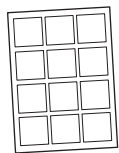
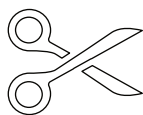


PHYSICS VOCAB MEMORY GAME

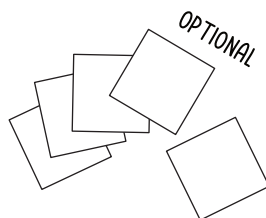
MATERIALS



The printable memory cards



scissors



46 pieces of cardboard cut to 2.5" squares



glue or tape

GOALS

- ★ Learn the language of physics!
- ★ Bonus: Improve your memory skills.

PHYSICS MEMORY GAME

To create thicker cards that are easier to turn over, cut out pieces of thin cardboard that measure 2.5 square inches. Use glue to place the vocabulary cards on one side of the cardboard. Leave the other side blank OR print the physics icon pages and glue them to the reverse side.

HOW TO PLAY:

Shuffle the cards and lay them on the table, face down, in rows.

Each person picks one card and turns it over. If two people draw a match that match is set aside and each player picks a new card. The person with the card that comes first, alphabetically, is the person who will have the first turn.

On each turn, a player turns over two cards. If the cards match (such as two Gravity cards) the player puts that match in their pile. They then get to choose two additional cards.

When a player turns over two cards that do not match, those cards are turned face down again (in the same position) and it becomes the next player's turn.

Continue playing until all of the cards have been paired. The person with the most pairs at the end of the game wins.

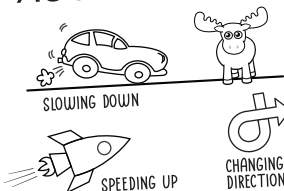
VARIATIONS:

1. One and Done. Simply alternate turns until all of the cards have been paired. Players who find a match have no bonus turn.

2. Connection Extension. Each player can take two and only two turns if they use their vocabulary words in a sentence. For example, if a player chooses "acceleration" and "average" they could say, "The *average* horse has faster *acceleration* than the fastest human." Then they would turn over two additional cards for their bonus turn.

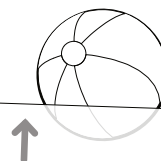
If the player cannot think of a sentence, they do not get to take their second turn. If the player chooses two words that match during their first turn, their sentence should use that word twice. For example, "The *average* houseplant thrives with below-average light."

ACCELERATION



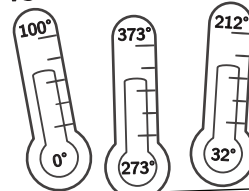
$\vec{a} = \frac{\Delta \vec{v}}{\Delta t}$ The rate of change of velocity

BUOYANCY



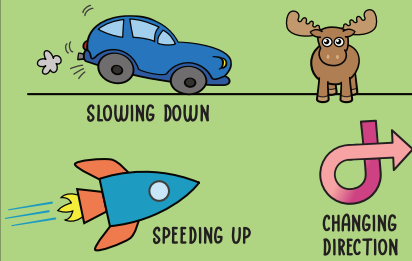
$\vec{F} = \rho g V$ Upward force exerted by a liquid on an object immersed in it

CELSIUS vs KELVIN vs FAHRENHEIT



$^{\circ}\text{K}$ $^{\circ}\text{C}$ $^{\circ}\text{F}$ Three different systems for measuring temperature

