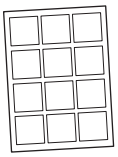
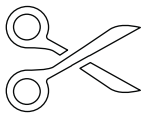
PHYSICS VOCAB MEMORY GAME

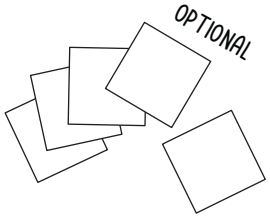
MATERIALS



The printable memory cards



scissors



46 pieces of cardboard cut to 2.5" squares

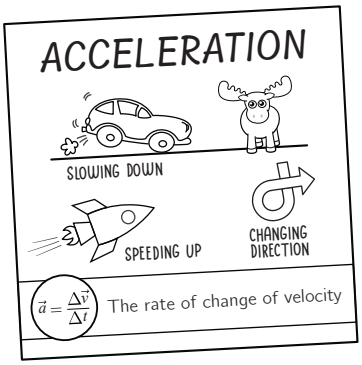
glue or tape

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:

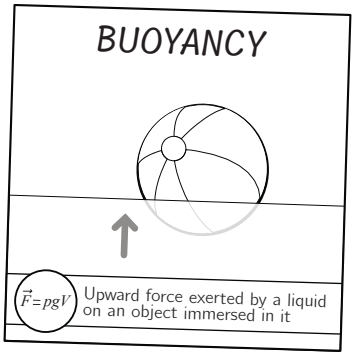
Shuffle the cards and lay them on the table, face down, in rows.

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.

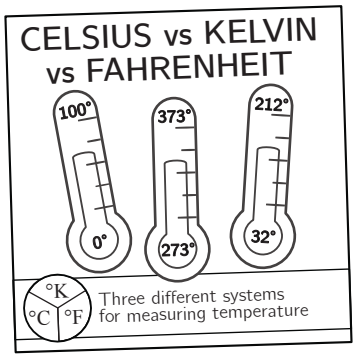


VARIATIONS:

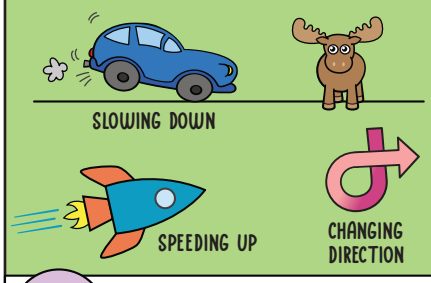
1. One and Done. Simply alternate turns until all of the cards have been paired. Players who find a match have no bonus turn.

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."

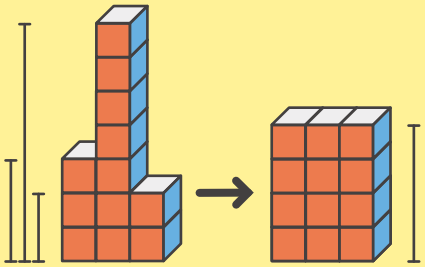


ACCELERATION



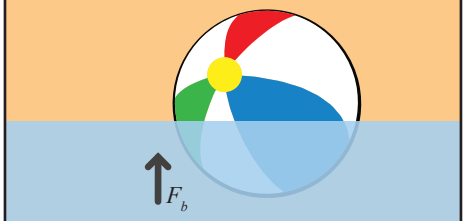
$\vec{a} = \frac{\Delta \vec{v}}{\Delta t}$ The change in velocity over time

AVERAGE



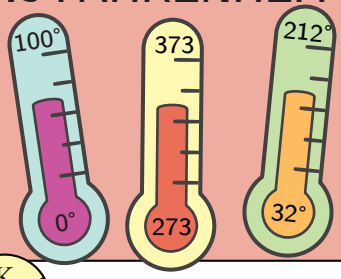
$\frac{x_1 + \cdots + x_n}{n}$ Sum of all values divided by the number of values

BUOYANCY



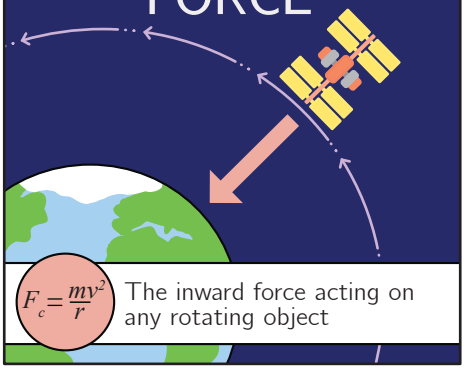
$\vec{F}_b = \rho g V$ The upward force exerted by a fluid on an object

CELSIUS vs KELVIN vs FAHRENHEIT



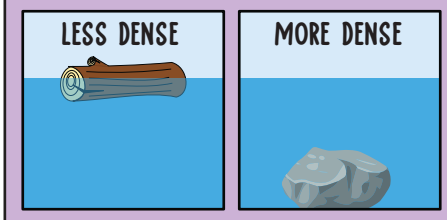
K °C °F Three different systems for measuring temperature

CENTRIPETAL FORCE



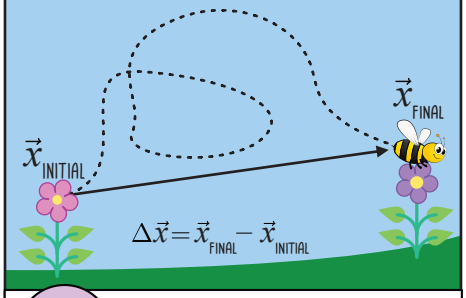
$F_c = \frac{mv^2}{r}$ The inward force acting on any rotating object

DENSITY



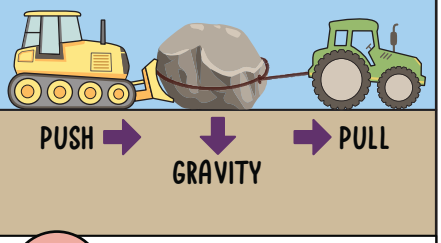
$\rho = \frac{m}{V}$ How much mass there is per unit of volume

DISPLACEMENT



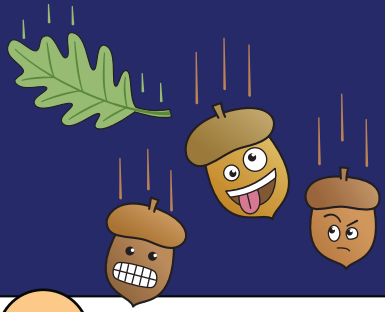
$\Delta \vec{x}$ The straight line distance between initial and final position

FORCE



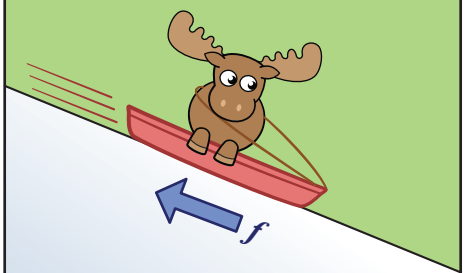
$\vec{F} = m\vec{a}$ A push or pull that can make objects move, change, or bend

