

Answer the questions on your own paper. Return this sheet after you are finished.

I. Projectile Motion Flash Interactive

This activity allows you to change variables — such as mass and speed of a projectile, and angle of launch — while attempting to hit a target. In addition, the measuring tool allows you to determine the highest point the projectile has reached, and this height can be used to calculate the GPE of the object.

After you have had an opportunity to explore the interactive activity, answer these questions:

1. Where is the PE greatest? Smallest?
2. Where is the KE greatest? Smallest?
3. What happens to the PE as the KE increases?

Notice that you can turn the air resistance on and off. Launch some projectiles with and without air resistance and note whether or not it makes a difference in the flight of the projectile.

4. What difference do the mass and shape of the projectile make in the absence of air resistance? Launch two different projectiles with air resistance turned off
5. Represent the difference caused by mass and shape in the presence of air resistance by drawing the path of a two different projectiles with air resistance turned on. (Make a sketch to go along with your written answer.)
6. Compare the horizontal distance the object travels during the first and second seconds. Can you find evidence that the horizontal velocity changes over time? (use the measuring tape tool to measure)
7. What about the vertical velocity?
8. What two forces are acting on the projectiles that causes them to travel in a parabola (curved path)?
9. If the projectile is moving at 50 m/s after one second, what is it's acceleration. Use the guess method to show your work. The equation is $a = \frac{v_f - v_i}{\text{time}}$