Roller coasters can trace their origins back to the 1400s and Russia. Ice slides were amusement devices found at fairs all over Russia. The slide consisted of a wooden frame that was covered with ice. The rider rode in a sled that was made from a block of ice. Sand was put at the end of the slope to slow the sleds down. The person sat on straw that was placed on the top of the block of ice and held on to a rope. The rope was wrapped through a hole drilled in the ice block.

The Mauch Chunk Railway is considered the beginning of the roller coaster in the United States. It was originally designed in 1870s as a transportation system for the coal mining industry. The coal mines in the area needed to move the coal taken from the mines on top of the mountain down to the port in Mauch Chunk, Pennsylvania, which was located 18 miles away. To solve this problem, a railway was built that would run the entire downhill course in such a way that all the workers had to do was load the mine cars and give the cars a push. The cars would then follow the 18-mile course purely by gravity. Mules were used to haul the empty cars back to the top. Someone came up with the idea of loading the mine cars with people and pushing them down the hill. The “ride” became an instant success. The track was used for coal mining during the day and as a pleasure ride at night.

America’s first true roller coaster opened at Coney Island, New York in 1884. LaMarcus Adna Thompson built this coaster to provide wholesome entertainment for young people. Thompson’s coaster held 10 passengers and reached a top speed of six miles per hour. The ride cost five cents and paid for itself in only three weeks.

The Great Depression and World War II helped bring about an end to the “Golden Age” of wooden roller coasters. Walt Disney introduced the first modern steel roller coaster with the building of the Matterhorn. The Matterhorn, a ride in his Disneyland theme park, had cars with nylon wheels that ran along a tubular steel track. From the early 1970s until today, park owners and roller coaster designers have used both steel and wooden roller coasters to create wild and exciting rides to attract new thrill seekers.
Failure Analysis Report
Label the areas of maximum kinetic and potential energies.