

-Vocabulary words are embedded and introduced when they become useful in a lesson instead of at the beginning of a unit

-“Scientists have a word for this- it’s called...”

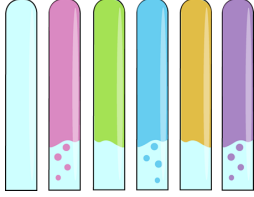
(This is an example of how vocab should be introduced rather than front loading at the beginning of the lesson)

-Washington University in St. Louis MySci Units

**These vocabulary words are connected with specific challenges in the STEAM book. Even with the connections shown at the bottom of the cards many of the words can be used for other challenges in the book as well. Feel free to use the words in all challenges that relate to the concept.

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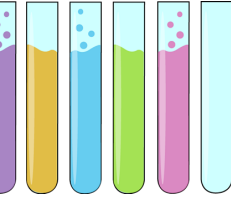
Absorption



The act of soaking up or absorbing

*Evaporation Art

3



Grades
3—5



STEAM

Vocabulary Cards



Accuracy

Freedom from mistake or error: the quality or state of being accurate

*Marshmallow Catapult

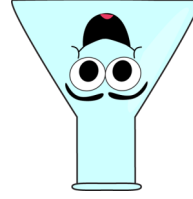
4

*Acid Attack, Exploding Sandwich Bag, Lava Lamp, Lemon Battery, Self-Inflating Balloon

An acid is a chemical that will
neutralize a base such as an
alkali



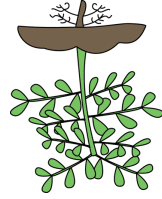
Acid



Air Resistance

The force acts in the opposite
direction to an object moving
through the air

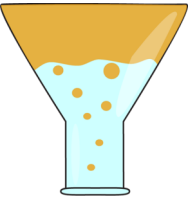
*A Day at the Airplane Races, Pop Can Races, Popcorn Huff and Puff



Active

Always doing something;
busy; full of energy

*Stacking Cup towers



Activation

To cause (a chemical reaction
or natural process) to begin

*Cotton Candy Fluffy Slime

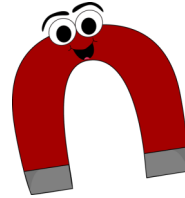
*Floating a Ping Pong Ball

Angle



The difference between the
direction of two lines or
surfaces that come together

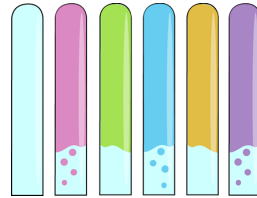
*Kaleidoscope



Air Stream

A current of air

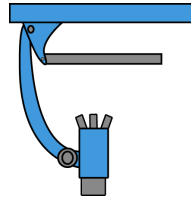
Attract



To pull toward

*How to Make Lightning, Magnet Painting

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*Blue Sky

Atmosphere

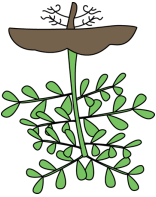
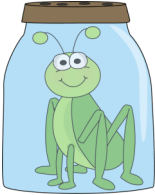
The layer of air that
surrounds earth

11

*Button, Button, Button, and Zipline

To make (something, such as a plate or your body) steady by keeping weight equal on all sides

Balance



Bending

To use force to cause (something, such as a wire or pipe) to become curved

*Spaghetti Towers



Balanced Forces

The forces acting on an object that are equal in size and opposite in direction

*Floating a Ping Pong Ball, Pop Can Races

Base (Structural)

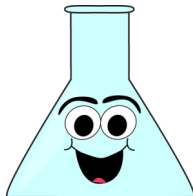


The part on which something rests or is supported

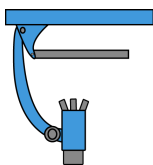
*Stacking Cup Towers

options

A way of representing
information using only two



Binary Code



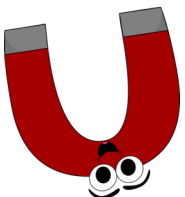
Calcium (Ca)

A substance that is found in

most plants and animals and
that is especially important in
people for strong healthy

bones

The power of a liquid to make
someone or something float



Buoyancy

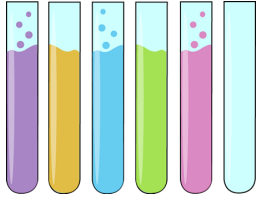
Buoyancy Force



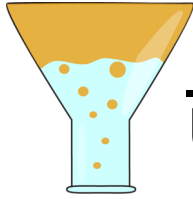
The upward force exerted by
any fluid upon a body placed
in it

*Evaporation Art

The tendency of a liquid in a capillary tube or absorbent material to rise or fall as a result of surface tension



Capillary Action



Catchment Basin

A topographic region in which all water drains to a common outlet

*Can You Catch the Water?



