**The Mousetrap Car Analysis Report**

Answer the following questions completely (include formulas and/or calculations where appropriate). Your answers may be written below or typed and submitted on SEQTA. It must be a minimum of 300 words.

1. What are the two types of friction that affect the performance of your vehicle?

The two types of friction that affect the performance of the vehicle are rolling and static friction

1. What problems related to friction did you encounter and how did you solve them?

There weren’t many friction-related issues. The cardboard and support of the wheels were the only problems we ran into while building the car. Initially, we had used zip ties to support the wheels and only 1 piece of cardboard which served the intended purpose but were not strong enough to support both the wheels and body (cardboard) of the car. As a result, we switched to using a thread pipe that would smoothly let the wheels move and then another piece of cardboard to support the body

1. What factors did you consider to decide the number of wheels you chose in your design?

Due to each sides of the car body having 4 CDS, which were made up of the car’s wheels as there wasn’t many options for the wheels. I strongly believe that the car would have exceeded the required distance if we had been allowed to utilize smaller sized wheels.

1. What kind of wheels did you use in each axle? What is the effect of using large or small wheels?

The impact of employing CDs as the wheels for its axles gave us a result of the car being able to travel a distance for a brief period of time. However, it did not give promising results as it didn’t go as far as we thought whilst it was on the ground it was a bit disappointing because we had made many corrections on the car to travel farther.

1. Explain how Newton's first, second and third laws apply to the performance of your vehicle.  
   The first law asserts that every object remains at rest or continues to move at the same speed. The law is applicable to the lever, the unbalanced force that helps move the car ahead by detaching/releasing the string that turns by detaching/releasing the string that turns the axels in a forward direction. The second law describes acceleration as being related to its mass and proportional to the already applied force. The sole mass that the car was made up of was a mouse trap, and its axles provided support to carry it. Acceleration is used to describe the wound-up string that is used to propel the car. Every action according to the third rule has an equal and opposite reaction. This was the string that was attached to the axles and used to move the car. The mouse traps hammer received on end, which was tied to it, while one of the axled received the other end. The hammer was pulled back while the car was moving to produce the force necessary to turn the axles and advance the vehicle.
2. Discuss the effect of the length of the lever arm in the pulling force of your vehicle.

The mousetraps hammer was used as a substitute for the cars appropriate lever because it was not designed with one. It was still functioning, albeit less efficient than if it had an extended lever.

1. Discuss the types of energy transformations that occur in your car.

When the string on the cars axle is the released, potential kinetic energy that originated from the wound-up string is transformed into kinetic energy. Additionally, the string that is attached to the hammer contains potential kinetic energy by tugging on the string, which in turn moves the axles.

1. List the energy types that are wasted in your car.

-Gravitational &sound energy

1. Discuss how you increased the efficiency of your vehicle (reduced the wasted output energy).

The car didn’t use up a lot of energy that was wasted. The only changes made were to strengthen the cars structural support