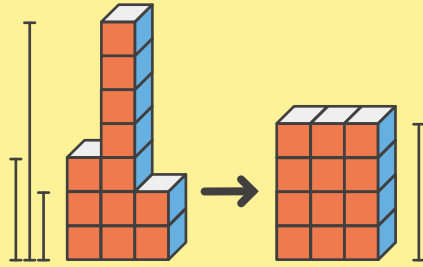
ACCELERATION



$$\vec{a} = \frac{\Delta \vec{v}}{\Delta t}$$

The change in velocity over time

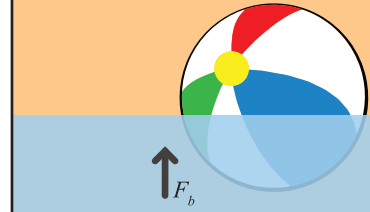
AVERAGE



$$\frac{x_1 + \dots + x_n}{n}$$

Sum of all values divided by the number of values

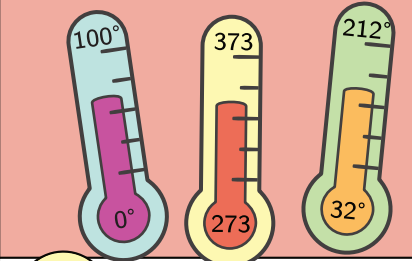
BUOYANCY



$$\vec{F}_b = \rho g V$$

The upward force exerted by a fluid on an object

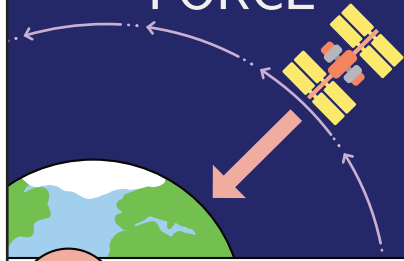
CELSIUS vs KELVIN vs FAHRENHEIT



$$\text{K}, \text{C}, \text{F}$$

Three different systems for measuring temperature

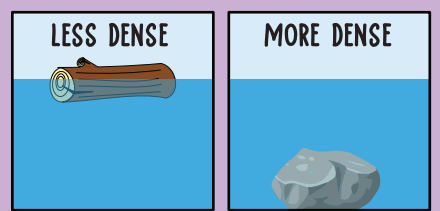
CENTRIPETAL FORCE



$$F_c = \frac{mv^2}{r}$$