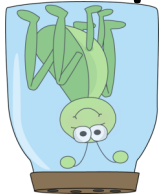
Carbon Dioxide (CO₂)

A heavy colorless gas

*Exploding Sandwich Bag

*Grass Heads

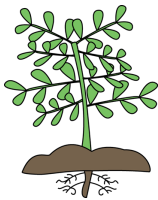
The cycle of carbon in living things in which carbon dioxide is used in photosynthesis to form food and growth substances



Carbon Cycle

A closed path along which an electric current travel

Circuit

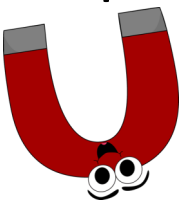


Center Of Gravity

The point at which the entire weight of a body can be thought of as concentrated

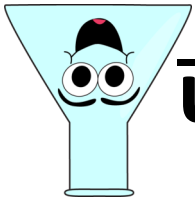
The cavity in the vertebrate body enclosed by the ribs between the diaphragm and the neck and containing the lungs and heart

Chest Cavity



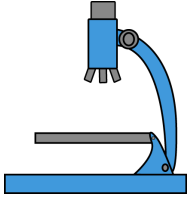
A reaction or change in a substance produced by chemical means that results in producing a different chemical

Chemical Reaction



*Buttons, Buttons, Buttons

Classify



The grouping of things by
using a set of rules



Color Scattering

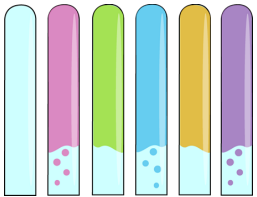
A phenomenon of light (such
as red, brown, pink, or gray)
or visual perception that
enables one to differentiate
otherwise identical objects

*Blue Sky

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*Code Your Name

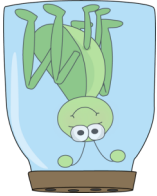
Code



Any set of instructions
expressed in a programming
language

language

Cohesion



Molecular attraction by which
the particles of a body are
united throughout the mass

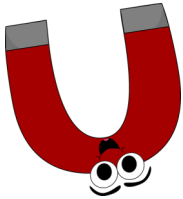
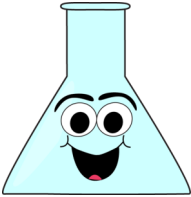
*Drops on a Penny

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A supporting pillar

*Toothpick Bridges

Column

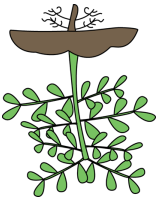


The action of compressing or
being compressed

Compression

*Spaghett Towers

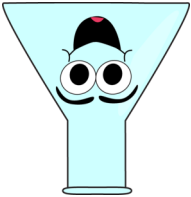
Compare



Look for ways that objects or
events are alike or different

*Buttons, Buttons, Buttons

Compound

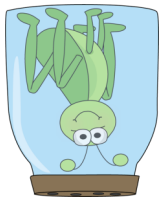


A substance made up of a

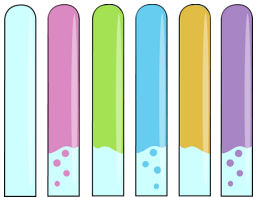
combination of two or more
elements held together by a
chemical bond that cannot be
separated by physical means

*Cornstarch Quicksand

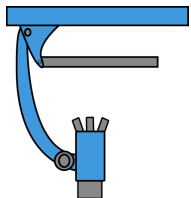
Cross Section
A cutting made across something (as a log or an apple)



Covalent Bond
Two nonmetal atoms with identical or relatively close electronegativity values



Copper
A reddish metallic element that is one of the best conductors of heat and electricity



A material, usually a metal, that transfers heat, electricity, or sound from one object to another

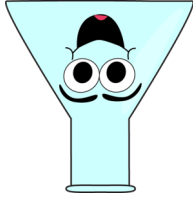
software)

