

# Week 19 – SCIENCE NOTE PAGE

## Forces

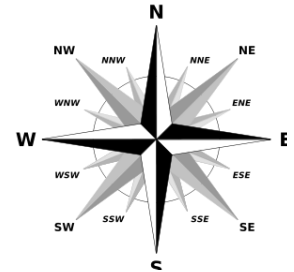
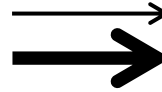


What is a Force?

- **Force:** a **push** or a **pull**
- It can cause an object to **move**, **stop** moving, \_\_\_\_\_ speed or direction
- Examples: \_\_\_\_\_

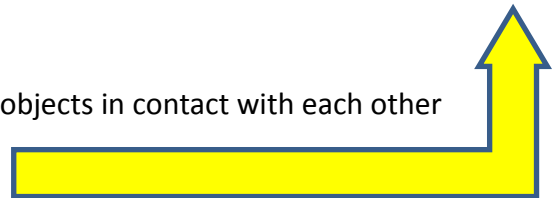
Magnitude and Direction:

- Forces have **magnitude** (\_\_\_\_\_) and **direction**
- Measured in **Newtons**: 1 lb = 4.45 N
- Direction can be up, down, forward, backward, right, left, north, south, east or west (or even southeast!)



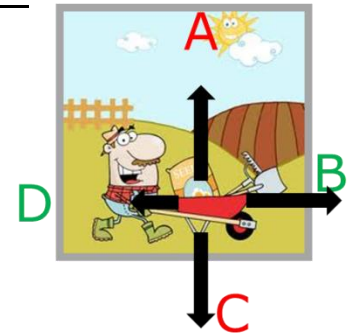
Many Forces On An Object:

- **Weight** is the **force** of gravity on an object
- **Gravity** is a **universal force** between objects with mass
- **Friction** is a \_\_\_\_\_ that **resists motion** between two objects in contact with each other
  - Look at the picture at the top of this note page.
    - HOW is this showing friction?



\_\_\_\_\_  
\_\_\_\_\_

- **Example of these forces:** Pushing a wheelbarrow (see diagram →)
  - A. The "Normal" Force (ground pushing up on wheelbarrow)
  - B. The Pushing force (\_\_\_\_\_)
  - C. The **Weight** force (force of **gravity** on wheelbarrow)
  - D. The **Friction** force (ground resisting motion)



Net Force:

- When one force is larger than another, we say the forces are "\_\_\_\_\_" or that there is a "**net force**"
  - **Unbalanced forces** cause **motion** in the direction of the larger force
  - Example: Elevator – which way will the elevator move? (see diagram →)  
\_\_\_\_ Up      \_\_\_\_ Down
- When all the forces **balance**, we say the **net force is zero**, and the object will \_\_\_\_\_ change its motion.