FREE FALL



$9.8\ m/s^2$ on Earth Downward movement under the force of gravity only

FRICTION

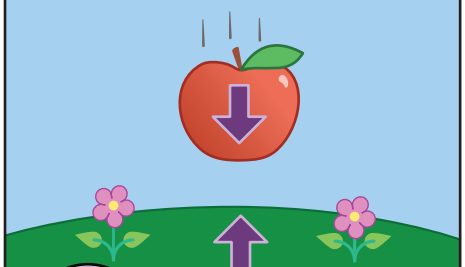


$\vec{F} = \mu \vec{N}$ The resistive force between objects in contact

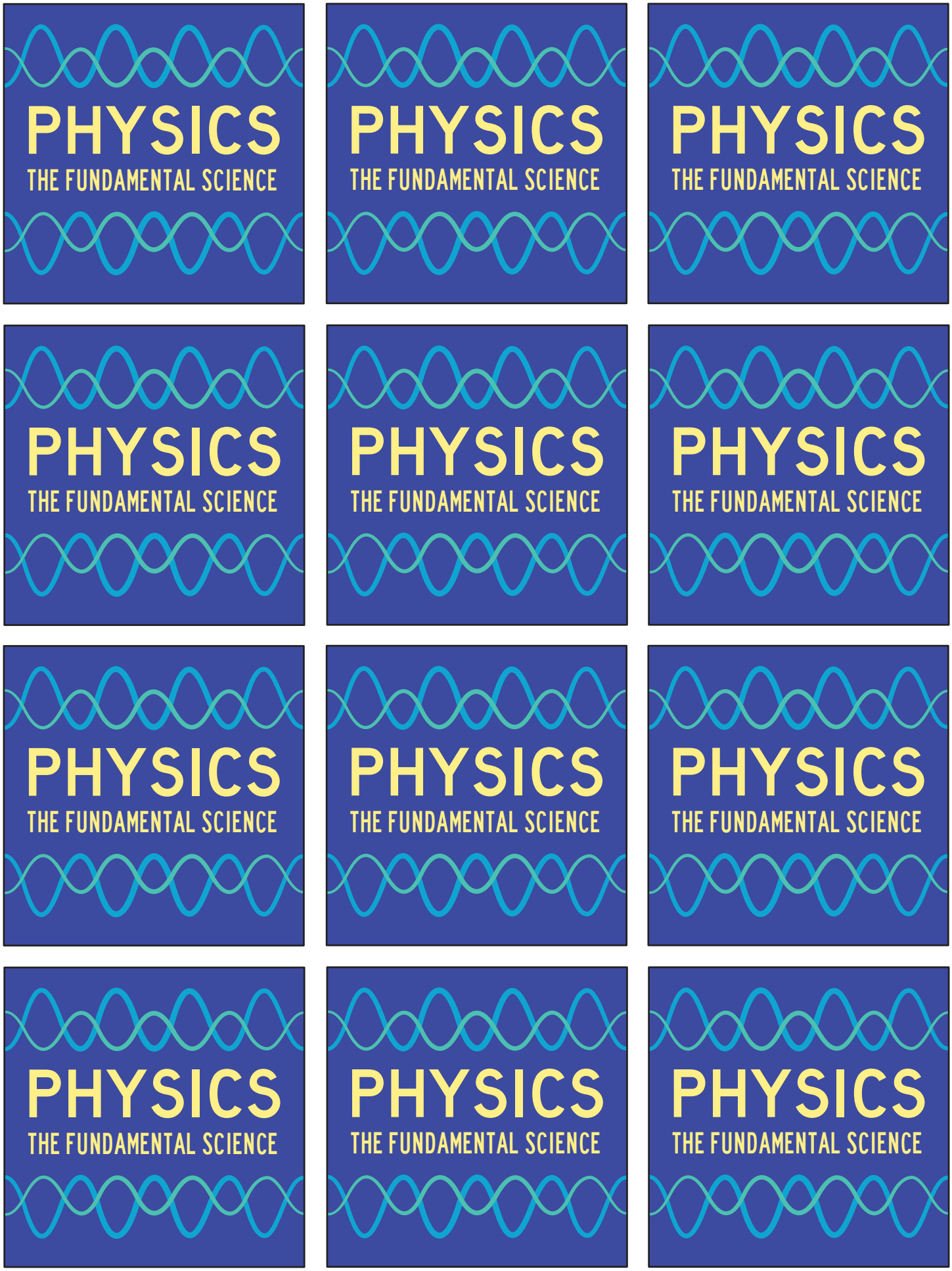
GRAM

$\frac{1}{1{,}000}$ 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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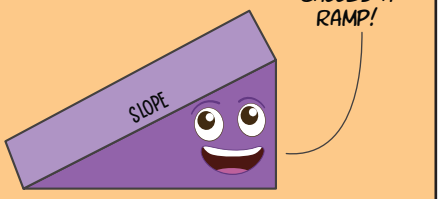
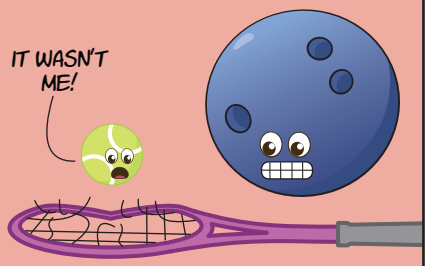
INCLINED PLANE



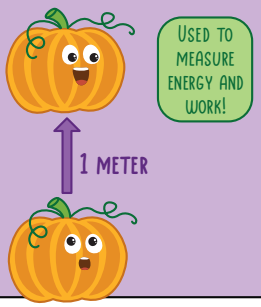
One of the six classic simple machines

INERTIA



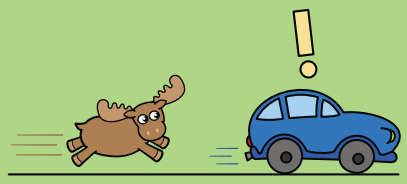
Resistance to a change in motion
MORE MASS = MORE INERTIA

JOULE



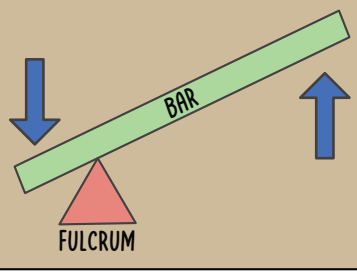
$J = \frac{kg \cdot m^2}{s^2}$ The work done by a force of 1 newton thru 1 meter