Identify and remove errors
from (computer hardware or

*Code Your Name



Debug



Use this process to define the

steps needed to tackle each
project and remember to

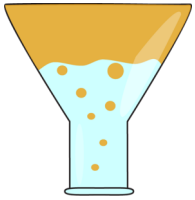
hold to all of your ideas and

sketches throughout

the process

*Spaghetti Towers

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Density

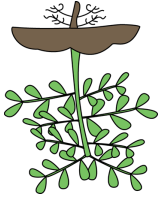
Concentration of matter of an
object; the mass per unit

volume of a substance in a

given area

*Dancing Raisins, Lava Lamp, Self-Inflating Balloons, Toothpick Bridges

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Design

The application of scientific

concepts and principles; the

process of solving human

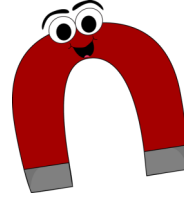
problems

*Lego Maze Challenge, Rain Stick

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Diagram

A drawing, sketch, plan, or chart that makes something clearer or easier to understand

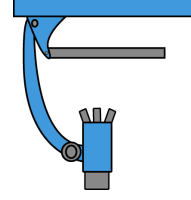


*Lego Maze

*Build an Electromagnet

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Direction Of



The path that a positive charge moves through an electrical circuit

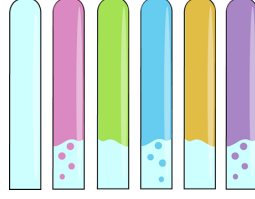
*Just Breathe

Diaphragm



A sheet of muscle that separates the cavities of the chest and abdomen in mammals

Direction



Guidance or supervision of action or conduct; the line or course on which something is moving

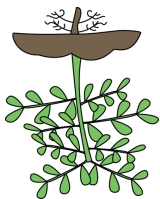
*Lego Shadow Towers, Sound Cups

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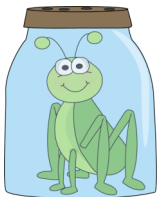
*Gumdrop Geodesic Dome

52

A rounded vault forming the roof of a building or structure, typically with a circular base



Domes



Dissolve

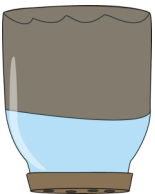
To mix or cause to mix with a liquid so that the result is a liquid that is the same throughout

*Blue Sky

*Can You Catch the Water?

51

Cause (someone or something) to change course or turn from one direction to another



Diver

*Marshmallow Catapult, Zipline

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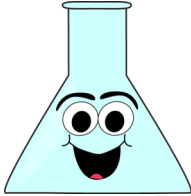
The degree or amount of separation between two points

Distance

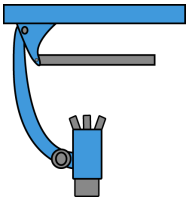


*A Day at the Airplane Races

A current of cool air in a room
or other confined space



Draft



Electrical Energy

The charge obtained by an
object when it gains or loses
electrons

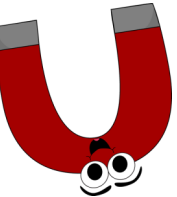
*How to Make Lightning

*Drops on a Penny



Droplet

A very small drop of a liquid

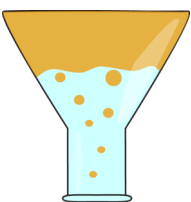


Drag

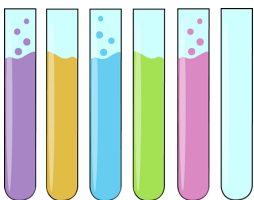
The force acting on a body (as
in an airplane) to slow it
down as the body moves
through a fluid (as air)

*Hoop Glider

The amount and direction of attraction or repulsion between two charged bodies



Electrostatic Forces



Electrical Current

The movement of electrons through matter

*Build an Electromagnet

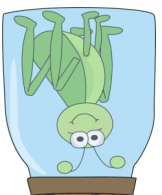
A particle that is part of an atom and that orbits the nucleus; it has a negative electrical charge



Electron

*Build an Electromagnet

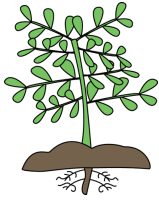
A temporary magnet made by passing electric current through a wire coiled around an iron bar



Electromagnet

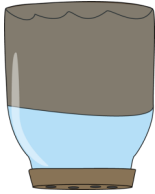
to melt

*Evaporation Art



The ability to cause change,
ex. Wind energy can cause a
rock to move, heat energy
can cause a plastic container

Energy



Erosion

The breaking down and

carrying away of rock and soil
caused by forces such as wind

and flowing water

*Acid Attack

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*Can You Catch the Water?

