**Physics Day 6**

Remember Newton’s First Law?

**Newton’s Second Law:**

Units of Force:

**Experiment: Craters in the Moon**

You are going to hold two similar sized marbles about 5” above “moon” surface and then drop them at the same time.

What do you think will happen?

Now do the experiment and examine craters. Write down your observations.

**Experiment: Ruler Ball**

You are going to strike two similar sized balls with the same force (a bent ruler).

What do you think will happen?

Now do the experiment and record the results.

**Demonstration: Balanced force on a ball… unbalanced force on a ball**

What happened to the ball when the forces were balanced?

What happened to the ball when the forces were unbalanced?

What happened when the same unbalanced force hit a heavier ball?

**Demonstration: Springy Carts**

What happened when the same force was applied to empty carts?

What happened when the same force was applied to one empty and one full cart?

**Mass:**

**Weight:**

A big rock and a small rock start falling at same time.

What is acceleration of each?

**Experiment: The Elevator Scale**

You are going to use a spring scale to measure the weight of an object at rest, accelerating up, and accelerating down.

What does the scale read when it and the object are at rest?

Do you think it will read more or less when accelerating up?

Do you think it will read more or less when accelerating down?

Now try it! What happened?

Vector addition again… Let’s add more than 1 force:

We can simplify our drawings by drawing all forces acting on the center.

Forces at an angle: