AIR POWERED PROJECTILES

Lab Report Guide

- **(5 pts) Title, Names, Signature**
- **(5 pts) PURPOSE**
  - What is the purpose of doing this? Why is Coach Hyde making me go out into the freezing cold to play with this rockets and bicycle pumps?
- **(10 pts) BACKGROUND RESEARCH**
  - Kinematics
  - Launch Angles
  - Trajectory (parabola)
  - Horizontal vs Vertical Projectile
- **(5 pts) HYPOTHESIS**
  - Which Angle will Yield the highest/longest?
    - Max Height
    - Max Range
    - Longest Hangtime
- **(0 pts) PROCEDURE NOTES:**
  - Make sure you are using the same pressure rating cap (Med, High, Super, etc…)
- **(30 pts) DATA TABLE:**

AIR POWERED ROCKET FIELD TRIALS				
	Time of Flight	**Time to peak**	**$V_f = V_i + at$**	**Launch Velocity**
90°				
ANGLE				
PRESSURE CAP RATING				
FLIGHT TIME				
DISTANCE (ft.)				
DISTANCE (m) [1 m = 3.28F ft.]				
MAX HEIGHT (ft.)				
RANGE (ft.)				
RANGE (m) [1 m = 3.28F ft.]				
EXPECTED RANGE (m)				
% ERROR $\frac{\text{expected - measured}}{\text{expected}}$				

- **(35 pts) GRAPHS:**
  - You should have 3 graphed trajectories all on the same graph (all line graphs)
  - Each should be a different color and Keyed in a legend
  - X = time, y = meters
  - Insert X displacement every ¼ total time.
  - Straight lines drawn with ruler and evident graph was not rushed.
- **(20 pts) CONCLUSION**
  - Did any of the angles you used have similar ranges?
    - If so why?
    - If not why?
  - Explain why the expected range and actual measured range are not the same.
    - Think about other factors that could affect flight.