

EXPLORE BALLOON BLAST!

Directions:

Go to Hobby Shop and play Balloon Blast. Adjust the velocity and angle of the projectile to answer the following questions. Use **Table 1** below to keep track of your findings.

Questions:

1. Of the choices below, what angle causes the balloon to have the greatest range?
 - a) 10
 - b) 45
 - c) 60
 - d) 90
2. What angle causes the balloon to travel the highest? Why?
3. Which angle between 0 and 90 degrees would cause the balloon to have the most total time in the air?
4. Of the choices below, which balloon will be in the air longest?
 - a. The one with the farthest range
 - b. The lightest balloon
 - c. The one fired at the highest angle
5. Complete the following sentence:
The vertical velocity of a balloon fired from the catapult (increases/decreases/stays the same) until it reaches its apex. At its apex the balloon's vertical velocity is 0 m/s. As it falls back to the ground the vertical velocity (increases/decrease/stays the same) until it reaches the ground.
6. Given the constant and single force of gravity, what is acceleration of the balloon just before it hits the ground?

TABLE 1:

	Angle	Velocity	Range	Height (total)	Max. Height	Time
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

7. What are some combinations of angle and velocity that will make the balloon hit each target? Answer the question by completing Table 2.

TABLE 2:

	Angle	Velocity
Target 1		
Target 2		
Target 3		
Target 4		
Target 5		