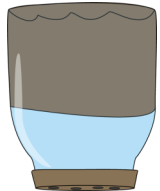


Environment

The surroundings or

conditions in which a person,
animal, or plant lives or

operates



Engineer

A person who has scientific
training and who designs and
builds solutions to problems

*Lego Maze Challenge

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water

To stay on the surface of

Float



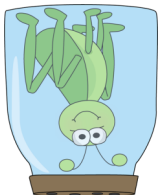
Evaporation



The process by which a liquid
is converted to its vapor
phase by heating the liquid

A procedure that is carried out
and repeated under controlled
conditions in order to
discover, demonstrate, or test
a hypothesis

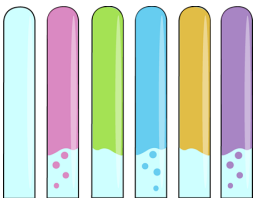
Experiment



amount

To increase in size, number, or

Expand



*Magnet Painting, Zipline

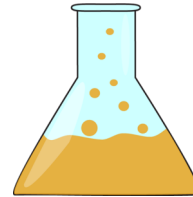
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freely
keep the objects from moving
moving objects that tries to

The force between two



Friction



Fluid

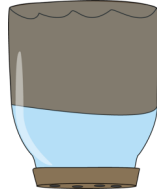
A substance tending to flow
or take the shape of its
container

*Lava Lamp, Self-Inflating Balloon

*Musical Straws

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The number of waves that
pass a specific point in a given
amount of time

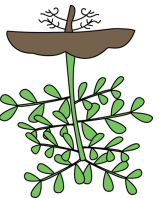


Frequency

*Gumdrop Geodesic Dome, Popcorn Huff and Puff

70

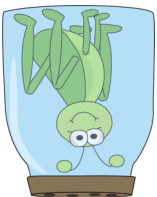
The strength or energy that
moves an object



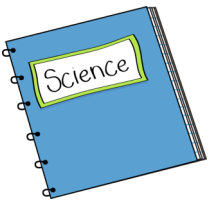
Force

*A Day at the Airplane Races, Hoop Gliders, Marble Rollercoaster

A force that pulls all objects toward each other. Earth's gravity pulls objects towards the center of the earth



Gravity

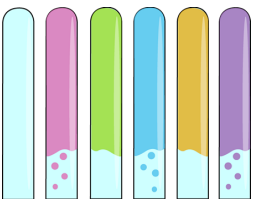


The support about which a lever rotates

*Marshmallow Catapult

*Grass Heads

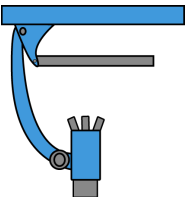
When a new plant breaks out of the seed



Germinate

*Exploding Sandwich Bag, Self-Inflating Balloon

A form of matter that does not have a definite shape or a definite volume

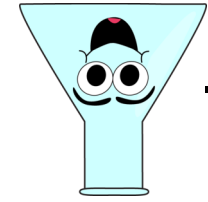


Gas

A sudden brief rush of wind

*Popcorn Huff and Puff

Gust



A flat surface set at an angle to another surface. It has many uses, one of which is to make pushing or pulling a large object easier

*Lego Maze Challenge, Zipline

*Sound Cups

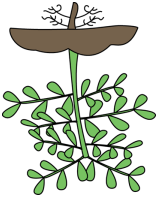
Height



The distance from bottom to top of something

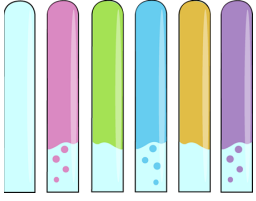
*Marshmallow Catapult

Horizontal



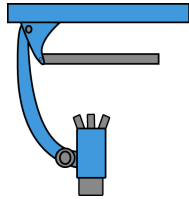
Parallel to the horizon

A natural feature of Earth's surface, such as a valley, mountain or hill



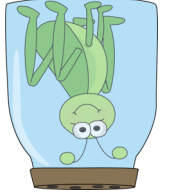
Landform

The energy of motion, or energy in use

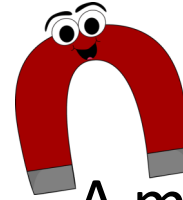


Kinetic Energy

System of signs and symbols and rules for using them that is used to carry information



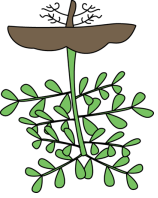
Language



Instrument

A musical instrument (as a flute or horn) sounded by the vibration of a stream of air and especially by the player's breath

