Name

**Gravity – What’s Got You Down?**

**Difference between mass and weight**

* You know this already. Turn to a partner nearby and explain the difference between the two.
* Mass:
* Weight:

**Gravity – motion of falling objects**

* Gravity is a that pulls objects each other
* We know that the pulls you toward its .
* Do you pull the Earth toward you?
* When the only acting on an object is , the object is said to be in .
* An object in free fall is . Do you know why?
* In free fall, the force of is an force, which causes an object to . The object is continually toward the Earth as it falls, therefore it will

.

* Use your book as a reference to look up and write down the following answers:
  + How much do objects accelerate as they fall?
  + Do all objects accelerate at this rate? Why or why not?
  + What causes some objects to accelerate more slowly toward the Earth than others?
  + What is a projectile?
  + How does the horizontal movement of a projectile affect its acceleration toward the Earth?

**Universal Gravitation**

* Hole your pen or pencil up over your head.
* Now let go of it.
* What happened?
* Why?
* Sir pondered this very same question.

Here is what Sir Isaac Newton concluded:

* A acts to pull objects straight down the center of the Earth

He then went on to generalize this and said:

* is a force that objects toward each other.
* The Law of Universal Gravitation states that .
* This means that in the universe each other, without exception.
* All of the objects around you are to you. However, you do not notice the attraction because these forces are compared to the force of Earth’s attraction.
* Two factors affect the gravitational attraction between objects:
* The more an object has, the its gravitational force.
* The two objects are, the the gravitational force between them.