KINETIC ENERGY



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

LEVER



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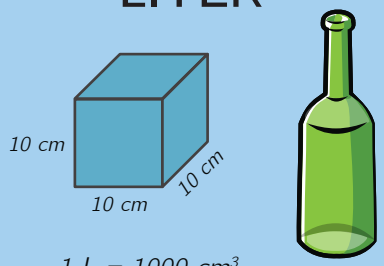
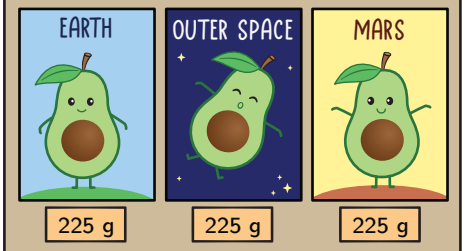
LITER



1 L = 1000 cm³

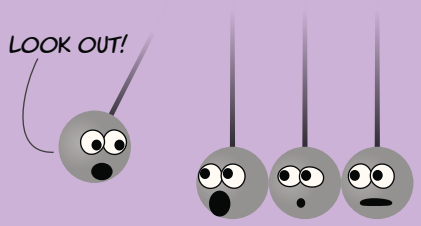
L Metric unit of volume equal to 1000 cubic centimeters

MASS



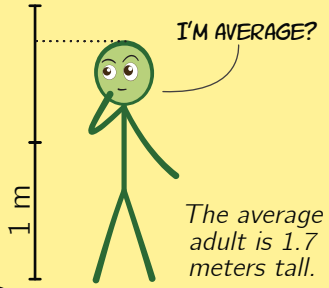
kg *or* g The amount of matter in an object or particle

MECHANICS



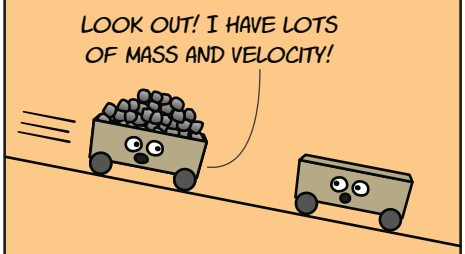
The branch of physics that studies the interactions of forces and matter

METER



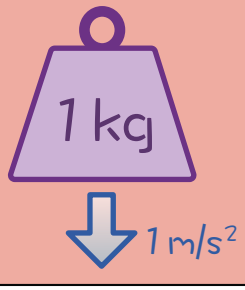
m A metric unit of length

MOMENTUM



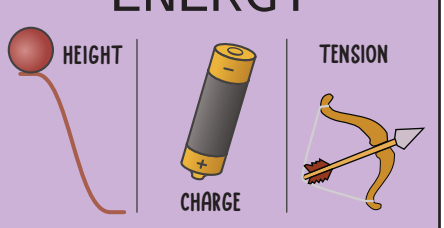
$\vec{p} = m \cdot \vec{v}$ The product of mass and velocity

NEWTON

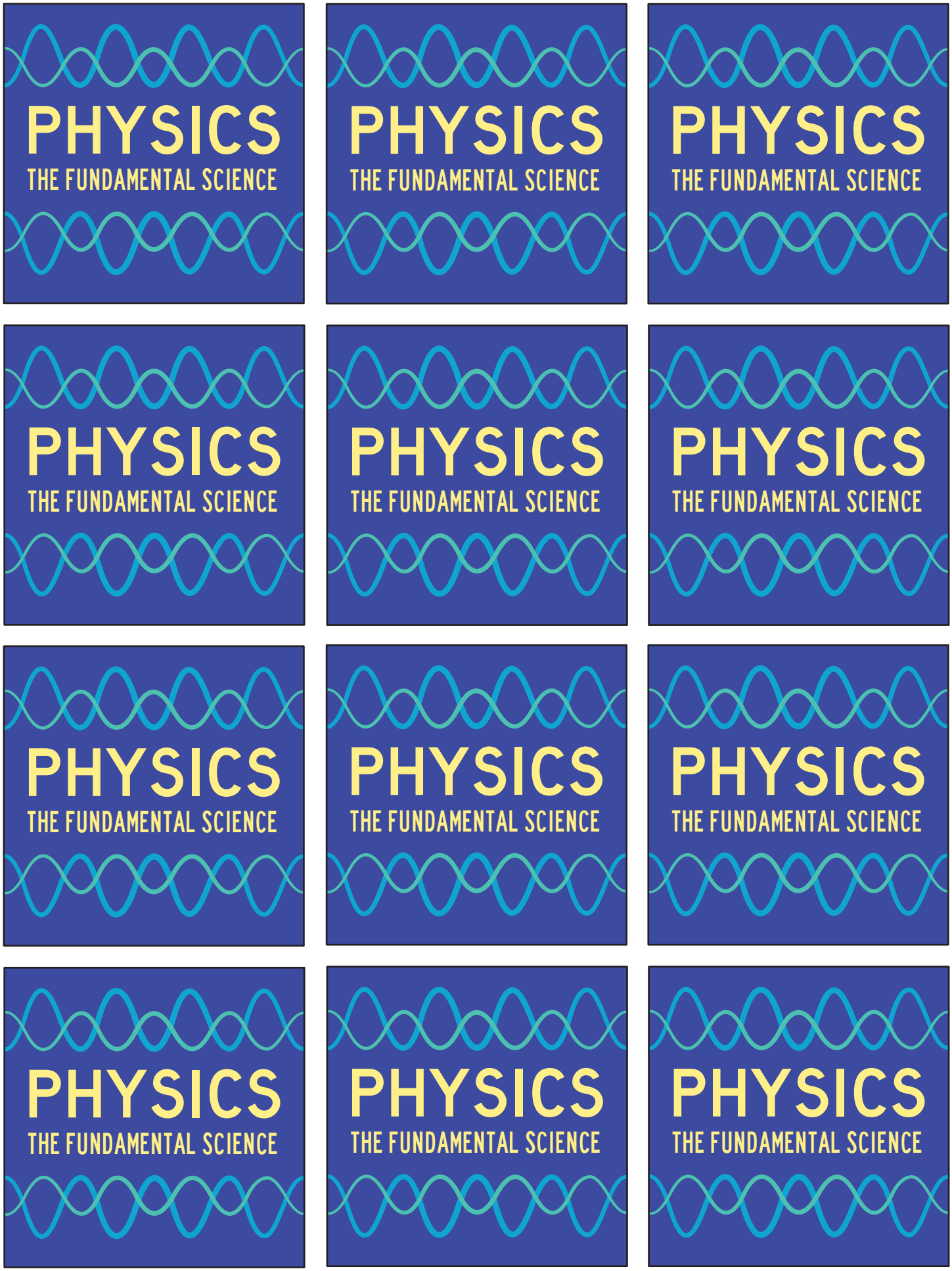


$1 kg \cdot m/s^2$ The force that gives 1 kg an acceleration of 1 m/s²

POTENTIAL ENERGY



Stored energy based on position, charge, or internal stress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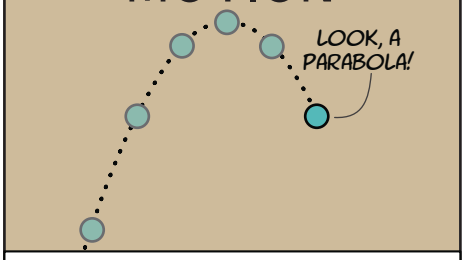
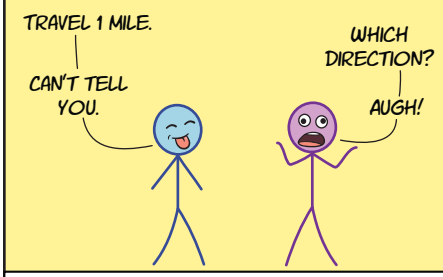
PROJECTILE MOTION



