Name: _____

Period: _____

Date: _____

Unit 2, Lesson 3 Forces Digital Lesson

I. What are Forces? push or pull on an object

A. When this person's foot hits the soccer ball, the ball will move forward. Why?

1. Because energy moves from his foot to the ball, causing it to move.

2. A force is a push or pull that causes a change in motion.

2. A force can transfer energy to an object and cause it to move.

II. Types of Forces:

A. gravity is a force between objects because of their mass.

1. Earth's gravity keeps us and others objects from floating into space.

2. Gravity can work across great distance.

3. Gravity keeps the moon in orbit around the Earth!

4. It also keeps all the planets orbiting the sun.

B. contact Force (def. under picture) is a force exerted between objects that are touching each other.

1. You have pushed something to move it. That is applying a contact force.

2. What keeps objects from moving forever?

a. Contact forces called friction and air resistance do.

C. magnetic Force (def. under picture) is a force exerted between magnetic poles.

1. Each magnet has a north pole and a south pole.

2. Opposite poles attract.

3. Like poles push each other away.

D. normal Force (def. under picture) pushes against any object that rests on another object.

1. Example in picture:

chair pushing up on person sitting in the chair

III. Newton's Laws

A. Newton's 1st **Law** (under picture): The law of inertia is Newton's first law.

1. Objects, like a stopped train, will stay at rest unless another force makes them move.

2. Objects that moving, like the other train, will continue to do so until a second force makes them change speed or direction.

B. Newton's 2nd **Law** (under picture) Force = mass x acceleration.

C. Newton's 3rd **Law** (under picture) Every force has an equal and opposite force.

IV. Balance and **Unbalanced Forces**

A. (Under pic) Balanced forces: net force equals zero; no change in motion.

For the motion of an object to change, the forces acting on it must be unbalanced; that is the net force on the object must not equal zero.

In Summary:

-Forces are a push or pull acting on an object.

-Unbalanced forces cause change in motion.

-Forces act through contact with an object or at a distance.

-combine forces to determine the direction of motion.

-Equal and opposite forces acting on an object have a net force of zero.