The inward force acting on any rotating object

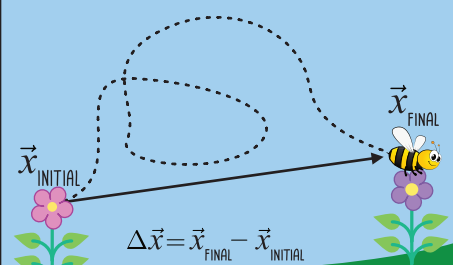
DENSITY



$$\rho = \frac{m}{V}$$

How much mass there is per unit of volume

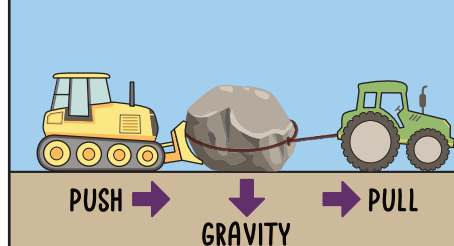
DISPLACEMENT



$$\Delta \vec{x} = \vec{x}_{\text{FINAL}} - \vec{x}_{\text{INITIAL}}$$

The straight line distance between initial and final position

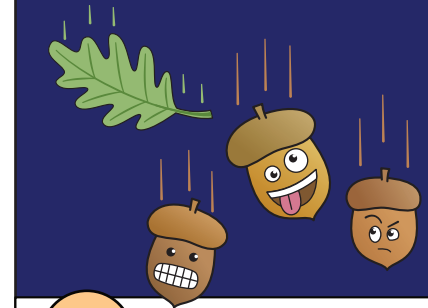
FORCE



$$\vec{F} = m\vec{a}$$

A push or pull that can make objects move, change, or bend

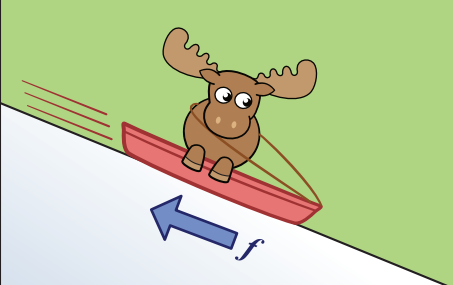
FREE FALL



$$9.8 \text{ m/s}^2 \text{ on Earth}$$

Downward movement under the force of gravity only

FRICTION



$$\vec{F} = \mu \vec{N}$$

