Launching Projectiles

<http://phet.colorado.edu/sims/projectile-motion/projectile-motion_en.html>

Procedure:

1. Adjust the cannon to a 45 degree angle.
2. Select Tankshell as the projectile.
3. Select “Fire”
4. Record the initial speed, mass, and diameter in the data table
5. Drag the “+” sign on the ground to the site where the projectile landed.
6. Record the distance traveled in the data table.
7. Repeat steps 2-6 selecting a different projectile each time, and continue to fill in the data table.
8. Select the “Air Resistance” box.
9. Test each projectile again and measure the distance traveled. Record the Distance Traveled in the data final box of the data table.

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| --- | --- | --- | --- | --- | --- | --- |
|  | **Angle** | **Initial Speed** | **Mass (kg)** | **Diameter (m)** | **Distance Traveled****(you measure)** | **Distance Traveled****With Air resistance****(Your measure)** |
| Tankshell | 45 ° |  |  |  |  |  |
| Golfball | 45 ° |  |  |  |  |  |
| Baseball | 45 ° |  |  |  |  |  |
| Bowlingball | 45 ° |  |  |  |  |  |
| Football | 45 ° |  |  |  |  |  |
| Pumpkin | 45 ° |  |  |  |  |  |
| Adult Human | 45 ° |  |  |  |  |  |
| Piano | 45 ° |  |  |  |  |  |
| Buick | 45 ° |  |  |  |  |  |

1. How did the distance travel compare with the different projectiles?
2. How did the distance travel compare with the different projectiles when Air Resistance was checked?
3. What factor seemed to affect the distance traveled the most when Air Resistance was checked?