A small device on a table

Description automatically generatedA yellow cart made of cd's and pencils

Description automatically generatedA cd's on a table

Description automatically generated

* What type of energy did your car start with? Explain how you know
  + The car started with potential spring energy as the rubber band is a type of spring, and when we wound up the rubber band, we were putting the rubber band in tension.
* What type of energy when your car was traveling at the maximum velocity it would have?
  + The type of energy the car had when it was traveling at its maximum velocity would be kinetic energy as all the potential energy stored in the rubber band has been converted into kinetic energy to propel the car.
* What are possible ways your car lost energy?
  + The possible ways the car could lose energy was not all of the potential energy in the rubber band being completely converted into kinetic energy, friction between the axel and the box, friction between the wheels and the ground, along with some slippage causing some energy to be lost.

Provide an example of how each of the following topics applies to your car:

* Forces & Newton’s 2nd Law
  + This applies because we could find how much force the rubber band applied to the car over distance using the formula .
* Kinematics in one Dimension
  + We could use kinematics to determine the velocity of the car along the path it traveled.
* Impulse and momentum
  + Using impulse and momentum, we could find out how much momentum the car had at its maximum velocity, along with finding out the impulse of the force applied to the car by the rubber band.
* Work, Energy & Energy Conservation
  + We could utilize the equations from energy conservation to determine how much potential energy the car started with when the rubber band was would, and how efficiently the car converted potential spring energy into kinetic energy.
* Newton’s 2nd Law for Rotation & Torque
  + Utilizing the equations for Newton’s 2nd Law for Rotation & Torque, we could find out how fast the wheels are rotating, and from that we could also determine how much force the rubber band exerted for it to go at that speed.
* Rotational Kinematics
  + Using rotational kinematics, we could determine the efficiency of the translation from the rubber band into the drive shaft.