Resistive force between objects in contact

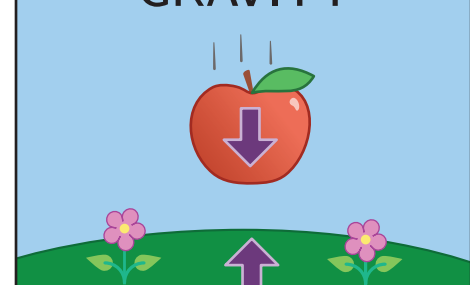
GRAM



$$\frac{1}{1,000} \text{ kg}$$

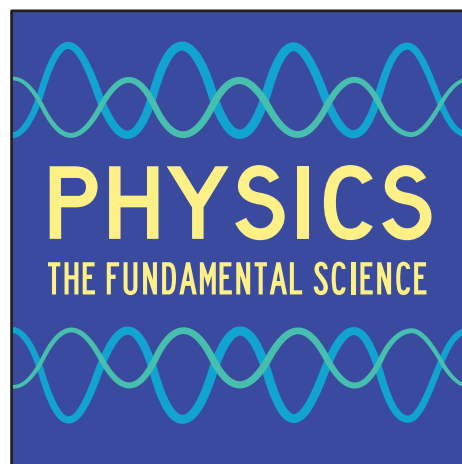
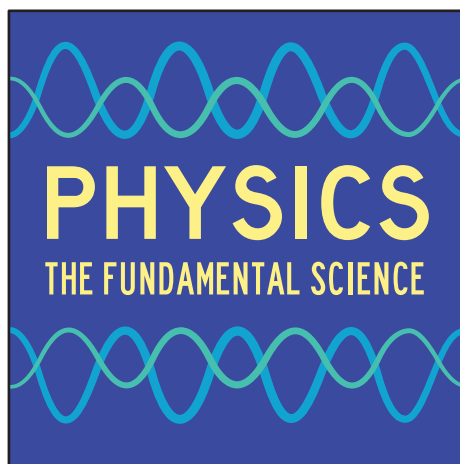
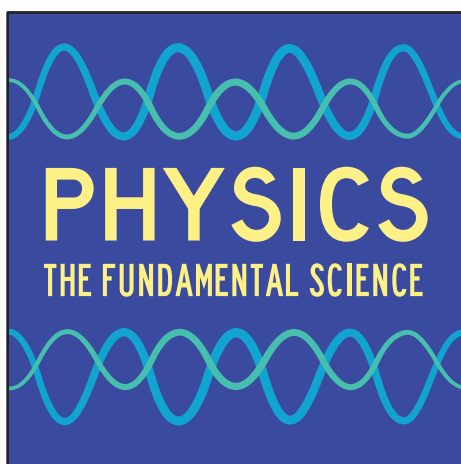
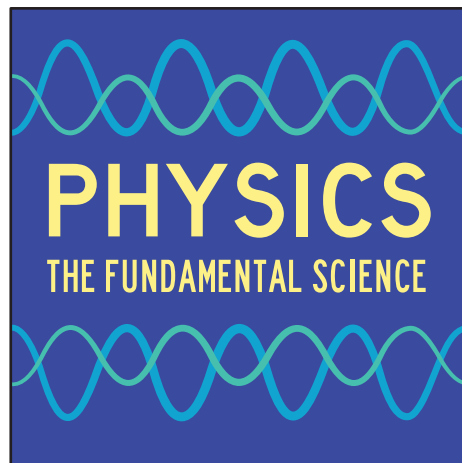
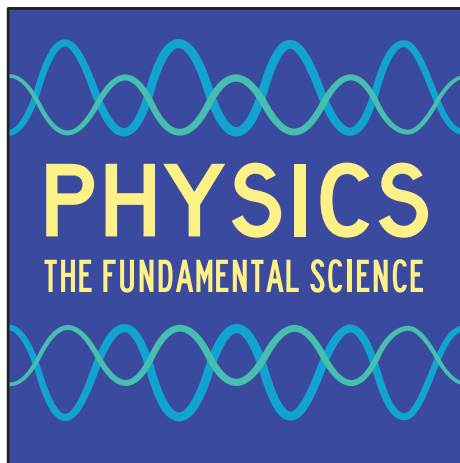
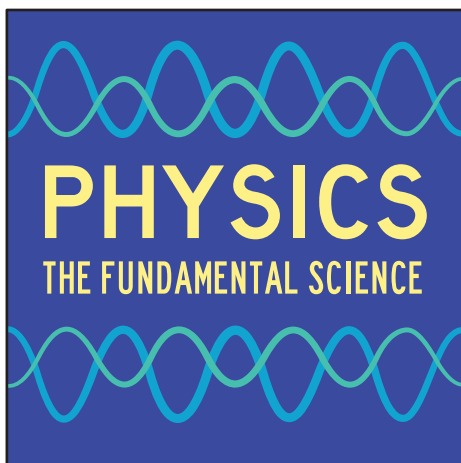
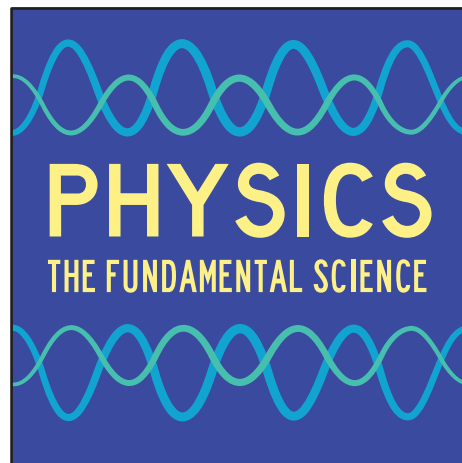
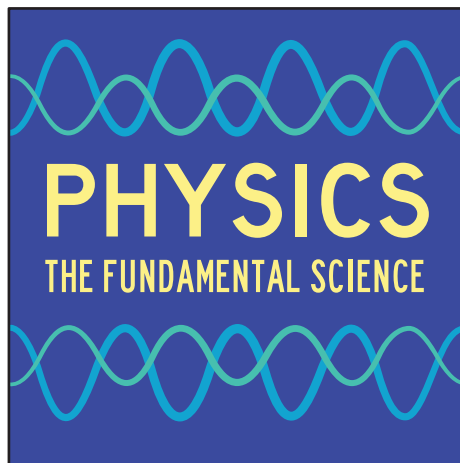
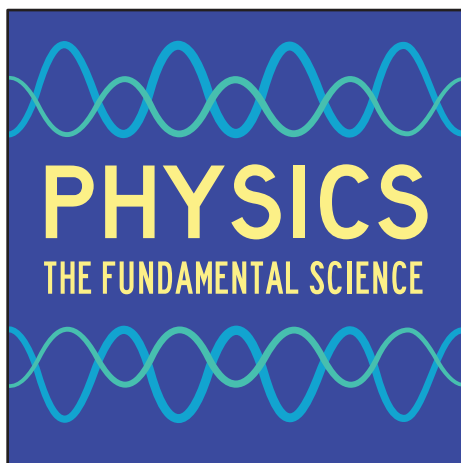
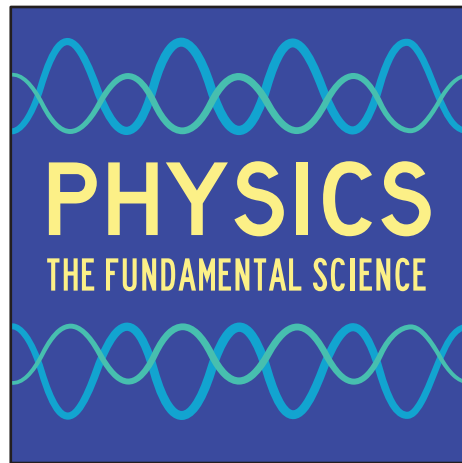
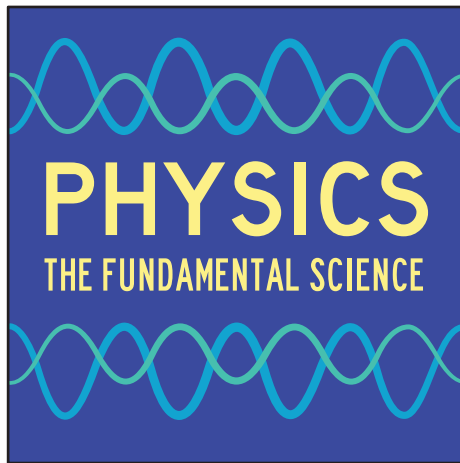
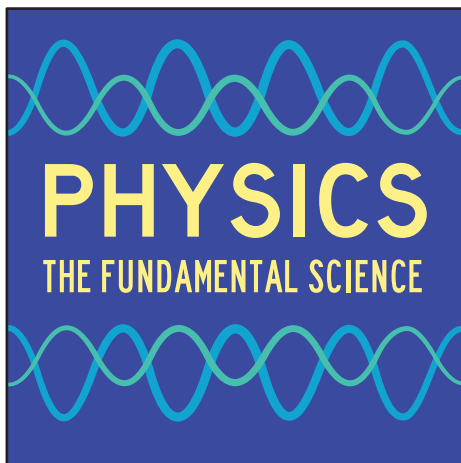
A unit of mass equal to one thousandth of a kilogram