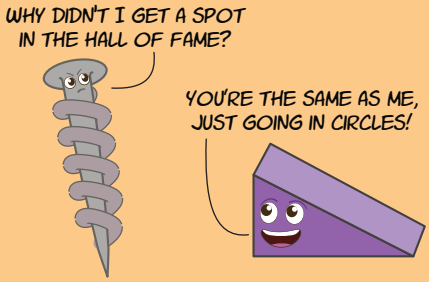
The motion of an object that is only acted upon by gravity.

SCALAR



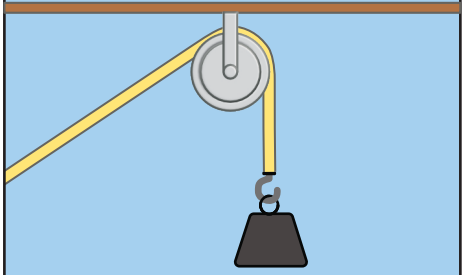
A quantity that has a magnitude (measurement) but no direction

SCREW



One of the six classic simple machines

PULLEY



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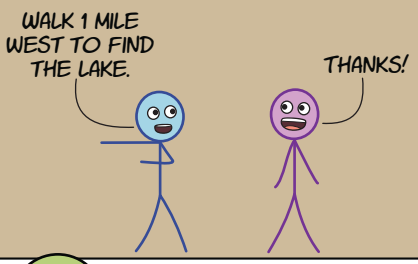
SPEED

$\frac{d}{t}$ Distance divided by time

THERMAL ENERGY

Thermal energy is due to the movement of particles

VECTOR

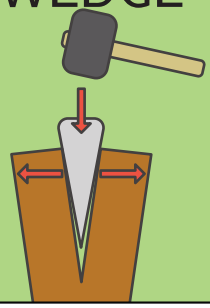


$\vec{v}$ A quantity that has both magnitude and direction

VELOCITY

$\frac{\Delta \vec{x}}{\Delta t}$ Change in position over time

WEDGE

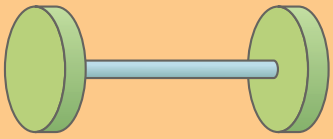


One of the six classic simple machines

WEIGHT

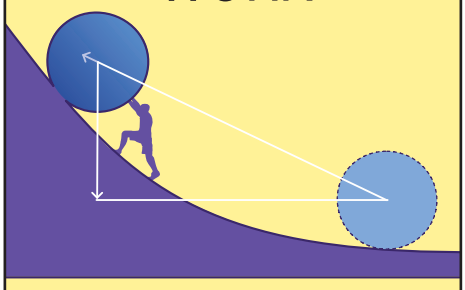
$W=m \cdot g$ The force acting on an object due to gravity

