

The Wonders of Flight

Lexile 920
7th



Maria gripped the handles of the airplane seat and squeezed her eyes shut. Engines fired up one by one, and the inside of the cabin soon filled with their powerful roar. Maria had put in earplugs to block out the noise, but some of it crept in anyway. She could sense the plane preparing for takeoff. Her mother, who sat next to her, reached out to stroke her hand, but she shook off this comforting touch. Maria did not want anyone, not even her own mother, to know just how terrified she was. Across the aisle, her older brother Luis sat with his arms loose and relaxed in his lap. He chatted with their father about the hot springs and majestic mountains they were going to see in Montana, where they were headed on vacation. Luis showed no signs of fear. Maria felt a sharp pang of jealousy at her brother's courage.

Wheels turned with greater and greater speed. Wind rushed over the frame of the plane and added to the deafening noise. Suddenly, with a jolt that made her stomach lurch, they were in the air. Beads of cold sweat trickled down Maria's neck. All she wanted was to be back on solid ground. She hated the idea of being trapped in a flimsy aluminum and plastic tube, hurtling at 500 miles an hour through the skies. Every time she had flown on an airplane in the past, she had remained frozen in her seat for the entire flight, trembling and praying for a safe landing. This time, on her fourth trip, she had promised herself she would overcome this crippling fear. Instead of pulling down the window shade next to her, as she always did, she kept it open. Now she peered out the window cautiously, and couldn't help but marvel at the receding landscape of New York City below her: the neat rows of apartment buildings, trees and skyscrapers that now seemed small enough to pluck with her fingers. Puffy white clouds drew closer and soon moved right through the airplane wing. Then Maria noticed the wing flapping like a fragile leaf in a strong gust of wind. She closed her eyes again.

“We have now reached cruising altitude,” said the pilot. “You may remove your seatbelts.” Maria stayed put but ventured another glance out the window. It had been raining all night but seemed as though the sun would shine today. The sky now appeared as a beguiling mix of dark rainclouds and bright yellow light and little pockets of sky blue. Maria gazed in wonder at this close-up view of the skies. After a few moments, she saw what seemed to be a rainbow poking out of a cloud. As the plane moved along she could see it more clearly. It was the most beautiful rainbow she had ever seen. Its colors were vibrant and sharp, and it was in the shape of a full circle instead of the usual semicircle. For a minute she thought she was imagining this magnificent rainbow, but it did not go away when she blinked her eyes a few times. Forgetting her fears altogether, she exclaimed, “Look, Luis! Mom! Dad! A rainbow!” Luis and her parents got out of their seats and huddled around her window to take a look.

“I have never seen anything like it in my forty-two years on this planet!” said her father. “A circular rainbow!”

“Well spotted, Maria!” said her mother.

Luis looked at her with a bit of envy for having made such an interesting discovery. But eventually, he too complimented Maria for finding the rainbow. “Very cool,” he said, appreciating the sight.

Everyone else on the plane started to wonder what the buzz was about, and soon other passengers and even flight attendants wandered over to Maria’s side of the plane to gaze at the unusual rainbow. Maria’s fears of flying seemed to have vanished. She snapped off her seatbelt and stood up. “Does anybody know why it is a full circle?” she asked. “And why does a rainbow even appear? I’ve never quite understood it.”

A slim young woman wearing wire-rimmed glasses happened to be sitting behind Maria. “That’s a very good question, young lady,” she said. “I’m Laura,” she said, holding out her hand. “I’m a physicist, and I study the way light travels from stars like the sun. Would you like me to explain to you a bit more about rainbows?”

“Yes,” said Maria, nodding excitedly. She had just finished snapping pictures of the rainbow with her smartphone. “I know it has something to do with the way sunlight hits water particles in the air, right?”

