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Science, Physics

Shyanne Vaden Mousetrap Questions What are the two ways that friction affected the performance of your vehicle? Friction affected my vehicle by either not pushing it far enough, or pushing it very far. The friction of the ground would also stop my vehicle from going farther then it could've. My car also needed a bit of momentum to start so the friction did not help my care move at all. What problems related to friction did you encounter and how did you solve them? The friction did not help my car move. My car needed a bit of momentum to start, like most objects. The friction did not work with my car at all! I solved it by dropping my car instead of pushing. The dropping helped my car move and push. What factors did you take into account to decide the number of wheels you chose in your design? I definitely took into account bumpiness. CDs would've avoided or just moved along bumpiness. CD's are very easy to move and can accelerate fast. The factors you have to think about when using CD's is balance. I used waiters to balance the wheels so that the wheels would not fall into themselves or fall outwards. If the axel or wood wasn't supporting the CD's, the CD's are so thin that they would just flop over. What kind of wheels did you use in each axle? What is the effect of using large or small wheels? I used CD's on each axles with waiters screwed on next to them to support them. I used medium sized wheels. The effect of using big wheels is with each push of the wheel, the mouse trap will travel farther but may not travel fast. For small wheels, the push will be very small but it will travel faster because it has less mass. Explain how Newton’s first, second and third laws apply to the performance of your vehicle. The first law applies because the motion of the mousetrap car will start and keep going until it runs out of momentum or the friction

stops it. The second law applies to the mousetrap car because of the mass, and acceleration affect the force and how fast the mousetrap car goes. The third law applies because the lever (or the mousetrap car) is pulling the wheels forward, calling them to move and the force moves forward. Pushing the ground behind the car. Discuss the effect of the length of the lever arm in the pulling force of your vehicle. While I was doing the project, I realized that the longer the lever (and string) the farther the vehicle would go. But a long lever would need a big vehicle with a large mass. So if it was a small vehicle with a big lever, there would be no momentum or force to pull the vehicle. My vehicle was medium sized, so I used a medium to large lever. How does the distribution of weight of the vehicle affect the traction of the wheels? When you had a large vehicle, you needed a large lever which would pull the large wheels. The wheels needed to be strong enough and gain enough force in order to pull a large vehicle. The distribution would have to be balanced on each side. ' Discuss the major problems encountered in the performance of your vehicle and what did you do to solve them. The main problems encountered was definitely getting my vehicle to move. My vehicle was getting stuck on the waiters that would pull the string, and then pull the lever, which would pull the wheels. It was a very difficult process but I fixed it by dropping the car. The other major performance problems was getting the mousetrap to snap up and move the car, and getting the CD's balanced so that they wouldn't turn in/turn out. The last problem was fixing the vehicle when the knot (which snapped onto the waiter so that I could reel the string up to get momentum) would not fit onto the waiter. I fixed the CD's balancing by two waiters screwed onto the axel on both sides of the wheels. I

fixed the know problem by tying the string around the waiters instead of snapping it on.