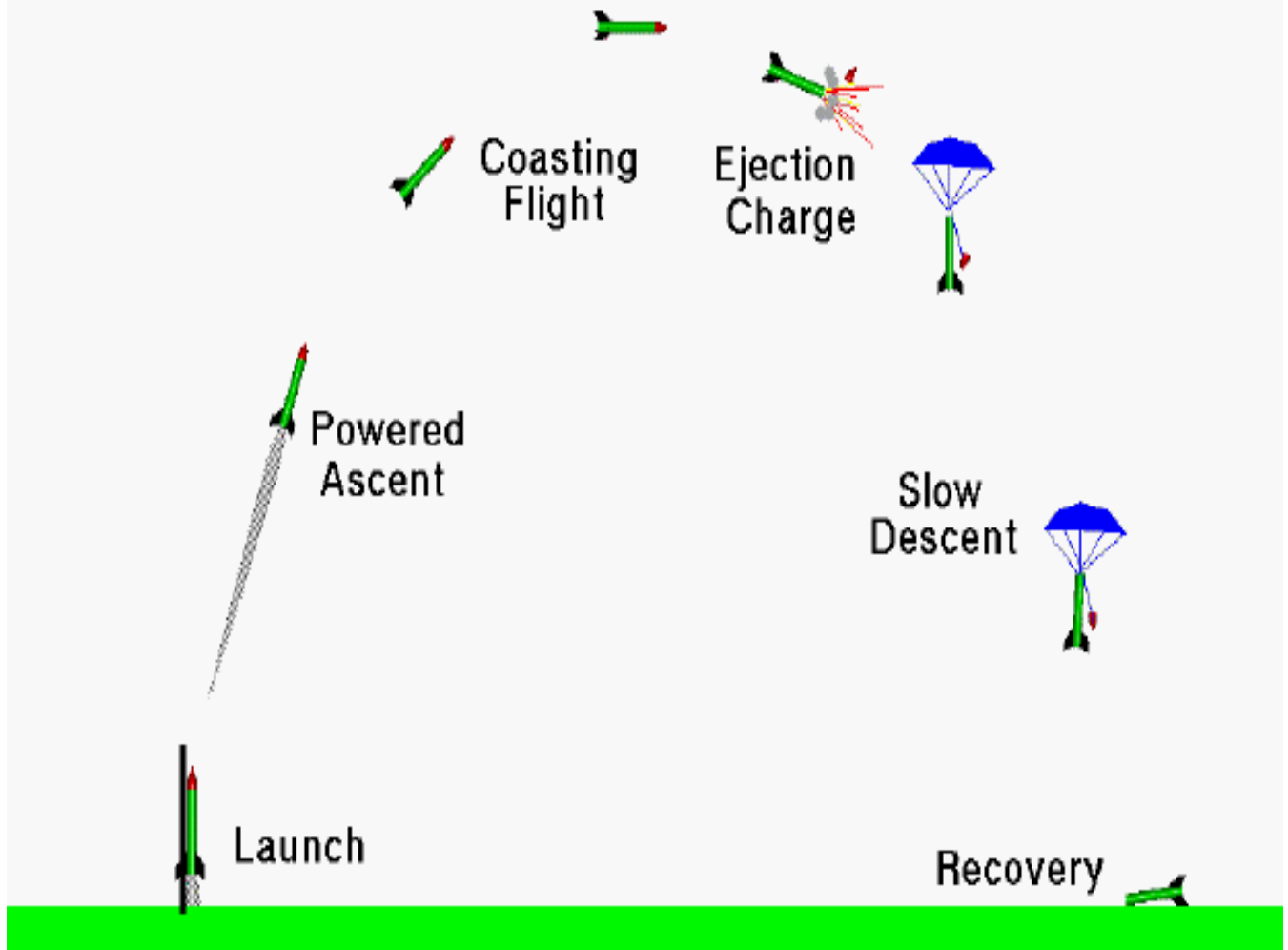


BOTTLE ROCKET LAUNCH LAB REPORT



Flight of a Model Rocket

Glenn
Research
Center



PART 3

Post-Launch Day Lab Report Sheet

Bottle Rocket Launch LAB Report

GO
NO GO
For equipment

1... Height of rocket using Altimeter = (BASE is distance from launch to landing) (y / x)

BOTTLE ROCKET LAUNCH LAB REPORT

BOTTLE Rocket Calculation

COMPLETE ALL blanks including units, for YOUR BEST rocket based on DISTANCE

2... Height Time up (seconds) = Total time divided by 2

$$\frac{\text{DISTANCE TIME Height Total Time}}{2} = \text{Time up (initial Velocity)} \quad +2$$

3... Initial Velocity (V_i) = $g t_{up}$

$$(9.8\text{m/s}^2) (\text{Time up}) = \text{Initial Velocity (height)} \quad +2$$

4... Vertical Velocity (V_y) = (v_i)($\sin 60^\circ$)

$$(\sin 60^\circ) (\text{Initial Velocity}) = \text{Vertical Velocity} \quad +2$$

5... Horizontal Velocity (V_x) = (v_i)($\cos 60^\circ$)

$$(\cos 60^\circ) (\text{Initial Velocity}) = \text{Horizontal Velocity} \quad +2$$

6... Total Air time = (V_y) / g

$$\frac{(\text{Vertical Velocity})}{(9.8\text{m/s}^2 \text{ gravity})} = \text{Total Air Time} \quad +2$$

