hour turns. Their vision tests did not change. Their tired eyes and queasiness rose a little, and three stopped early. Studies of the years after that are still missing.

VR is not only for games. At NASA, astronauts wear headsets to practice spacewalks in a pretend space station. In a 2002 study, young surgeons trained on a VR simulator. It used a screen, not a headset. They then did one operation faster, with fewer mistakes. Hold up one finger. Close one eye, then the other. That small jump is what every headset has to fake.

Questions

1. Why does a finger seem to jump when you close one eye and then the other?

A. Each eye sees from a slightly different spot
B. Your finger is moving
C. Your eyes are different colors

2. Why does the group clear the floor before anyone puts on a headset?

A. The headset only works on a bare floor
B. The floor must be shiny
C. A wearer cannot see the real room, and a line of light cannot stop them

3. What does "boundary" mean in this book?

A. The edge line of the play area
B. A loud warning
C. The battery of a headset

4. What does the book say can make some people feel sick in VR?

A. The headset gets too hot

B. The eyes and the inner ear tell different stories

C. The floor shakes

5. Why does the book say researchers are still studying headsets and children?

A. Children do not want to wear them

B. Headsets are too new for anyone to be sure

C. The tests so far were short, and no one has checked over many years

6. Which maker says its headset is not for children under twelve?

A. Apple

B. Sony

C. Meta

Words to know

headset: worn screens

sensors: feeling parts

boundary: edge line

cybersickness: VR queasiness

stereoscope: two-picture viewer

Answer key: Two Pictures, One Deep World

1. A. Each eye sees from a slightly different spot
2. C. A wearer cannot see the real room, and a line of light cannot stop them
3. A. The edge line of the play area
4. B. The eyes and the inner ear tell different stories
5. C. The tests so far were short, and no one has checked over many years
6. B. Sony