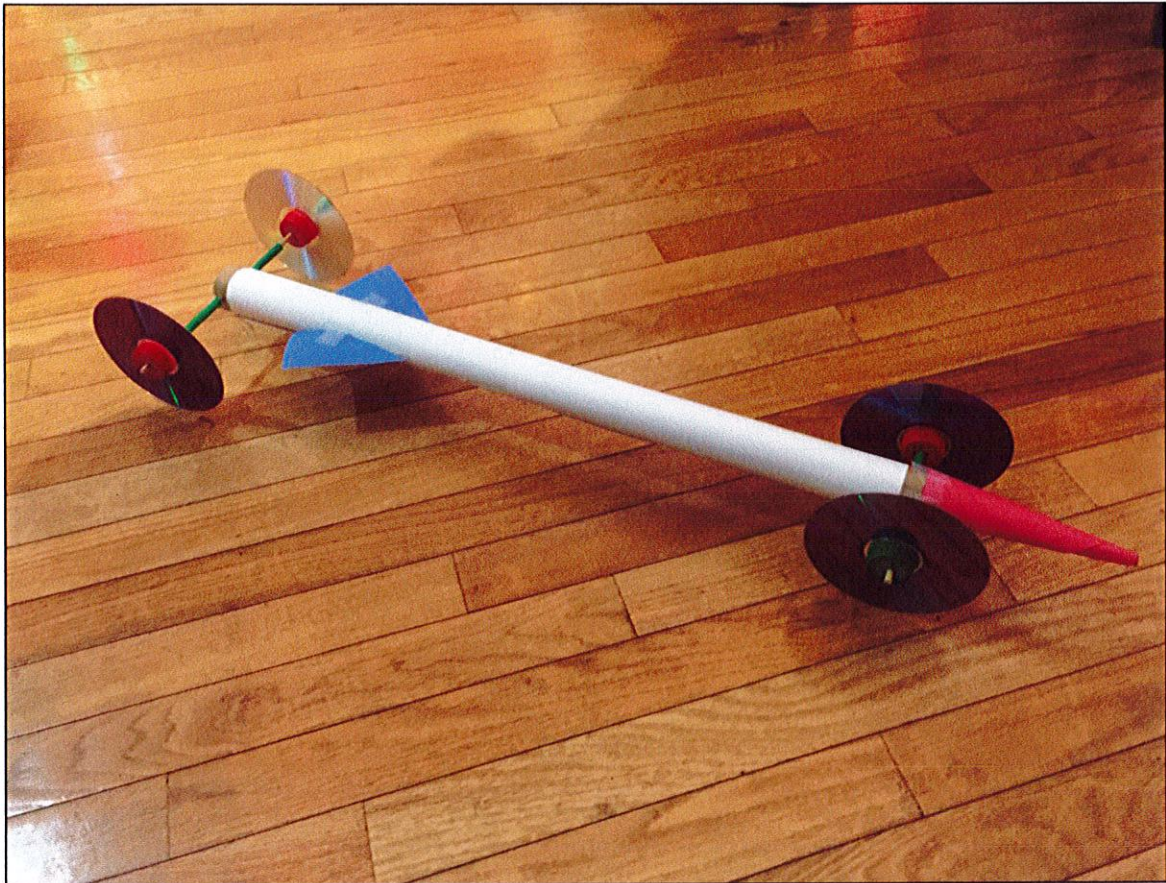


Jessica's Turbo Tube

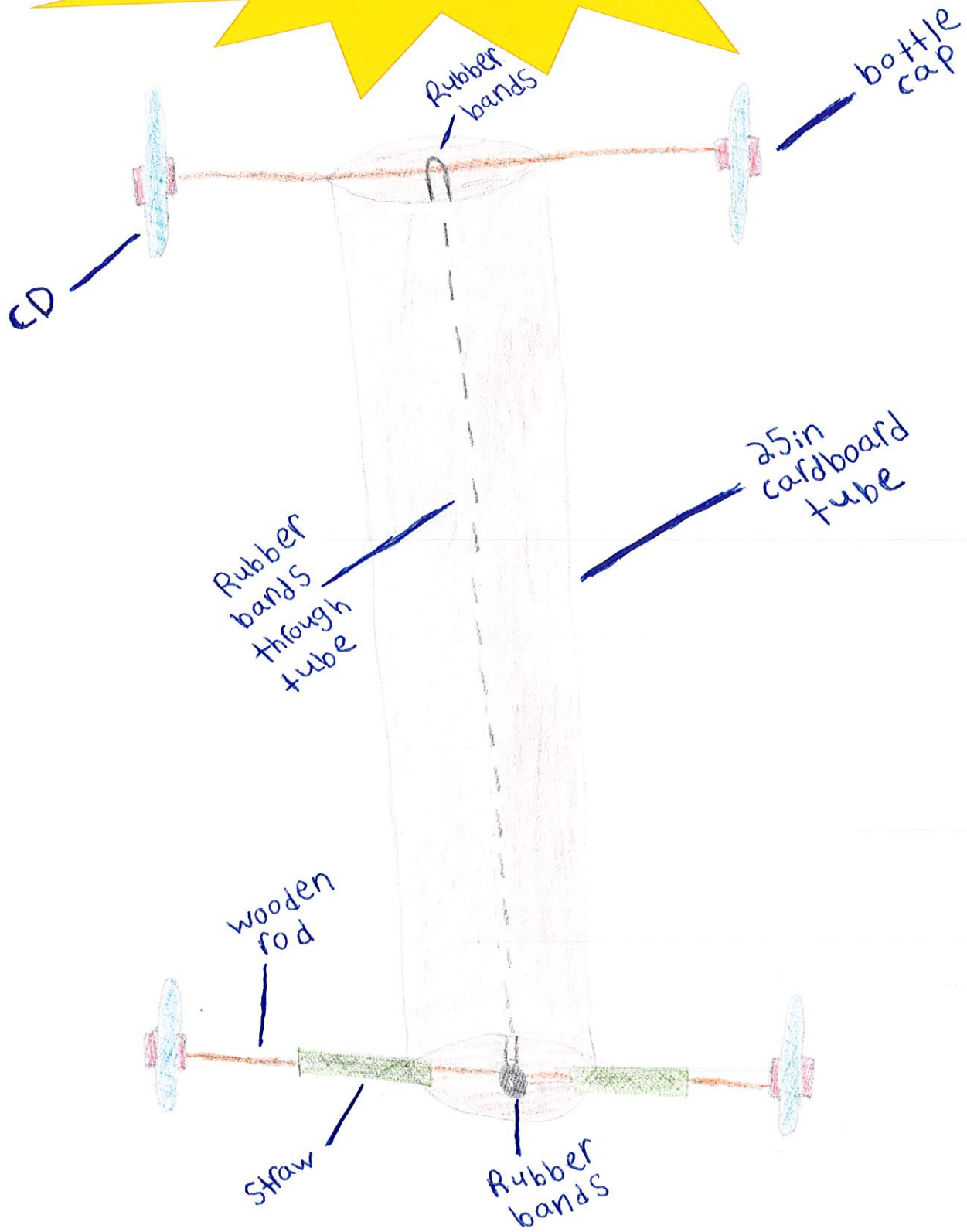


By: Jessica Brannon







7th grade- Ms. Gentile

December 20, 2016

Jessica's Turbo Tube



Materials

- | | |
|---|---|
|  1 2.5 inch cardboard tube (body of car) |  4 CDs (wheels) |
|  8 bottle caps (hub caps-hold axle) |  2 wooden rods (axles) |
|  2 straws(-holds tube on axle) | Hot glue gun |
| Scissors |  Rubber bands |



Jessica's Turbo Tube

How did you come up with your ideas?

First I looked at many videos having to do with numerous ways to build a self propelled car. I also searched for images to get ideas of how the car may look and also get more ideas other than just videos.

<https://www.youtube.com/watch?v=koyxrYSNbcE>

How did your ideas change during your project?

At first I had made the body of the car a box. When I did a test run the car did not accelerate with much speed nor go a far distance. I thought about how maybe the box was too heavy and that it was taking too much surface space causing more air resistance which is not good. I ended up making the body of the car a long tube. After that I wanted to add some balloons to the car to make it go faster but i decided it would be to much on the car and probably make the car not go in a straight line and it will go all over the place when released.

Why did you choose to use specific parts?

I used a long tube for many reasons. First of all I made the car a lot thinner to cover less surface space, I made it longer so the rubber bands could be winded more making the car accelerate faster and stay a longer distance, and lastly it was much lighter causing the car to be able to use more energy toward the speed and distance of car other than using the energy to have to hold more weight of the car which was slowing the car down. Next I used the CDs because they are perfectly round letting them to be able to run along surface smoother and faster. Lastly I used the rubber bands because they are easy to wind up and they make the car go faster.