The entire sequence of events
in an organism's growth and
development



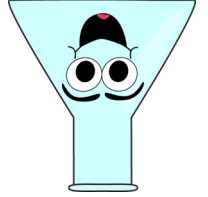
Life Cycle

A sheet, quantity, or thickness
of material, typically one of
several, covering a surface or
body



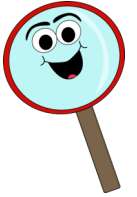
Layer

Raise to a higher position or
level



Lift

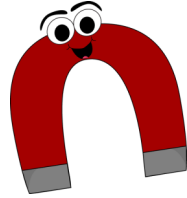
Set in motion by pushing it or
allowing it to roll



Launch

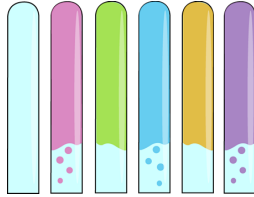
A form of radiant energy that
allows us to see

Light



A rock that is formed chiefly
from animal remains (as shells
or coral), consists mainly of
calcium carbonate, is used in
building

Limestone



building

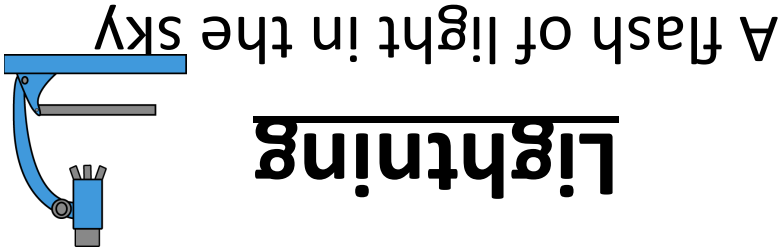
A line (straight) of light or
showing the direction light is
moving

Light Rays



made when electricity passes
from one cloud to another or
between a cloud and the

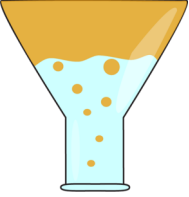
Lightning



ground

An active structural element of a building, that bears the weight of the elements resting upon it by conducting its weight to a foundation structure


Loadbearing



*Spaghetti Towers

To pay attention in order to hear

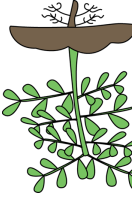
Listening



*Sound Cups

One of the usually paired organs forming the special breathing structure in some vertebrates that breathe air

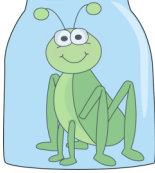
Lungs



*Just Breathe

A state of matter with a definite volume but not a definite shape it falls and flows due to gravity

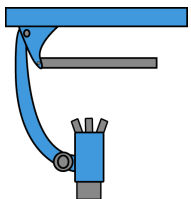
Liquid



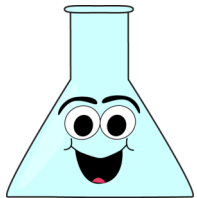
*Cornstarch Quicksand

A confusing complicated network of passages

Maze



Magnet



An object that attracts certain materials, such as iron or steel

*Magnet Painting

A measure of how much matter there is in an object

Mass

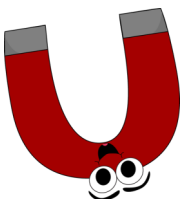


force act

*Build an Electromagnet, Magnet Painting

An area around a magnet or a moving electrical charge within which a magnetic

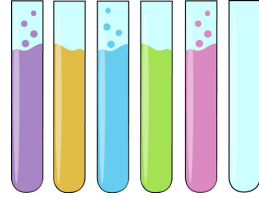
Magnetic Field



*Cornstarch Quicksand, Cotton Candy Fluffy Slime

A combination of substances
in which a chemical reaction
does not occur

Mixture



Music

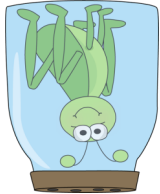


The art of producing pleasing
or expressive combinations of
tones especially with melody,
rhythm, and usually harmony

104

*Rain Stick

Motion



The action or process of
moving or being moved

*Popcorn Huff and Puff

102

Muscle



Band or bundle of fibrous
tissue in a human or animal
body that can contract,
producing movement in or
maintaining the position of
parts of the body

*Just Breathe

103

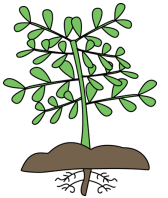
project

Two people collaborating on a



Partner

Non-Newtonian Fluid

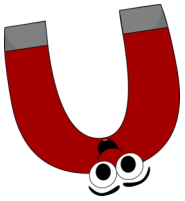


A fluid that does not follow
Newton's law of viscosity, i.e.