GRAVITY

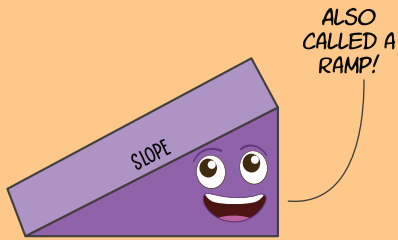


$$F = G \frac{m_1 m_2}{r^2}$$

The force that pulls objects toward each other

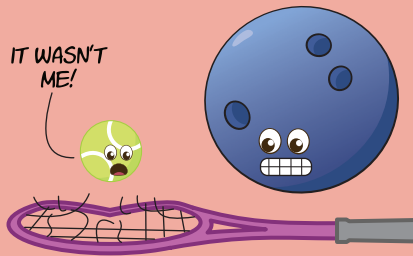


INCLINED PLANE



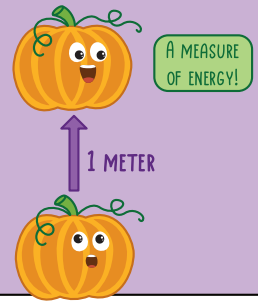
One of the six classic simple machines

INERTIA



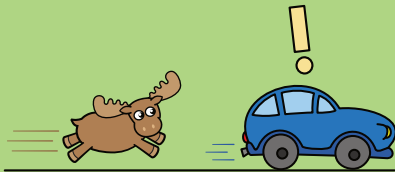
Resistance to a change in motion
MORE MASS = MORE INERTIA

JOULE



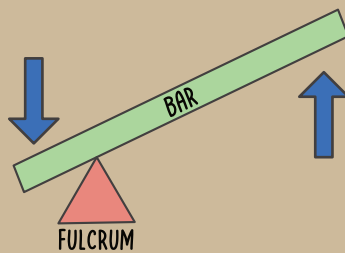
$J = \frac{\text{kg} \cdot \text{m}^2}{\text{s}^2}$ The work done by a force of 1 newton thru 1 meter

KINETIC ENERGY



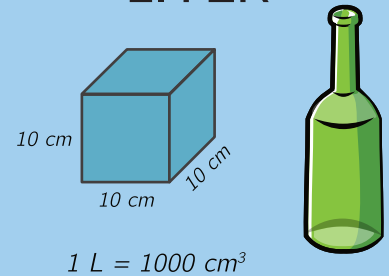
$KE = \frac{1}{2}mv^2$ Energy due to motion

LEVER



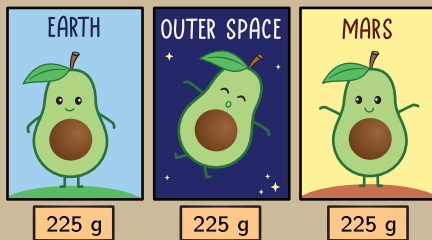
One of the six classic simple machines

LITER



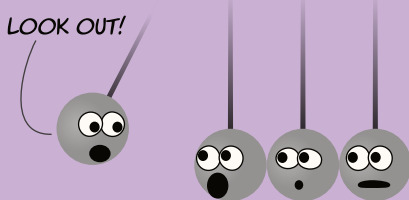
L Metric unit of volume equal to 1000 cubic centimeters

MASS



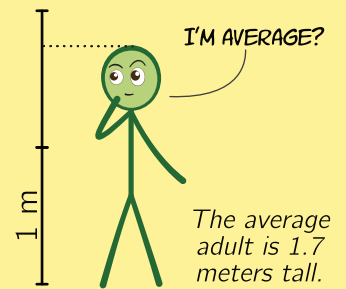
kg or g The amount of matter in an object or particle

MECHANICS



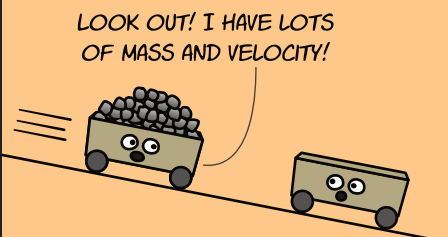
The branch of physics that studies the interactions of forces and matter