Jessica's Turbo Tube

Where is the potential energy stored in your machine?

The potential energy starts in my hands when I am winding up the rubber band. The potential energy then transfers to the wound up rubber band causing all potential energy to be stored in the wound up rubber band waiting to be released and turned into kinetic energy.

Where are the energy transfers?

1. Energy starts by transferring in wound up rubber bands
2. Energy is being transferred in tube while rubber bands are unwinding
3. The rubber bands unwinding transfers energy to winding axle
4. Energy transferred from axle goes to wheels making them turn
Energy from wheels on ground make friction causing heat

A few helpful hints:

Your distance traveled should be measured in ft. Use a ruler and maybe some masking tape to measure off your "drag strip".

You should have a partner or a helper to keep your time. You can't start your car and keep the time at the same time. Your time won't be accurate!

Calculate your speed for each trial. Don't forget the formula for speed! Remember the formula is distance traveled over a period of time, or $S = d/t$

Calculate your car's average speed and fill in the blank below the table. Remember, we calculate averages by adding all values together and dividing by how many values there are!

My Car's Practice Trial Log

| | <i>Distance traveled (in inches)</i> | <i>Time (in seconds)</i> | <i>Speed (in inches/s)</i> |
|-----------------------|---|-------------------------------------|---|
| <i>Trial 1</i> | 234 | 6.95 | 33.7 |
| <i>Trial 2</i> | 196 | 7.34 | 26.7 |
| <i>Trial 3</i> | 218 | 7.31 | 29.8 |
| <i>Trial 4</i> | 211 | 7.68 | 27.5 |
| <i>Trial 5</i> | 214 | 6.82 | 31.4 |

My car's average speed is: 29.8 inches per second

