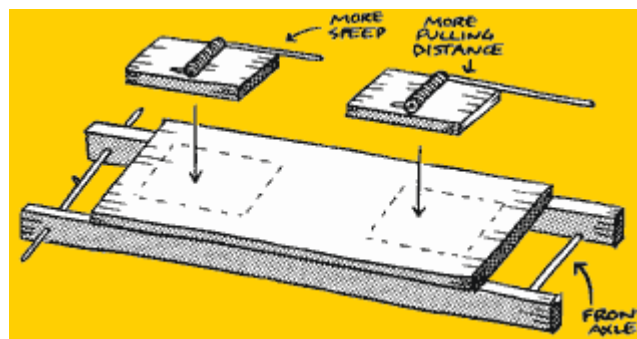


Tips for making a fast speed-trap racer (visit www.sawyerscience.com for more tips)

When you build a vehicle for speed, you want to release the mousetrap's energy very quickly or at a high power output. This way your vehicle can get to top speed as soon as possible. You can change the power output of your vehicle by changing one or all of the following: where the string attaches to the mouse-trap's lever arm, the drive wheel diameter, or the drive axle diameter. The amount of energy released by using a short lever arm or a long lever arm is the same, but the length of the lever arm will determine the rate at which the energy is released and this is called the power output. Long lever arms decrease the pulling force but increase the pulling distance, thereby decreasing the power output. Short lever arms increase the pulling force over a shorter pulling distance thereby increasing the power output. If you are building a mouse-trap car for speed, you will want the maximum power output, just before the wheels begin to spin-out on the floor. Maximum power output means a higher rate of energy being transferred into motion or greater acceleration of the vehicle.

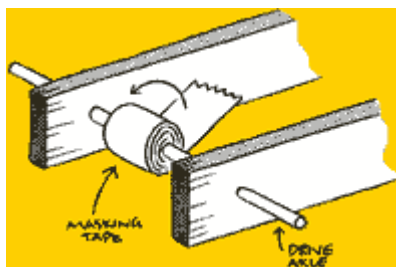
TIP #1 Increase the Pulling Force

1. Move the mousetrap closer to the drive axle. Make sure that the trap is not too close to the drive axle or the wheels will spring. Try several trap placements.



TIP #2 Decrease Axle-to-Wheel Ratio

1. Decrease the axle to wheel ratio by adding tape to the drive axle or using smaller drive wheels.



2. Use a larger drive axle. The smaller the ratio of drive wheel(s)-to-axles diameter, the greater the acceleration that you will experience. Careful, if the ration is too small your vehicle will spin its wheels rather than accelerate

Tip #3 String & Extension Bar Length

1. The string length should be a bit shorter than the distance from the lever arm to the drive axle. This will allow the loop to release from the hook, preventing the string from rewinding.