WHEEL and AXLE

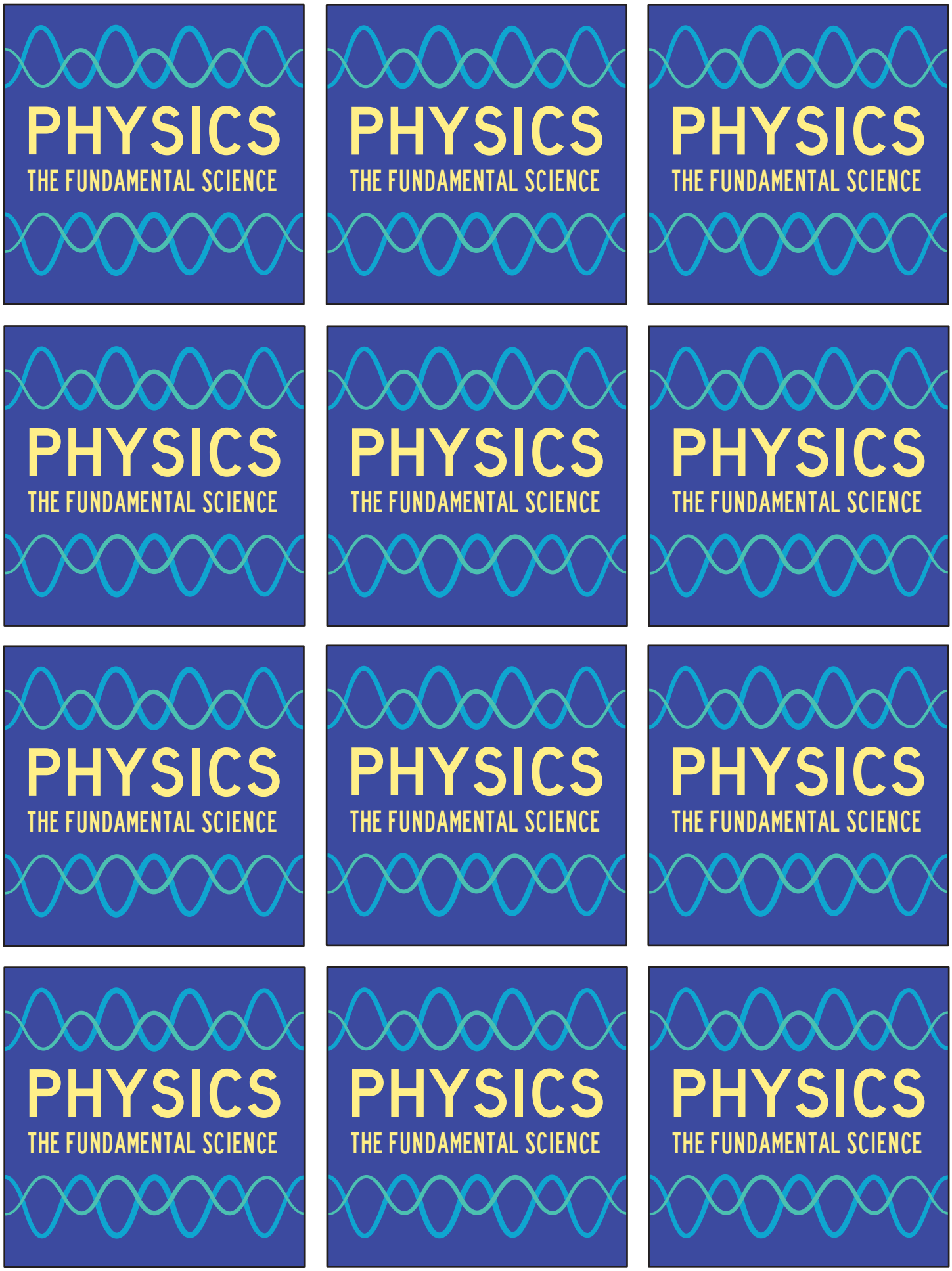


One of the six classic simple machines

WORK



$W=F \cdot d$ Energy needed to move an object through a distance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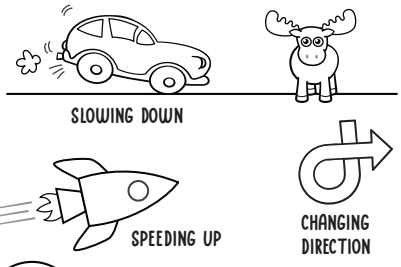
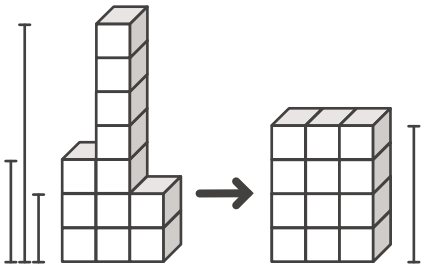
ACCELERATION



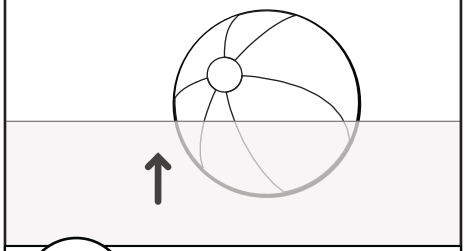
$\vec{a} = \frac{\Delta \vec{v}}{\Delta t}$ The rate of change of velocity

AVERAGE



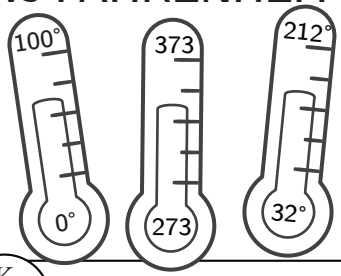
$\frac{x_1 + \cdots + x_n}{n}$ Sum of all values divided by the number of values

BUOYANCY



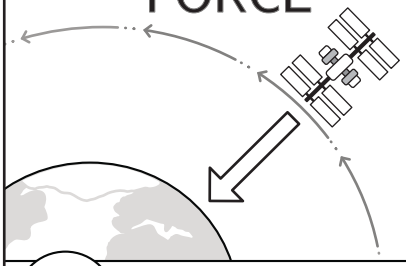
$\vec{F}_b = -pgV$ The upward force exerted by a fluid on an object

CELSIUS vs KELVIN vs FAHRENHEIT



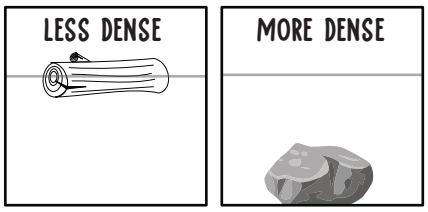
K / °C / °F Three different systems for measuring temperature

CENTRIPETAL FORCE



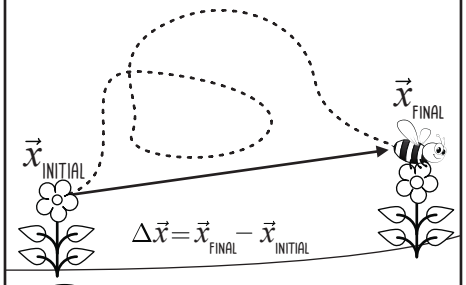
$F_c = \frac{mv^2}{r}$ The inward force acting on any rotating object

DENSITY



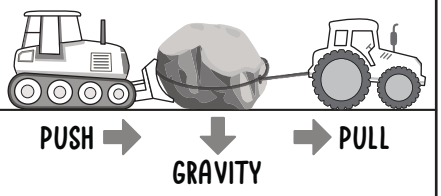
$\rho = \frac{m}{V}$ How much mass per unit of volume, how compact it is

DISPLACEMENT



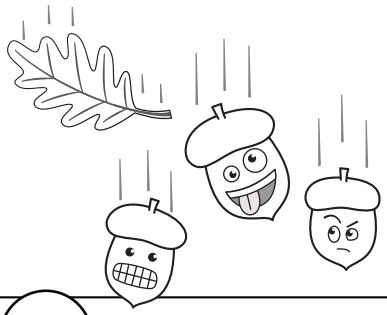
$\Delta \vec{x}$ Straight line distance between initial and final position

FORCE



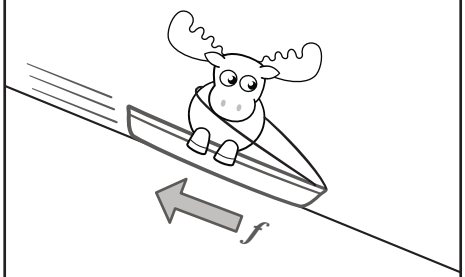
$\vec{F} = m\vec{a}$ A push or pull that can make objects move, change, or bend

FREE FALL



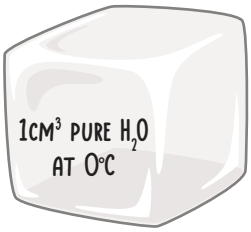
$9.8\ m/s^2$ on Earth Downward movement under the force of gravity only

FRICTION



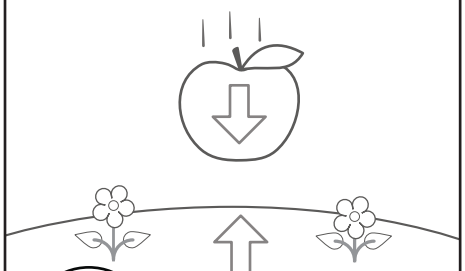
$\vec{F} = \mu \vec{N}$ Resistive force between objects in contact

