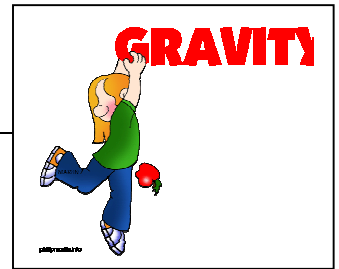


# Week 23 – SCIENCE NOTE PAGE

## Gravity; Mass & Weight



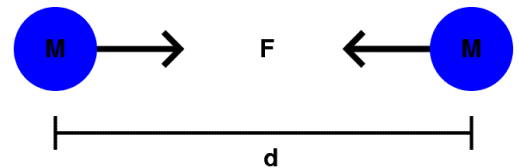
### Gravitational Pull

- Gravity is a universal \_\_\_\_\_ of attraction **between** all objects with mass.
- **Mass**: the amount of **matter** (atoms) in an object
  - The object with \_\_\_\_\_ mass will **move MORE** (given the same force)
  - **Example: Car vs. Train**
    - In a collision between a car and a train, which one moves **more**? The car
    - Why? Because it has \_\_\_\_\_



### Law of Universal Gravitation

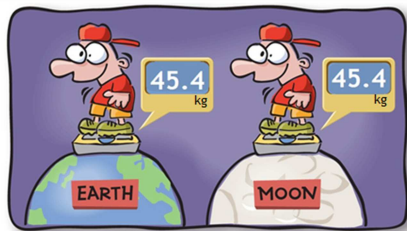
1. \_\_\_\_\_ objects have it (the **Force** of gravity)
2. Force of gravity changes with **distance** between objects
3. Force of gravity changes with **Mass** of objects



### Mass vs. Weight



Mass	Weight
<ul style="list-style-type: none"> <li>• <b>Mass</b> is the amount of <b>matter</b> in an object</li> <li>• Measured in <b>kilograms</b> (kg)</li> <li>• <u>Stays the same</u> no matter where you go in the Universe</li> <li>• <u>Example</u>: On moon, you have the <b>same mass</b> as on Earth</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Weight</b> is the <b>force of gravity</b> on an object with mass</li> <li>• Measured in <b>Newtons</b> (N)</li> <li>• <b>Changes</b> with location; depends on gravity</li> <li>• <u>Example</u>: On moon, your <b>weight is less</b> than on Earth</li> </ul>



### How Do You Measure Mass?

- The INSTRUMENT: Balance - works by measuring the object compared to a set of \_\_\_\_\_ masses.
- **Why** is the mass of an object the same everywhere in the Universe?
  - \_\_\_\_\_

### How Do You Determine Weight?

- The INSTRUMENT: Scale - uses a spring that stretches a certain amount according to the \_\_\_\_\_ of gravity acting on the object
- **Why** is the weight of an object different in various places in the Universe?
  - \_\_\_\_\_