METER



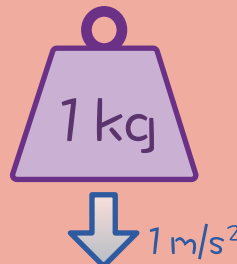
m A metric unit of length

MOMENTUM



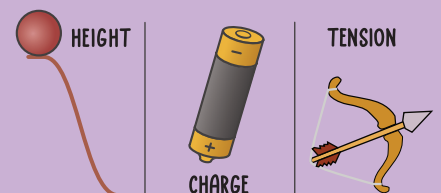
$\vec{p} = m \cdot \vec{v}$ The product of mass and velocity

NEWTON

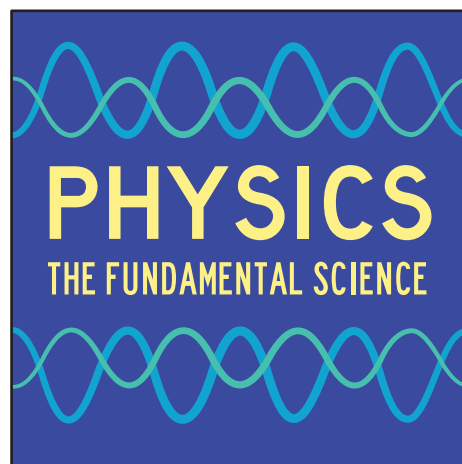
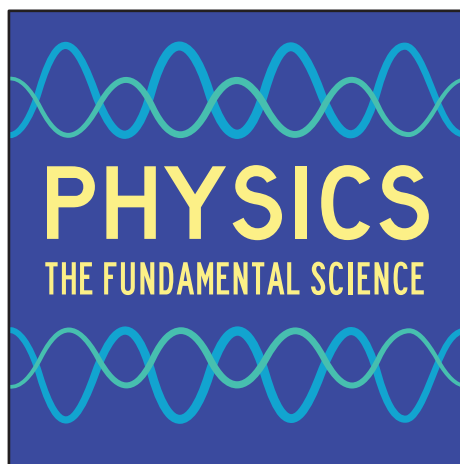
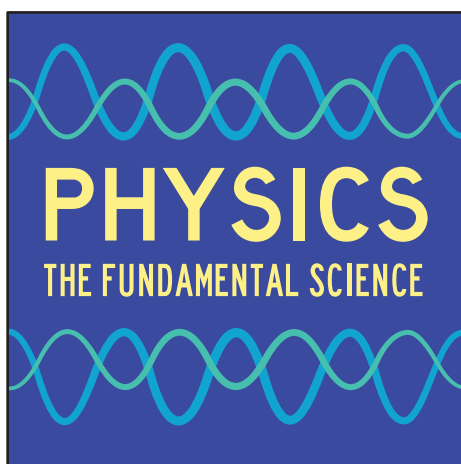
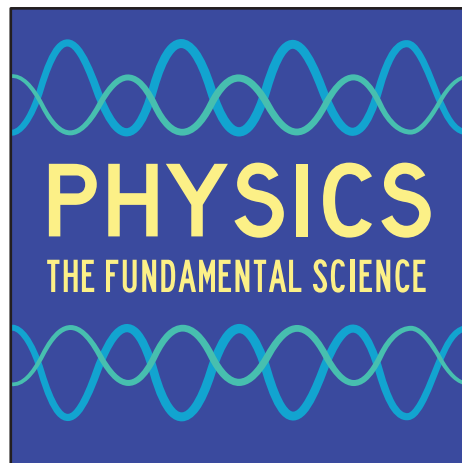
