

Vocabulary Cards

CALIFORNIA
Science

Grade 5

absorption

(əb'sōrp'shən)

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California Science / 5

A process in which something is taken in and used, as by a cell.

The **absorption** of nutrients into the body takes place in the small intestine.

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absorption

(əb'sôrp'shən)

A process in which something is taken in and used, as by a cell.

The **absorption** of nutrients into the body takes place in the small intestine.

acid

(aśid)

A substance that tastes sour,
sharp, or biting.

Vinegar, oranges, and lemons each
contain an acid.

acidity

(ə sid' i tee)

The strength of
a acidic solution

Weak acids have low acidity.

aerobic

(er'ō'bik)

Having to do with the
use of oxygen.

Aerobic exercise, such as running
or swimming, strengthens
the lungs and heart.

aerial root

(âr'ē əl rüt)

A root that never touches
the ground.

Aerial roots take in moisture
from the air.

air mass

(âr mas)

A large region of air that has a similar temperature and humidity.

Air masses can be cold, warm, dry, or moist.

air pressure

(âr presh'ər)

The force put on a given area by the weight of the air above it.

Air pressure, also called atmospheric pressure, pushes in all directions at once.

algae

(al'jē)

A plant-like protist that lives in
a water environment.

Algae produce their food
using chlorophyll.

alkali metal

(al'kə lī met'əl)

An element in the most reactive family of metals.

Lithium, sodium, and potassium are all alkali metals.

alkalinity

(al'kə līn ī tē)

The strength of
a base solution.

A base with a higher pH has
a greater **alkalinity** than a base
with a lower pH.

alloy

(al'oi)

A mixture of two or more elements, usually metals.

Bronze is a durable alloy made from copper and tin.

altitude

(al'tə tüd')

How high something
is above Earth's surface.

As altitude increases,
air pressure decreases.

alveoli

(al vē'ə lī)

Thin-walled air
sacs within the lungs.

The bronchi eventually empty air
into the alveoli during respiration.

amoeba

(əmə'bə)

A common animal-like protist that changes shape to catch food.

Amoeba move by shifting cytoplasm in their cells.

amphibian

(am fib'ē ən)

A vertebrate animal that spends part of its life in water and part on land.

Frogs and salamanders are amphibians.

anaerobic

(an'rō'bik)

Requiring energy without an increase in oxygen.

Anaerobic exercise, such as lifting weights, helps to build muscles.

angiosperm

(an'jē ə spûrm')

A seed plant
that produces flowers.

Fruits, vegetables, grains,
and almost all nuts come
from angiosperms.

anus

(ā'nəs)

The opening through which solid waste leaves the body.

The strong muscles of the anus are located just below the rectum.

aorta

(āôr'tə)

The large artery that carries blood away from the heart and to the rest of the body.

The left ventricle pumps oxygen-rich blood out through the aorta.

aqueduct

(a'kwə dəkt')

A structure that carries large amounts of water from one place to another.

Aqueducts are built by people as a way of moving water.

aquifer

(a'kwə fər)

An underground layer
of rock, sand, or gravel
that contains water.

Many cities around the world
use **aquifers** as the source
of drinking water.

artery

(är'tə rē)

A blood vessel that carries blood away from the heart.

Arteries circulate oxygen-rich blood.

arthropod

(är'thrə päd')

An invertebrate animal
with a hard outer skeleton,
a segmented body,
and jointed legs.

Insects, spiders, and crabs are
examples of arthropods.

artificial

(är'tə fi'shəl)

Made by man but working
like the natural thing.

Doctors have created
artificial organs and limbs
to help their patients.

asteroid

(as' tə roid')

A large piece of rock
or metal in space.

Many asteroids orbit the Sun.

Asteroids and planets orbit the Sun.

astronomer

(ə strä'nə mər)

A person who studies stars, planets, and other objects in outer space.

Many **astronomers** rely on telescopes to get their data.

astronomical unit

(as'trə nă'mi kəl ù'nit)

The distance between
Earth and the Sun.

One astronomical unit (AU) equals
about 150 million kilometers.

atmosphere

(at'məs fîr)

All of the air
surrounding Earth.

The atmosphere can be
divided into several distinct layers.

atom

(at'əm)

The smallest particle of an element that has the properties of that element.

The **atoms** in each element are unique and determine its properties.

atomic number

(ə tə'mik num'bər)

The number of protons in a single atom of an element.

Every element has a different atomic number.

atomic weight

(ə tə'mik wāt)

A measure of the mass of a single atom of an element.

Hydrogen has the lowest atomic weight.

atrium

(ā'trē əm)

An upper chamber
of the human heart.

A valve connects the atrium
to the ventricle below it.

aurora borealis

(ə rôr'ə bôr'ē a'ləs)

Colored lights seen in the upper atmosphere of the northern hemisphere.

Solar flares can cause the **aurora borealis**, or northern lights.

bacteria

(bak tîr'ē ə)

Unicellular organisms
that have cell membranes
but no distinct nuclei.

Ancient **bacteria** are the oldest
living organisms on Earth.

bark

(bärk)

The tough outer covering
of a tree trunk.