Constant viscosity
independent of stress

*Cornstarch Quicksand, Cotton Candy Fluffy Slime

Not letting light through not
transparent

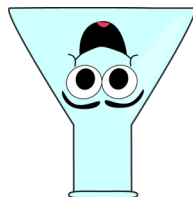


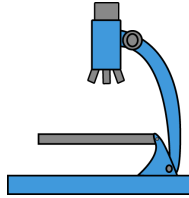
Opaque

Notice or perceive
(something) and register it as
being significant

*Popcorn Huff and Puff

Observe





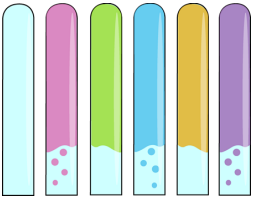
Pentagon

A polygon of five angles and five sides



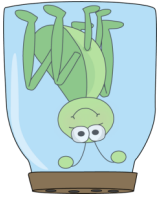
Photosynthesis

A process by which plants get energy



Period

The length of time required for a motion or event to complete a cycle and begin to repeat itself

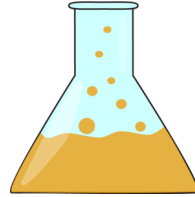


Permanent Magnet

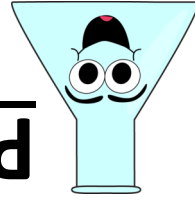
A magnet that retains its magnetism after removal of the magnetizing force

The natural coloring matter in
animal or plant tissue

Pigments



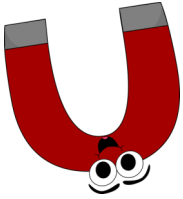
Potential Energy



The energy a body has
because of its position,
electrical charge, or structure;
stored energy

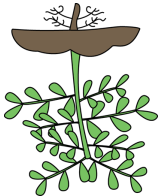
One of two or more regions in
a magnetized body at which
the magnetism seems to be
concentrated.

Poles

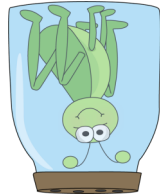


A living organism typically
growing in a permanent site,
absorbing water and
inorganic substances through
its roots

Plant

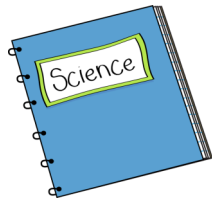


A object that usually has three sides and bends light so that it breaks up into rainbow colors



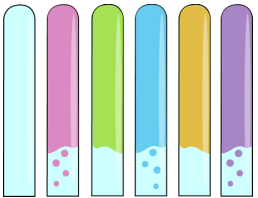
Prism

Precision



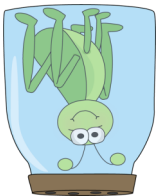
The quality, condition, or fact of being exact and accurate.

Three main colors that can be mixed together to make other colors



Primary Colors

The application of force to something by something else in direct contact with it



Pressure

A set of step-by-step
instructions that tell a
computer to do something
with data

Program



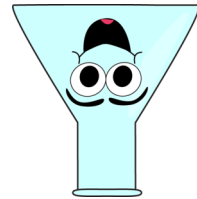
*Code Your Name

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*Lava Lamp

A substance that enters and is
changed by a chemical
reaction

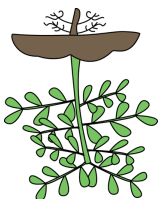
Reactant



*Pop Can Races

One of the tiny particles that
make up the nucleus of an
atom; it has a positive
electrical charge

Protons

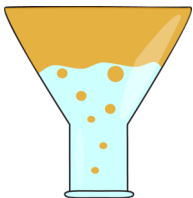


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*Acid Attack

An attribute, quality, or
characteristic of something

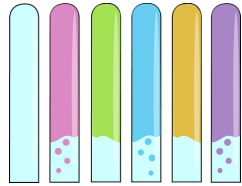
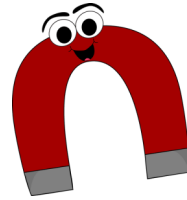
Property



*Exploding Sandwich Bag, Lemon Battery

An equal, opposite response
to a force being applied

Reaction



Region

An area or division, especially
part of a country or the world
having definable
characteristics but not always
fixed boundaries

*Can You Catch the Water?