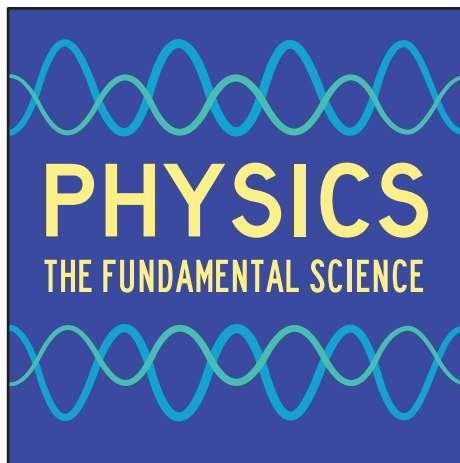
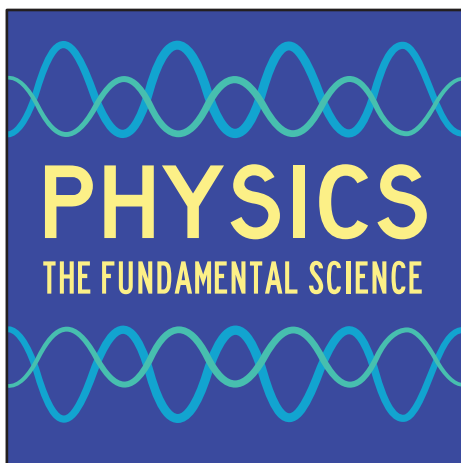
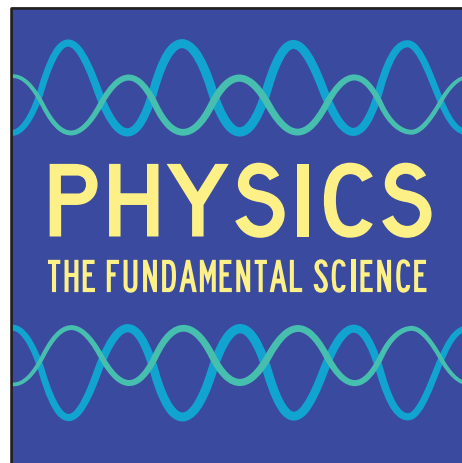
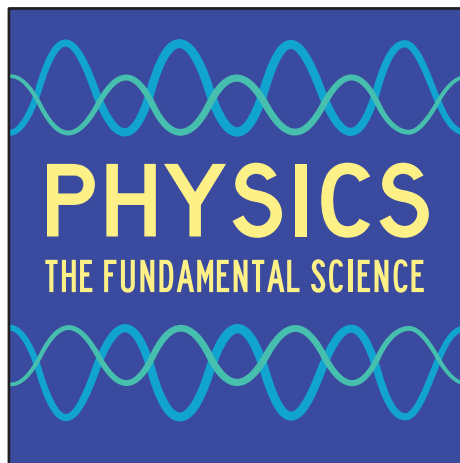
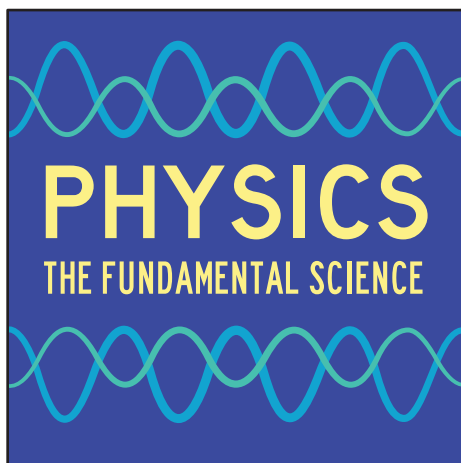
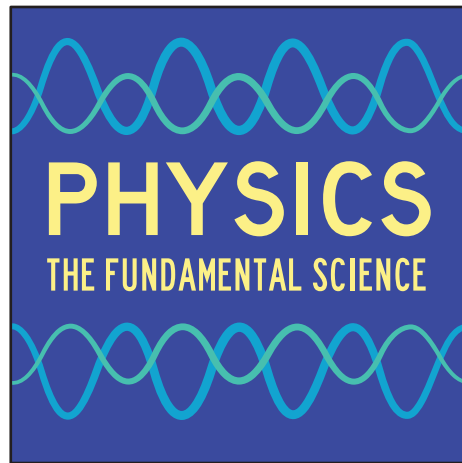
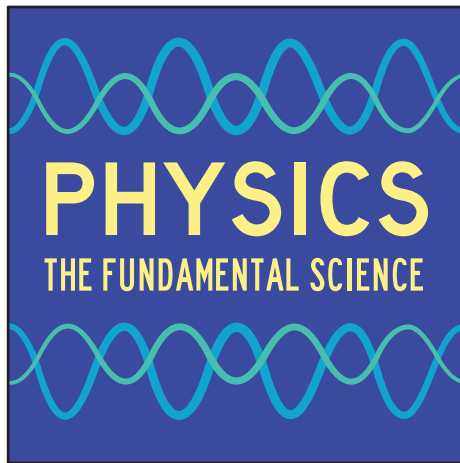
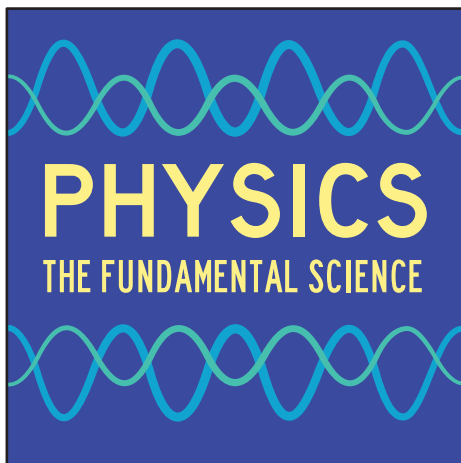