GRAM

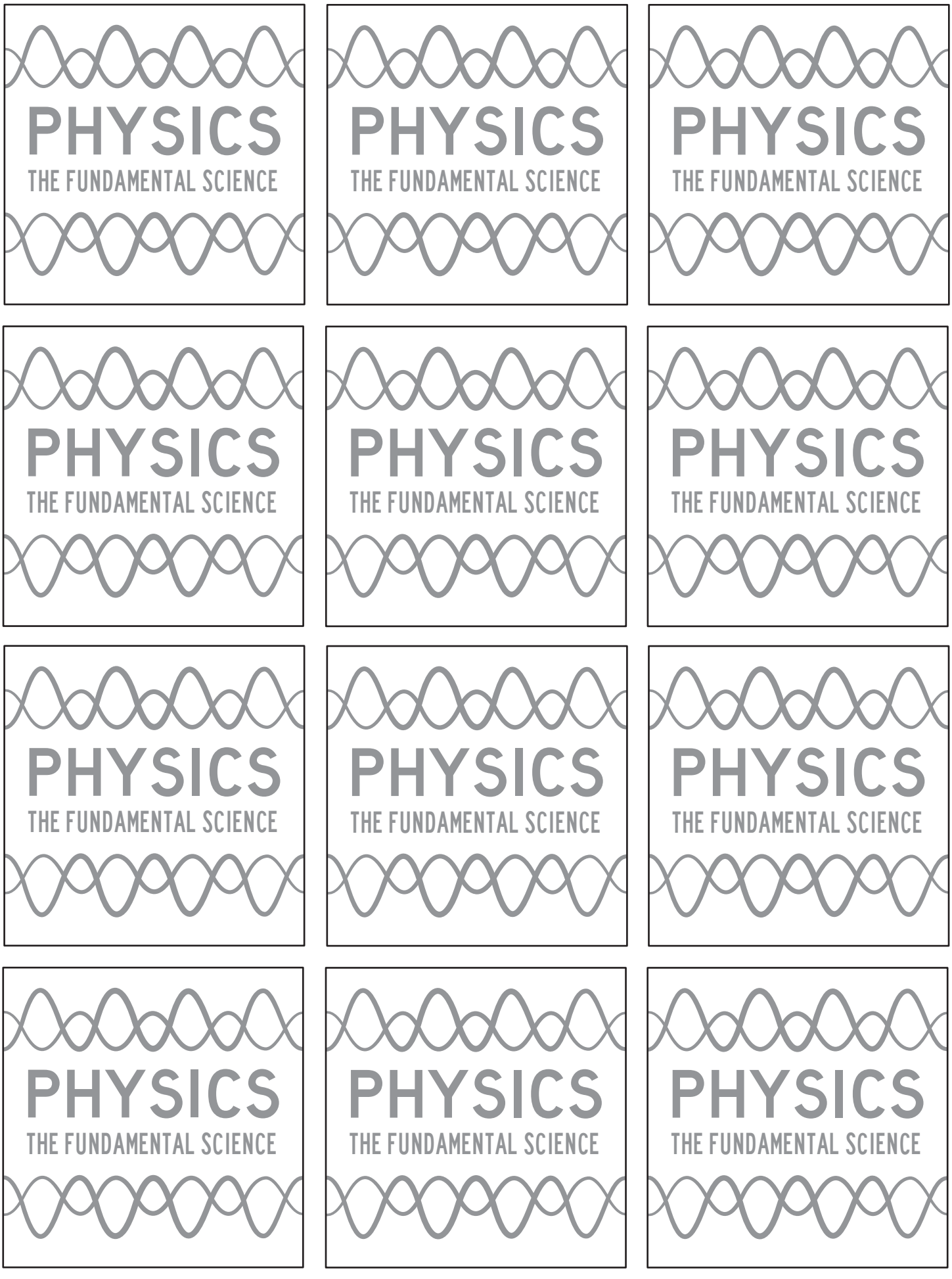


$\frac{1}{1{,}000}$ kg A unit of mass equal to one thousandth of a kilogram

GRAVITY



$F = G\frac{m_1 m_2}{r^2}$ The force that pulls objects toward each other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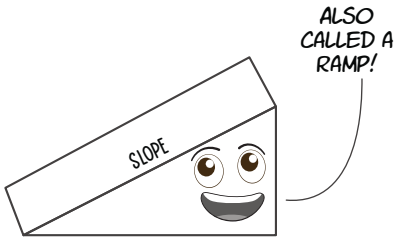
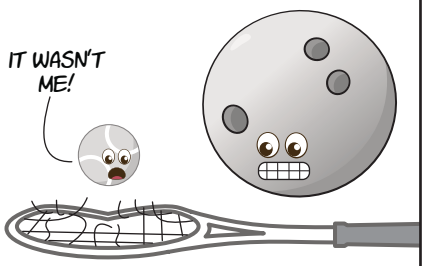
INCLINED PLANE



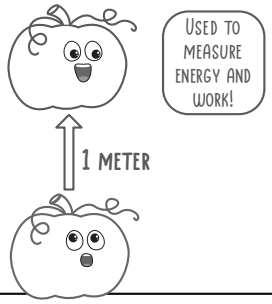
One of the six classic simple machines

INERTIA



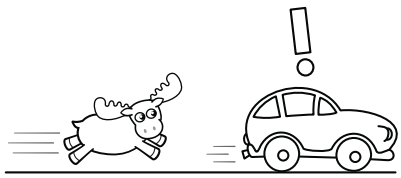
Resistance to a change in motion
MORE MASS = MORE INERTIA

JOULE



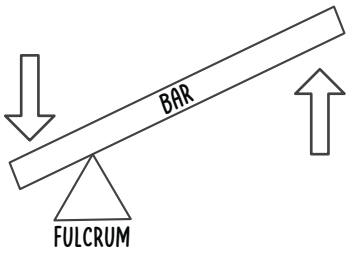
$J = \frac{kg \cdot m^2}{s^2}$ The work done by a force of 1 newton thru 1 meter

KINETIC ENERGY



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

LEVER



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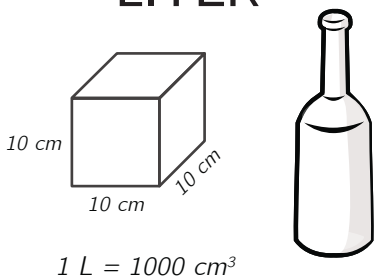
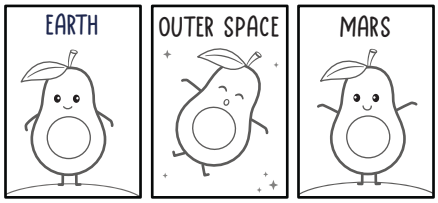
LITER



1 L = 1000 cm³

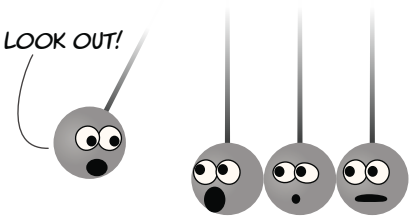
L Metric unit of volume equal to 1000 cubic centimeters

MASS



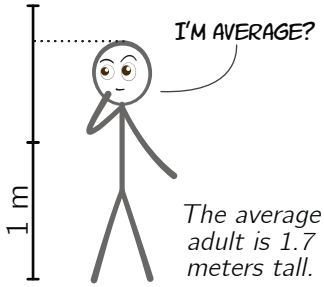
kg *or* g The amount of matter in an object or particle