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Reflection

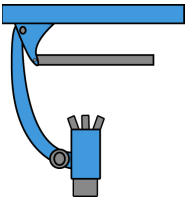


The bouncing off or turning
back of light, sound, or heat
from a surface

*Kaleidoscope

126

Refraction



The bending of waves as they
enter a different medium

*Kaleidoscope

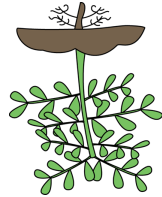
127

To drive back, turn away,
reject

Repel



Rotate



The spinning motion of an
object on its axis

Respiratory System



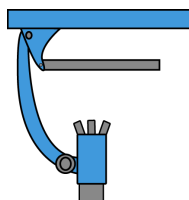
A system of organs used in
breathing that in human beings
consists of the nose, nasal
passages, pharynx, larynx,
trachea, bronchi and lungs

Rise



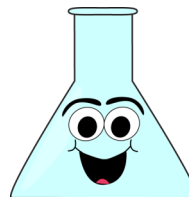
Move from a lower position
to a higher one

To fall or drop to a lower place



Sink

Runoff



Water (from snow or rain) on land that ultimately reaches streams

The visible makeup or characteristic of an item; to give a particular form or shape



Shape

surface

A dark area or shape produced by a body coming between rays of light and a surface

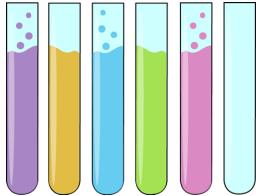


Shadow

*Buttons, Buttons, Buttons

How big or small something is

Size



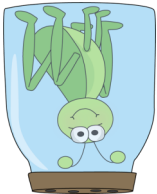
Solution



A mixture in which the particles of two different kinds of matter mix together evenly

*Cotton Candy Fluffy Slime

Slope



Upward or downward slant or degree of slant

*Marble Rollercoaster

Solid

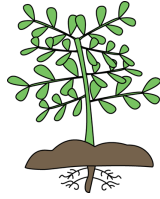


A form of matter that takes up a specific amount of space and has a definite shape

*Cornstarch Quicksand, Toothpick Bridges

Vibrations sensed by the ear

*Sound Cups



Sound

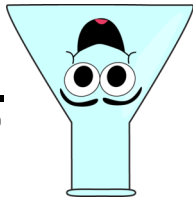


Sphere

A solid geometric shape whose surface is made up of all the points that are an equal distance from the point that is the shape's center

*Gundrop Geodesic Domes

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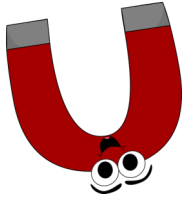


Sound Waves

The movement of sound energy through air, liquid, or solid

*Musical Straws

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Speed

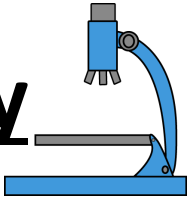
The measure of an object's change in position during a unit of time.

*Marble Rollercoasters, Stacking Cups, Zipline

143

A stationary electric charge,
typically produced by friction,
which causes sparks or
crackling or the attraction of
dust or hair

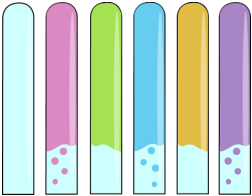
Static Electricity



Style

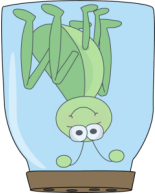
A way by which something is
done, created, or performed

Structure



Something that is arranged in
a definite pattern of
organization, i.e., leaves and
other plants

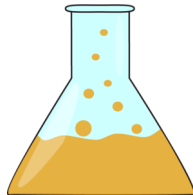
Struts



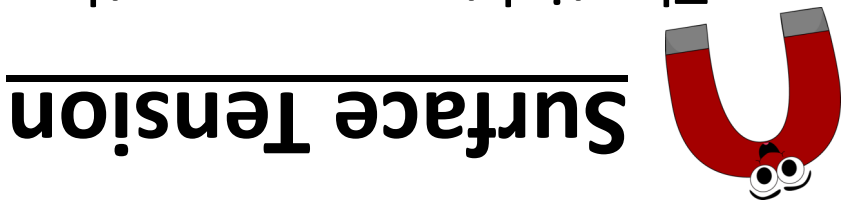
A bar or brace to resist
pressure in the direction of its
length

*Toothpick Bridges

To hold up in position or
serve as a foundation or prop
for

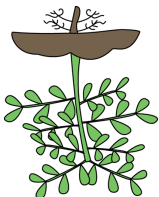


Support



The tightness across the
surface of water that is
caused by the polar
molecules pulling on one
another

