VIDEO Soar on a zipline!

A Wild Ride

A Scholastic editor rode a zipline course and learned how they're built

The Wild Zipline Safari isn't your average zipline course. Riders soar through forests, over ponds, and—if they're lucky—right over the head of a zebra! The course is located at The Wilds in Cumberland, Ohio. It's a 10,000-acre habitat for rare and endangered species.

A few months ago, I traveled to The Wilds to learn more about its unusual zipline course—and to experience it firsthand.

The starting point of the Zipline Safari is 24 feet off the ground. Standing at the edge of the platform made me woozy. In front of me was a thick cable, called a zip, that stretched to the next platform over the hills below me. My guide attached my harness to a trolley system on the first cable. I stepped off the platform and WHOOSH! I zoomed down the cable and began my journey through the course.

But I didn't travel to Ohio just to ride a zip. I also wanted to learn how zipline courses are built. For that, I spoke to engineer Larry Gerstner. He designed the course and several others in the area.

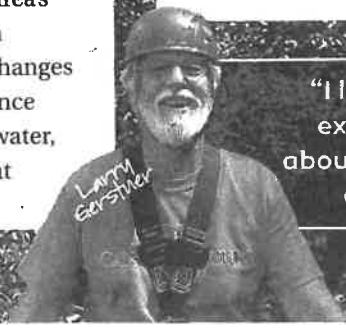
Gerstner begins designing a course by studying the area's terrain. He uses high-tech survey tools to measure changes in elevation and the distance between trees, bodies of water, and other landmarks. That data helps Gerstner arrange the course's platforms—the structures that the cables attach to. When he was working on the course at The Wilds, Gerstner's main goal was to give riders a lot of opportunities to spot animals.

The measurements also help Gerstner know how high to build each platform. Ziplines rely on gravity to carry people through the course. A steeper slope makes for a faster ride. The longer the zipline, the steeper its angle has to be so that a rider picks up enough speed to reach the next platform. Gerstner adjusts the length and angle of a cable so that riders reach a top speed of about 40 miles per hour—a speed that's both exciting and safe.

My favorite zip stretched a distance of 710 feet over a large pond. On its banks, I spotted a rare species of deer native to China. I also saw wild horses and giraffes.

After my ride, I was exhausted but also exhilarated. For Gerstner, who has zipped 45 courses around the world, the best part of his job is watching people finish their first course, he says.

—Maggie Mead



"I love seeing how excited riders are about what they've accomplished."

WORKING WITH RATE

online 2 SKILLS SHEETS

When zooming down a zipline, you travel at different speeds depending on the length and angle of the zip.

Rate is a type of ratio in which each part is a different unit. In a rate that describes speed, the two units are distance and time. Here's the equation for the relationship between distance, rate (speed), and time:

Distance = Rate × Time

EXAMPLE: You're about to go down zip A. You travel at an average speed of 25 miles per hour along a 170-foot-long zip. How long was your trip in seconds?

Step 1 Place the known quantities into the equation.

Distance = 170 feet
Rate = 25 miles per hour
Time = T

Distance = Rate × Time

170 feet = 25 miles per hour × T seconds

Step 2 Convert the unit of miles per hour to feet per second.

$$\frac{25 \text{ miles}}{1 \text{ hour}} \times \frac{5{,}280 \text{ feet}}{1 \text{ mile}} \times \frac{1 \text{ hour}}{3{,}600 \text{ seconds}} = 36.666\ldots \text{ rounded to } 36.7$$

Step 3 Replace the rate with the new rate in feet per second.

170 feet = 36.7 feet per second × T seconds

Step 4 Divide both sides of the equation by 36.7 to isolate the variable.

$$\frac{170 \text{ feet}}{36.7 \text{ feet per second}} = \frac{36.7 \text{ feet per second} \times T \text{ seconds}}{36.7 \text{ feet per second}}$$

4.632 . . . seconds = T seconds

→ **So your ride on zip A lasted about 4.6 seconds.**

YOUR TURN

It's your first time on a zipline course! After strapping on your harness and helmet, you're ready to go. Use the chart to answer the questions below.

ZIP	AVERAGE SPEED	TIME	DISTANCE TRAVELED
A	25 mph	4.6 sec	170 ft
B		7.3 sec	270 ft
C	30 mph	6.1 sec	
D	27 mph		444 ft
E		15.1 sec	710 ft
F	33 mph	9.9 sec	

1 Complete the missing values in the chart to the right. Don't forget to convert between units when necessary! Round all answers to the nearest tenth.

2 How many total feet did you travel on the course?

3 If it takes about 5 minutes to switch zips on each platform, how long did it take to complete the course? (*Hint: Don't include the time to hook up to the first zip.*)

4 Pick a length for a zip to add to this course. Write and solve an equation to find how long it would take a rider to complete your new zip if he or she zoomed at an average rate of 30 miles per hour.