MECHANICS



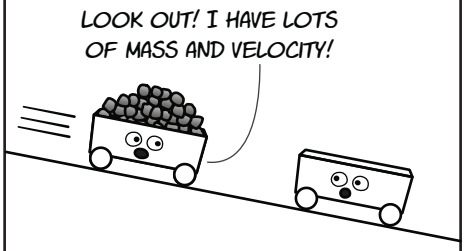
The branch of physics that studies the interactions of forces and matter

METER



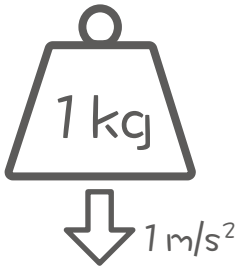
m A metric unit of length

MOMENTUM



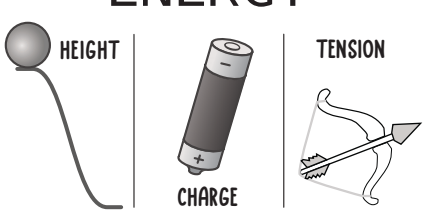
$\vec{p} = m \cdot \vec{v}$ The product of mass and velocity

NEWTON

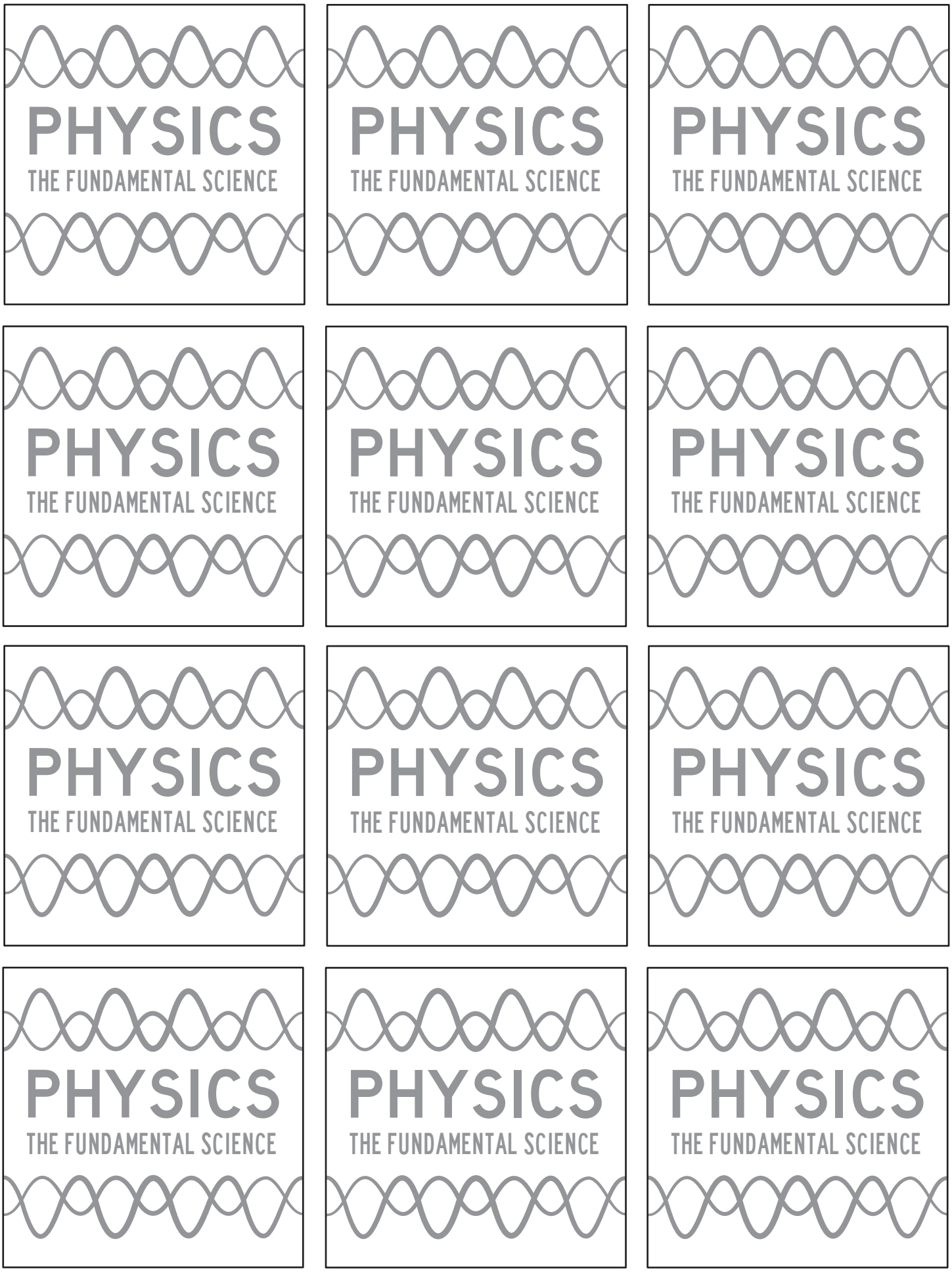


$1 kg \cdot m/s^2$ The force that gives 1 kg an acceleration of 1 m/s²

POTENTIAL ENERGY



Stored energy based on position, charge, or internal stress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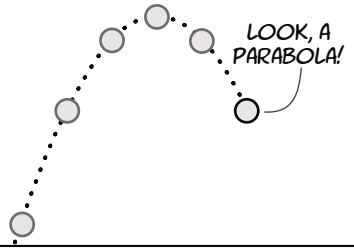
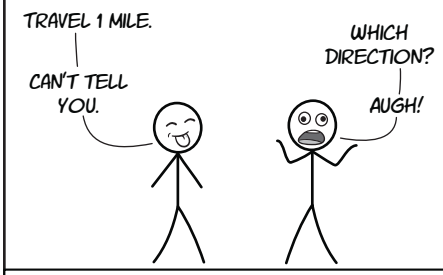
PROJECTILE MOTION



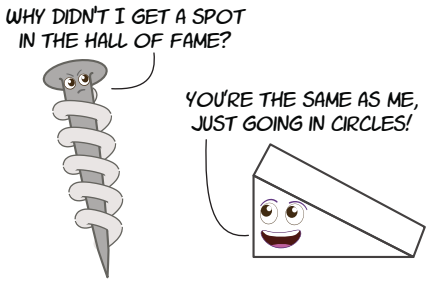
The motion of an object that is only acted upon by gravity.

