

Up to Speed



Cedar Fair

Top Thrill Dragster is the world's second fastest roller coaster. It is topped only by Kingda Ka.

Thrill Ride

Kingda Ka is one wild ride.

As you wait in line, you hear the screams of people riding the roller coaster. Part of you can't wait to ride it; another part of you wants to bolt in the opposite direction. Before you know it, it's your turn to board. You brace yourself.

Whoosh! With a roaring blast, the thrill ride rockets from 0 to 128 miles per hour in 3.5 seconds. Before you can catch your breath, the train whisks you straight up 456 feet. When it can go no farther, gravity plummets the coaster downward into a dizzying spiral twist. The train then whips you through another valley and zooms up another hill.

Congratulations! You have just experienced one of the fastest-and tallest-roller coasters on Earth.

King of Coasters

Kingda Ka, or the "King of Coasters," opened in the spring of 2005 at the Six Flags Great Adventure theme park in Jackson, New Jersey. The jaw-dropping thrill ride shattered the world's record for roller coaster speed and height when it opened. Of the more than 1,000 roller coasters in the United States, it was the latest "extreme" coaster to be built.

Six Flags roller coaster designer Larry Chickola said that building Kingda Ka wasn't easy. "We considered the wind strength, the possibility of earthquakes, the weight of Kingda Ka itself, as well as the forces caused by launching a [coaster faster than one] has ever gone," he told *Weekly Reader*.

How Coasters Work

Changes in **energy** enable roller coasters like Kingda Ka to move for most of the ride. According to scientists, energy is the ability to cause change. At the beginning of the ride, Kingda Ka blasts passengers to a speed of 128 miles an hour with technology similar to the kind that launches Navy jets from aircraft carriers. Each train on Kingda Ka is hooked up to a hydraulic cable. Liquid under high pressure is pushed through the cable. Along with motors, the hydraulic power rockets the coaster skyward.

After reaching the top of the first hill, the coaster works in the same way your bike does when you roll, pedal-free, down a slope. When a roller coaster is stopped, it has **potential energy**, or stored energy. At any moment, the coaster can move, so it has the potential for motion.

As the roller coaster starts cruising, gravity takes over and converts the potential energy into **kinetic energy**, which is the energy of motion. The repeated changes of potential energy to kinetic energy and then back again drive the roller coaster.

It's a Scream!

Kingda Ka covers 3,118 feet of track and lasts less than a minute. To roller coaster buff Steve Urbanowicz from New Jersey, the ride is a scream! "The ride seems like it's over really quickly, but Kingda Ka packs eight high moments of drama into those 50 seconds," he told *Weekly Reader*.

Urbanowicz speaks from experience. He has ridden more than 800 roller coasters around the world. In fact, he has taken more than 5,000 rides on one in particular—the wooden Cyclone at Coney Island in Brooklyn, New York, where the first true American coaster opened in 1884. "I loved going to amusement parks when I was a kid and never grew out of it."



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This illustration from 1886 shows passengers getting a one-minute ride for 5 cents aboard Coney Island's coaster.

Cool Coasters

- The idea for the roller coaster was born in Russia in the 1600s when huge blocks of ice, supported by wood, were made into sleds. Straw or fur covered the icy seats.
- Coney Island in Brooklyn, New York, is credited with beginning America's amusement park history, in 1875. The nation's first coaster opened there in 1884 and cruised all of 6 miles an hour!
- Some of the best coasters of all time were built during the 1920s. That era reigns as the golden age of amusement parks. By the end of the decade, the stock market crash of 1929 and the Great Depression caused many parks to close.

Name: _____ Date: _____

1. The author begins the passage by having the reader imagine getting on the Kingda Ka to

- A. warn the reader about the coaster.
- B. make the reader interested in the passage.
- C. challenge the reader to ride the coaster.
- D. explain the feelings people will have when riding large coasters.

2. When the author says, "You brace yourself," he means you

- A. hand over your ticket.
- B. put a special brace across your body.
- C. secure yourself for the ride.
- D. make your partner secure.

3. After the roller coaster has used potential energy, it

- A. is launched skyward.
- B. stops.
- C. is no longer safe.
- D. uses kinetic energy.

4. Steve Urbanowicz says that, "The ride is a scream." This means

- A. The ride is thrilling.
- B. The coaster cars scream when people get on.
- C. If you want to ride the coaster, you have to scream while you are on it.
- D. The ride makes everyone scream.

5. The author uses a lot of words that mean exciting and scary. List two words that have the same meaning as exciting and scary. Explain what they mean.

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Answers will vary. Students should list some figurative language that the author uses and explain what it means. The author uses the word "jaw-dropping" as a way to explain that the ride is scary. The author uses the word "scream" to show that the ride is exciting.