

NAME: Mrs. Sjuts

DATE: Mon, Sept. 20, 2021

TOPIC: Forces

ESSENTIAL QUESTION: How do you apply Newton's 3 Laws of Motion to solve real life problems? (Obj 3)

QUESTIONS AND CONNECTIONS:

NOTES:

What is a force? Units?
What is a Newton?

What are examples of forces?

Compare & Contrast balanced & unbalanced f...

What are Newton's 3 Laws of Motion?

Examples?

Force: push or pull (VECTOR)

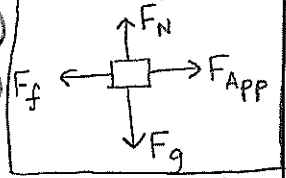
→ Measured in Newtons (N)

→ $N = kg \cdot m/s^2$

→ 1 N is the amount of force required to get a 1 kg obj. to accel at a rate of $1 m/s^2$

→ EX: Normal F (\perp to surface), Gravity, Applied, Friction

Force Diagram:



① Balanced Forces

- Net $F = 0 N$
- No accel
- Equal & Opp
- $5 N \rightarrow \leftarrow 5 N = 0 N$
- $\leftarrow 5 N \rightarrow 5 N = 0 N$

② Unbalanced Forces

- Net $F \neq 0 N$
- Accel!
- $\square \rightarrow 5 N = 5 N \rightarrow$
- $2 N \square \rightarrow 10 N = 8 N \rightarrow$
- $\square \xrightarrow[8 N]{5 N} = 13 N \rightarrow$

Newton's 3 Laws of Motion:

① An obj at rest/in motion will stay that way unless acted on by an unbal F
→ INERTIA: object's tend. to resist a change in motion ⇒ MASS DEPENDENT!

EX: Elephant vs Mouse
→ Seatbelt

② $F=ma$ An obj will accel in the dir of an unbal F
 $N = kg \cdot m/s^2$ EX: Elephant will require more F to accel than a mouse.

③ For every action F, there is an = & opp reaction force (Force Pairs)
EX: I hit brick wall & brick wall "hit" me.