SCALAR



A quantity that has magnitude but no direction

SCREW



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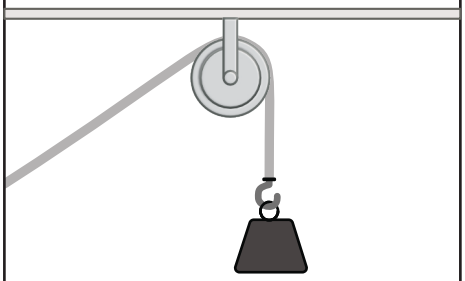
PULLEY



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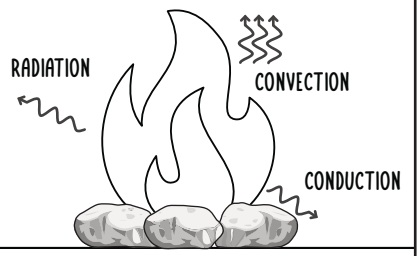
SPEED

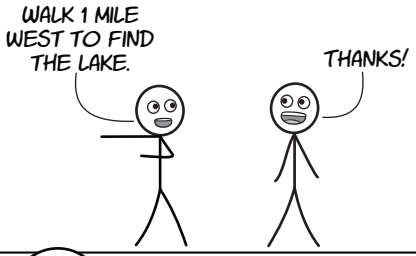
$\frac{d}{\Delta t}$ Distance divided by time

THERMAL ENERGY



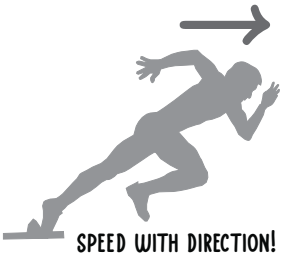
Heat energy is due to the movement of particles

VECTOR



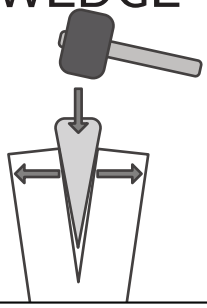
$\vec{v}$ A quantity that has both magnitude and direction

VELOCITY



$\frac{\Delta \vec{x}}{\Delta t}$ Change in position over time

WEDGE



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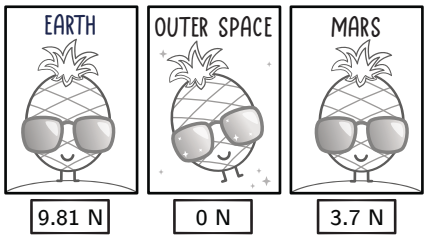
WEIGHT



$W=m \cdot g$ The force acting on an object due to gravity

WHEEL and AXLE

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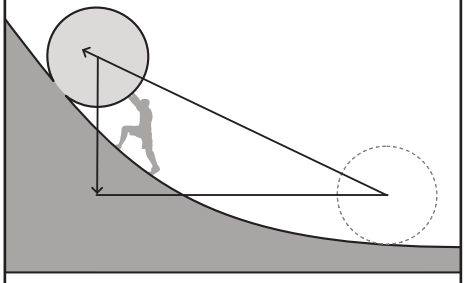
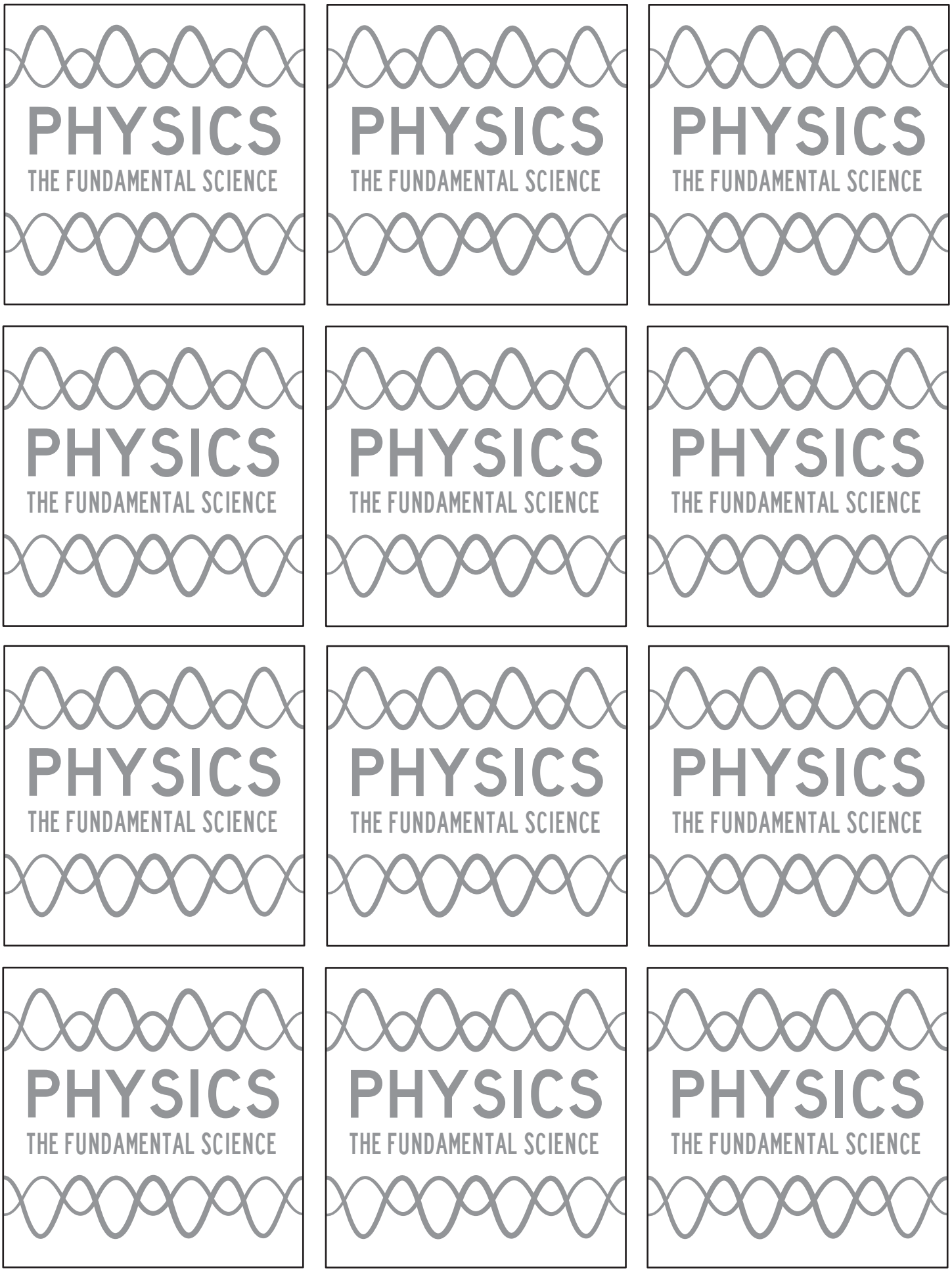
WORK



$W=F \cdot d$ Energy needed to move an object thru a distance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