If you dropped a marble and a baseball, which one would hit the ground first?

The ancient Greeks believed the baseball would hit first. Why did they think the baseball would land first?

The Italian scientist _____________________ proved that mass did not affect the rate at which something falls.

In fact he proved that all objects fall to the earth at the same rate because acceleration due to _________________ is the same for all objects.

How is this possible when the force of gravity is larger between the Earth and an object with a large mass compared to gravity between Earth and a less massive object?

Figure 2 is an important drawing. Make sure to include it in your notes. You should be able to label the velocity of the ball at each second and the distance it has traveled.
Math Break

Δv stands for the change in velocity. You can calculate how much the velocity of a falling object has changed. To figure this out multiply the acceleration due to gravity (9.8 m/s) by the time it takes for the object to fall in seconds.

1. A rock is dropped off a cliff. It takes 4.5 seconds to reach the ground. What is the change in velocity of the rock?

2. Because the initial velocity is 0 m/s what is the rocks velocity when it hits the ground?

3. The final velocity of a dropped penny is determined to be 26.46 m/s. It took 2.7 seconds to reach the ground. What is the acceleration due to gravity?

Why would crumpled paper fall to the ground faster than a flat sheet of paper?

2 factors that affect the amount of air resistance on an object
1) 
2) 

Figure 3 shows the net force of a falling object. Using arrows labeled the force of air resistance, the net force, and the force of gravity define their strength by how thick the arrows are.