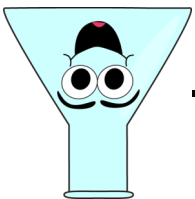
*Drops on a Penny



Surface

The outside or uppermost
part of a thing

*Dancing Raisins



Surface Area

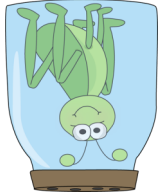
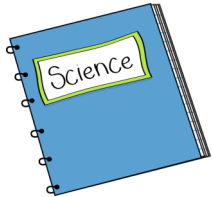
The measure of how much
exposed area a solid object
has, expressed in square units

*Design a Boat Challenge

*Gumdrop Geodesic Dome

Cover (a plane surface) by repeated use of a single shape, without gaps or overlapping

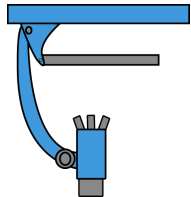
Tessellate



Topographical Features

Surface features of land including mountains, hills, creeks, and other bumps and lumps on a hunk of earth

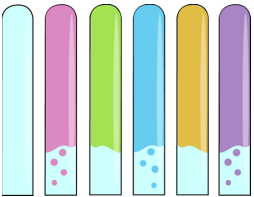
*Can You Catch the Water?



Thrust

A sudden or violent push on something in the specified direction

*A Day at the Airplane Races, Hoop Glider

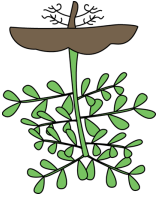


Time

The period during which an action, process, or condition exists or continues

*Stacking Cups

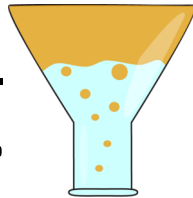
A polygon that has three sides



Triangles

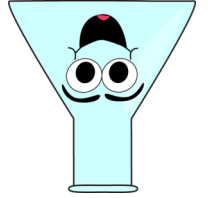
Transmitting light so that
objects lying beyond are
entirely visible

Transparent

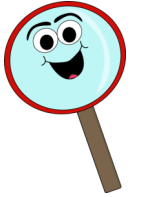


A rigid framework of beams,
bars, or rods

Truss



Translucent

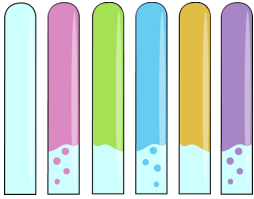
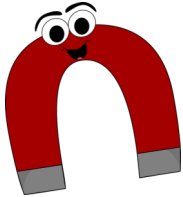


Not transparent but clear
enough to allow light to pass
through

*Musical Straws

The thin membrane that separates the outer and middle ear and carries sound waves as vibrations to the chain of tiny bones in the middle ear

Tympanic Membrane



Velocity

Speed in a certain direction

*Float a Ping Pong Ball, Marble Rollercoaster

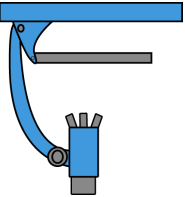
Unbalanced Forces



When forces pushing on an object are not equal

*Floating a Ping Pong Ball, Pop Can Races

Variable



A factor in a scientific

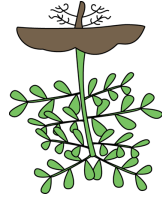
experiment that may be subject to change

*Lemon Battery

Vertical
At right angles to a horizontal plane; in a direction, or having an alignment, such that the top is directly above the bottom



Entire land-drainage are of a river, separates waters flowing to different rivers, basins, or seas



Watersheds

The characteristic of a fluid that resists flow



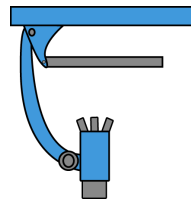
Viscosity

Move or cause to move continuously and rapidly to and fro

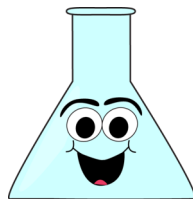


Vibrate

An even mixture of sound waves extending over a wide frequency range



White Noise



Wave

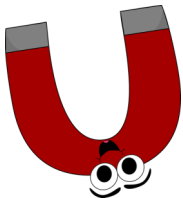
A disturbance that transfers energy progressively from point to point

*Blue Sky, Design a Boat Challenge

How heavy something is, determined by the pull of gravity on the object's mass



Weight



Wavelength

The distance (as from crest to crest) in the line of advance of a wave from any one point to the next corresponding point

*Blue Sky, Musical Straws