7... Total distance = (V_x) (Total air time)

$$(\text{horizontal Velocity}) (\text{Total Air Time}) = \text{Total distance} \quad +2$$

8

$$\text{Final Velocity}(v_f)_{\text{meters/second}} = \frac{\text{longest distance(meters)}}{\text{total distance time(seconds)}}$$

$$\text{_____} = \text{Velocity (final) distance} \quad +4$$

9... Convert to MPH= (V_i)(2.23)

$$(2.23 \text{ m/s}^2) (\text{Final Velocity}) = \text{Final Velocity (mph)} \quad +4$$

(10.) $\text{acceleration}_{\text{(meters/second}^2\text{)}} = \frac{\Delta \text{velocity}_{\text{(meters/second)}}}{\Delta \text{time}_{\text{(seconds)}}} =$

$$\frac{(v_{\text{final (distance)}} - v_{\text{initial (height)}})}{(t_{\text{distance time}} - t_{\text{time up height}})} \Rightarrow \text{_____}$$

$$\text{_____ Acceleration} \quad +5$$

GO to my website and use the Displacement to calculate Distance

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Y

1 - Sight rocket along top edge of altimeter.

2-When rocket is at peak altitude, pinch the plumb line against the graph paper.

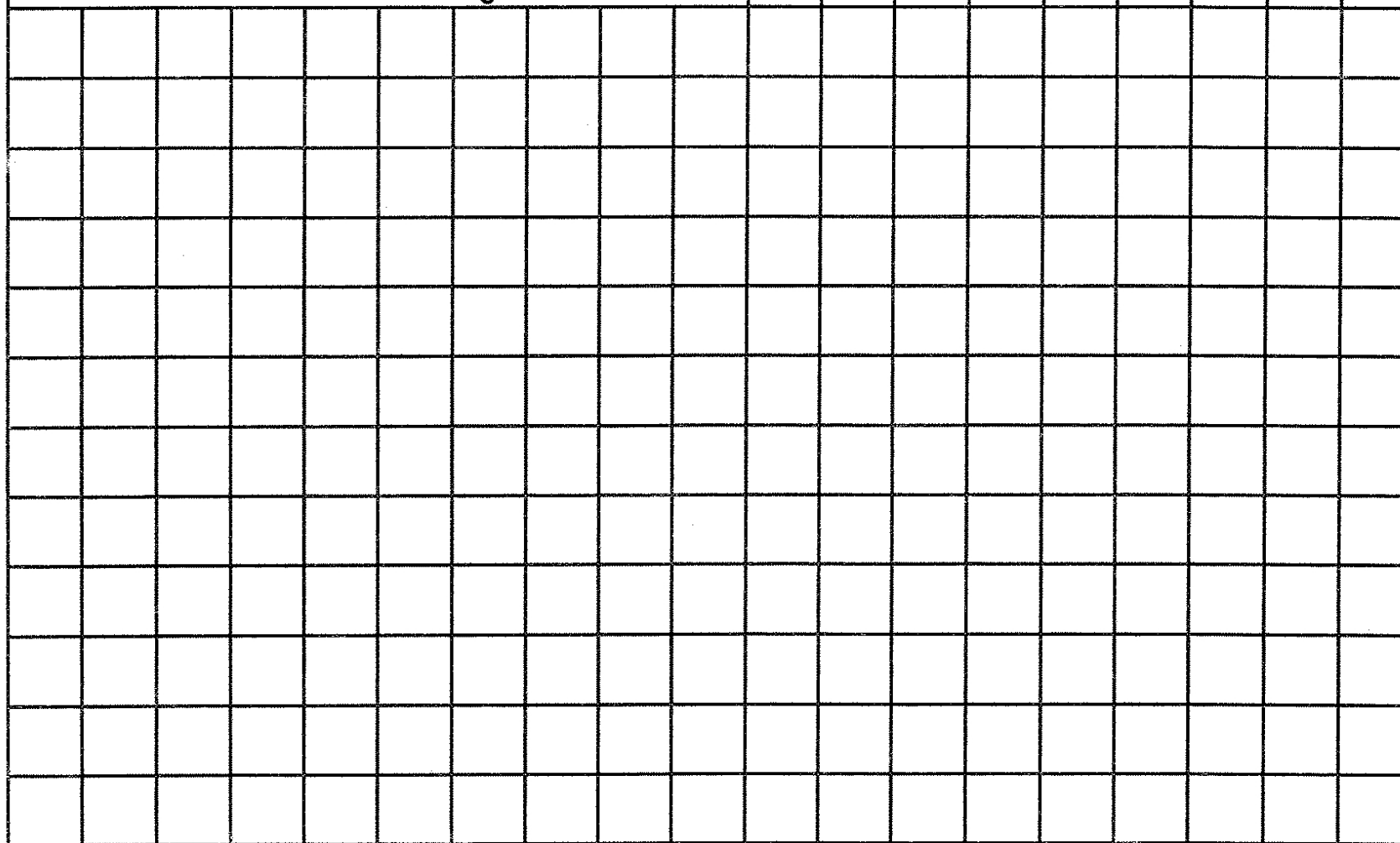
3-look along the plumb line for a convenient intersection.

4-Determine X and Y from this intersection.

Punch hole for string here

$$\text{Height} = \text{Base} * (Y/X)$$

Glue this sheet onto a backing of cardboard.



X

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

-Rocket Altimeter-