“Yes,” said Laura, “That’s exactly right. You only get a rainbow when sunlight hits fine particles of water—mist or fog, or even falling raindrops. Normally we only see sunlight as bright white or yellow in color, but when a ray of sunlight hits a water droplet suspended in the air, the sunray bends its path, bouncing off the water droplet in a completely different direction. As it bounces off, the sunray gets split up into all the different wavelengths of light that it is composed of: red, orange, yellow, green, blue, indigo, and violet. That’s when we see a rainbow.”

“Interesting,” said Maria. “But why doesn’t sunlight form rainbows when it hits other particles, like human bodies for instance?”

“Because sunlight, like all light, normally travels in straight lines, even when it comes into contact with other substances like human flesh, or a tree, or a piece of wood. Only when it hits water or some other transparent material, like glass, does the sunray bend. And only when it hits water does it bend in such a way that it gets broken up into all of its wavelengths of color, forming a rainbow.”

Maria stared at Laura in awe. It was amazing that she knew how to explain the science behind that beautiful sight out the window. A group of people now huddled around Laura as she explained things.

“What I really want to know is,” said Luis. “Why this rainbow is a circle? Can we get to that part now?”

“Yes, of course,” said Laura, with a twinkle in her eye. “That’s easy to explain. Normally we view rainbows from the ground, and the surface of the earth breaks up the rainbow and stops us from seeing it as a whole. From high up in the air we can see the full effect because there is no land mass blocking off the other half of it. Maria was very, very lucky to have spotted a rainbow from an airplane window. It’s rare to see a full circle rainbow, and we might not have another chance for the rest of our lives. She’s made this a flight to remember for all of us.”

Everyone on the plane erupted into applause. “Well done, young lady!” said an old man, patting her on the back before pulling out his camera to take photos.

After a few more minutes the rainbow drifted out of view, but the joy of discovering it stayed with Maria for the rest of her flight. Now she would have a great story to tell her friends when she got home. Even when the plane hit a patch of turbulence and jolted around a bit in the air, Maria did not feel as afraid as she had before. She now appreciated that the airplane was a marvelous invention that had allowed her to see something rare and beautiful, something that she would never have seen on solid ground. When the plane touched down in Montana, she knew that thanks to the special rainbow she had been so lucky to see, she had solved her fears of flying.

Name: _____ Date: _____

1. Where does this story take place?

- A Montana
- B New York City
- C on an airplane
- D in a helicopter

2. What main problem does Maria face?

- A She does not want to go on vacation.
- B She is afraid of flying.
- C She does not like her brother.
- D She has never seen a rainbow.

3. Maria is trying to get over her fear of flying. Which details from the text support this statement?

- A Maria keeps her window shade open instead of closing it like she usually does.
- B Maria stays in her seat with her seatbelt fastened.
- C Maria wears earplugs to block out the noise.
- D Maria spots a rainbow.

4. How does Maria feel about discovering the rare circular rainbow?

- A bored and uninterested
- B jealous and annoyed
- C scared and doubtful
- D happy and excited

5. What is this passage mostly about?

- A Maria's family vacation to Montana
- B the beautiful mountains and hot springs of Montana
- C how a rainbow helps Maria overcome her fear of flying
- D the scientific study of light waves

6. Read the following sentences: "It had been raining all night but seemed as though the sun would shine today. The sky now appeared as a **beguiling** mix of dark rainclouds and bright yellow light and little pockets of sky blue. Maria gazed in wonder at this close-up view of the skies."

What does "**beguiling**" mean?

- A fascinating or attractive
- B ugly or uninteresting
- C bright or colorful
- D strange or mysterious

7. Choose the answer that best completes the sentence below.

Rainbows are usually shaped like a semicircle, _____ the rainbow Maria saw in the sky was a full circle.

- A thus
- B also
- C finally
- D but

8. How are rainbows formed?

9. Why does Laura the physicist say that Maria "made this a flight to remember"?

10. How did Maria's attitude towards flying and airplanes change throughout the course of the story? What caused this change?
