The roller coaster is a popular amusement ride developed for amusement parks and modern theme parks. LaMarcus Adna Thompson patented the first coasters on January 20, 1885. In essence a specialized railroad system, a roller coaster consists of a track that rises in designed patterns, sometimes with one or more inversions, such as vertical loops, that turn the rider briefly upside down. The track does not necessarily have to be a complete circuit, as shuttle roller coasters exhibit. Most roller coasters have multiple cars in which passengers sit and are restrained. Two or more cars hooked together are called a train. Some roller coasters, notably Wild Mouse roller coasters, run with single cars. NASA has announced that it will build a system using similar principles to help astronauts escape the Ares I launch pad in an emergency.

The oldest roller coasters are believed to be descended from the so-called "Russian Mountains," which were specially constructed hills of ice, located especially around Saint Petersburg. Built in the 17th century, the slides were built to a height of between 70 and 80 feet, consisted of a 50 degree drop, and were reinforced by wooden supports. "Russian mountains" remains the term for roller coasters in many languages.

Some historians say the first real roller coaster was built under the orders of Russia's Catherine the Great in the Gardens of Oreinbaum, in Saint Petersburg, in the year 1784. Other historians believe that the first roller coaster was built by the French. The Les Montagnes Russes à Belleville, or The Russian Mountains of Belleville, constructed in Paris in 1812 and in the Promenades Aeriennes. Both coasters featured wheeled cars securely locked to the track, guide rails to keep them on course, and higher speeds.

In 1827, a mining company in Summit Hill, Pennsylvania constructed the Mauch Chunk gravity railroad, an 8.7 mile downhill track used to deliver coal to Mauch Chunk, now known as Jim Thorpe, Pennsylvania. By the 1850s, the "Gravity Road," as it became known, was providing rides to thrill-seekers for 50 cents a ride. Railway companies used similar tracks to provide amusement on days when ridership was low.

Using this idea as a basis, LaMarcus Adna Thompson began work on the gravity Switchback Railway that opened at Coney Island in Brooklyn, New York in 1884. Passengers climbed to the top of a platform and rode a bench-like car down the 600 ft track up to the top of another tower where the vehicle was switched to a return track and the passengers took the return trip.[6] This track design was soon replaced with an oval complete circuit. In 1885, Phillip Hinkle introduced the first full-circuit coaster with a lift hill, the Gravity Pleasure Road, which was soon the most popular attraction at Coney Island. Not to be outdone, in 1886 LaMarcus Adna Thompson patented his design of roller coaster that included dark tunnels with painted scenery. "Scenic Railways" were to be found in amusement parks across the county, with Frederick Ingersoll's construction company building many of them in the first two decades of the Twentieth Century.

By 1912, the first under friction roller coaster had been developed by John Miller. Soon, roller coasters spread to amusement parks all around the world. Perhaps the best known historical roller coaster, The Cyclone, was opened at Coney Island in 1927. The Great
Depression marked the end of the first golden age of roller coasters, and theme parks in general went into decline. This lasted until 1972, when The Racer was built at Kings Island in Mason, Ohio, near Cincinnati. Designed by John Allen, the instant success of The Racer began a second golden age, which has continued to this day.