Soda Straw Rocketry – Energy

Procedure (material – spring constant):

- 1. Cut out a piece of <u>regular paper</u> that is 10 cm long and 5 cm wide.
- 2. Wrap the piece of paper around a pencil and tape it so that it forms a tube. Make and attach 3 fins.
- 3. Place your rocket on a straw which has been placed in a rubber ball.
- 4. Drop the straw and ball and watch as your rocket absorbs the energy from the rubber ball and flies.







Experiment 1: $PE = .5 \times spring constant \times distance^2$

Put your rocket on different rubber balls (different sizes) and drop it with your arm stretched out straight. Record how high the rocket goes. Record in data table.

Describe Ball Height Rocket Flies

Small Ball

Conclusion:

Does either ball make the rocket go <u>WAY</u> higher? Why? Look at both balls (big and little). Squeeze each ball.

Experiment 2: PE = mass x gravity x **<u>HEIGHT</u>**

Now you will drop the **paper rocket** from different heights. Use the smaller ball. Record how high the rocket goes. Record in data table.

Height you dropped from Height Paper Rocket Flies

Knee

Waist

Ceiling

Conclusion: Why did the higher drops make it go higher?

Elastic Potential Energy - Rockets

Procedure:

5. Wrap paper around a dowel rod and tape it so that it forms a tube. Make and attach fins.



6. Place on the Rubber band Launcher and pull down on the black metal piece. Release.

Experiment 1:

Make a **cardstock** rocket - entire length of the paper (hotdog) with cardstock fins

Launcher	Distance Rocket Flies	(meters)

#1 (single rubber bands)

#2 (triple rubber bands)

Conclusion:

- 1. Did triple rubber bands go **WAY** farther than the single rubber bands?
- 2. What makes the rocket launch the farthest?