

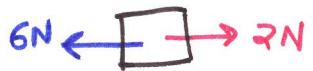
NEWTON'S LAWS

ACCELERATION → WHY THINGS ACCELERATE

* THINGS DO NOT WANT TO ACCELERATE → CHANGE SPEED
→ CHANGE DIRECTION

FORCE - PUSH OR PULL ON AN OBJECT
VECTOR!!!

NET FORCE (ΣF) THE SUM OF A BUNCH OF FORCES ON AN OBJECT



$$\text{NET FORCE} = \Sigma F = 4\text{N LEFT} \\ = -4\text{N}$$

MASS (m) - how much matter an object has

* NOT HOW MUCH IT WEIGHS *

MASS STAYS SAME PLANET TO PLANET.

WEIGHT (F_g or W) - FORCE OF PULL FROM GRAVITY

WEIGHT CHANGES PLANET TO PLANET.

$$W = mg$$

m - MASS (kg)

g - acceleration of gravity on planet ($\frac{m}{s^2}$)

NEW UNITS

$$g_{\text{EARTH}} = 9.8 \frac{m}{s^2}$$

$$[kg][\frac{m}{s^2}] = [N]$$

NEWTON

NEWTON'S FIRST LAW (NIL) INERTIA - RESISTANCE TO CHANGE IN MOTION. MEASURED IN MASS
LAW OF INERTIA

OBJECTS DON'T WANT TO CHANGE THEIR STATE OF MOTION.

AT REST, THEY WANT TO STAY AT REST. IF MOVING, THEY

WANT TO STAY MOVING. TO CHANGE STATE, YOU NEED A NET FORCE.

NEWTON'S ~~SECOND~~ THIRD LAW (N3L) FORCES COME IN PAIRS

FOR EVERY FORCE APPLIED THERE IS AN EQUAL & OPPOSITE FORCE APPLIED TO THE OBJECT APPLYING THE FIRST FORCE
↓ SIZE ↓ DIRECTION