$1\text{kg} \cdot \text{m/s}^2$ The force that gives 1 kg an acceleration of 1 m/s²

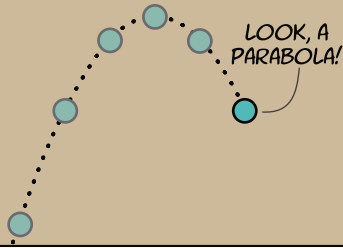
POTENTIAL ENERGY



Stored energy based on position, charge, or internal stress

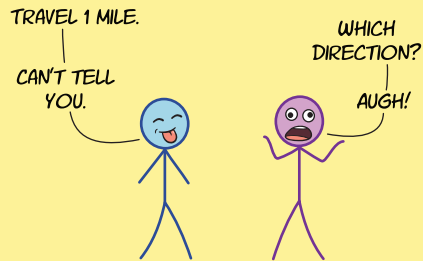


PROJECTILE MOTION



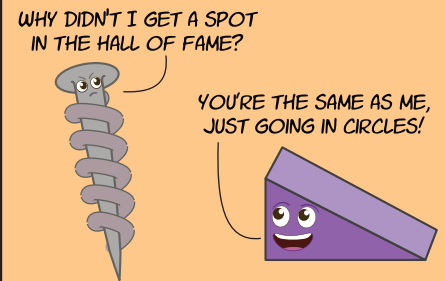
The motion of an object that is only acted upon by gravity.

SCALAR



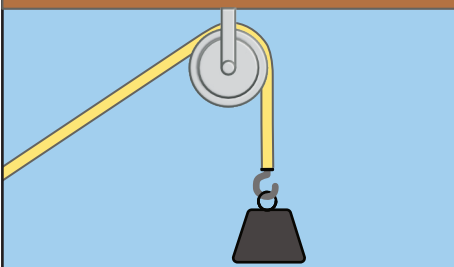
A quantity that has magnitude but no direction

SCREW



One of the six classic simple machines

PULLEY



One of the six classic simple machines

SPEED



$$\frac{d}{t}$$

Distance divided by time

THERMAL ENERGY



Thermal energy is due to the movement of particles

VECTOR



$$\vec{v}$$

A quantity that has both magnitude and direction

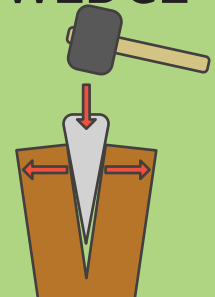
VELOCITY



$$\frac{\Delta \vec{x}}{\Delta t}$$

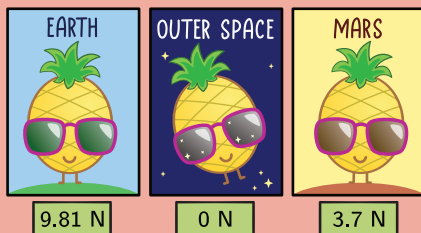
Change in position over time

WEDGE



One of the six classic simple machines

WEIGHT



$$W = m \cdot g$$

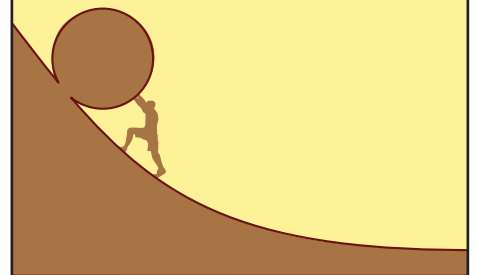
The force acting on an object due to gravity

WHEEL and AXLE



One of the six classic simple machines

WORK



$$W = F \cdot s$$

Energy needed to move an object thru a distance