The characteristics of a
tree's **bark** can be used to
identify the type of tree.

base

(bās)

a compound that reacts with
an acid to form a salt.

Soap is a base.

barometer

(bə rom'ī tər)

An instrument that
measures air pressure.

There are two kinds of **barometers**:
mercury and aneroid.

bile

(bīl)

A digestive juice that
breaks down fats in the
small intestine.

Bile is produced by the liver.

bird

(bûrd)

A vertebrate animal that has both feathers and wings.

Turkeys, hawks,
and ducks are birds.

bladder

(bla'dər)

An organ of the
excretory system that
temporarily stores urine.

The human **bladder** can increase in
size to hold one and a half pints.

boiling point

(boil'ing point)

The particular temperature at which a substance changes state from liquid to gas.

The boiling point of water is 100°C , or 212°F .

bolus

(bō'ləs)

A ball of chewed food.

Food taken into the mouth is turned into a **bolus** before being swallowed.

bronchi

(bräng'kī)

Small branchlike tubes
in the lungs.

The bronchi lead back
to the trachea.

cambium

(camobē əm)

A layer of cells in plants that separates the xylem and the phloem.

The **cambium** produces new xylem and phloem cells.

cancer

(kan'sər)

A disease in which
harmful cells multiply
without stopping.

Different types of **cancer** attack
different parts of the body, such
as bones or specific organs.

canines

(kā'nīnz)

The long, pointy teeth
next to the front teeth.

Canines are useful for cutting
and tearing into food.

capillary

(ka'pə ler'ē)

A tiny blood vessel that connects arteries and veins.

The many **capillaries** in the lungs help blood absorb oxygen from the air.

carbohydrate

(kär'bō hī'drāt)

A group of chemical compounds made from carbon, oxygen, and hydrogen.

Carbohydrates are the major source of food energy for plants and animals.

cardiovascular system

(kär'dē ō vas'kyə lər sis'təm)

Another name for the circulatory system, which transports materials

The heart, blood vessels, and blood are all parts of the cardiovascular system.

cecum

(sē'kəm)

The first, shortest part
of the large intestine.

The cecum connects the large
intestine to the small intestine.

cell

(sel)

The smallest unit of living matter that can carry out the basic processes of life.

Your body is made up of trillions of cells.

cell membrane

(sel mem'brān)

The layer around
the outside of a cell.

The **cell membrane** gives
the cell its shape and controls
what goes in and out.

cellular respiration

(sel'yə lər res'pə rā'shən)

The life process in which energy is released from food (sugar) inside a cell.

During cellular respiration, animals take in oxygen and release water and carbon dioxide.

cell wall

(sel wol)

An additional layer around
the outside of plant cells.

Cell walls provide extra support
and help plants stand tall.

chemical

(kem'i kəl)

A substance obtained by or used in a chemical process.

Cleaning products are made from chemicals.

chemical change

(kem'i kəl chānj)

A change that causes a new kind of matter to form with different properties.

When food burns, the chemical change makes it look, feel, and taste different.

chemical formula

(kem'i kəl fôr'myə lə)

A way to write a compound's name using symbols.

The **chemical formula** shows what elements are in the compound, and the subscripts tell the number of particles in the compound.

chemical reaction

(kem'i kəl rē'ak'shən)

A change or reaction that creates a new kind of matter (product) with different properties from the original matter (reactant).

Carbon dioxide is produced in the chemical reaction caused by fire.

chlorophyll

(klôr'ə fil)

A green chemical that plants use for photosynthesis.

Chlorophyll allows plants to turn sunlight into food.

chloroplast

(klôr'ə plast)

Green structures inside
plant cells that turn
sunlight into food.

Chloroplasts contain the
chemical chlorophyll.

Chordata

(kôr'dā tə)

A phylum of animals that have a supporting rod that runs most of the length of the body for at least part of their lives.

Dogs, cats, and humans are all in the phylum **chordata**.

class

(klas)

A smaller group within a phylum of similar organisms.

Classes are made up of even smaller groups called orders.

circulatory system

(sûr'kyə lə tôr'ē sis'təm)

The organ system that moves blood through the body.

The **circulatory system** aids in the transport of oxygen, carbon dioxide, and nutrients.

classify

(klas'ə fī)

To place similar materials together in a group.

You can **classify** materials by comparing and contrasting their properties.

climate

(klī'mit)

The average weather patterns of a region.

Climate includes average temperature, rainfall, humidity, and wind conditions.

collecting duct

(kə lek'ting dəkt)

A tube connected to nephrons within the kidney.

The collecting duct holds waste material filtered out by the nephron.

colon

(kō'lən)

The widest and longest part of the large intestine.

Some absorption of water and minerals takes place in the colon.

comet

(kom'it)

A piece of ice, rocks,
dust, and gases moving
through space.

A comet may have a glowing tail
as it approaches the Sun.

communicate

(kə mū'ni kāt)

To share information.

Some scientists communicate their results by writing books and making presentations.

compound

(kom'pound)

A substance formed by the chemical combination of two or more elements held together by chemical bonds that cannot be separated by physical means.

A **compound** has properties unlike those of the elements that make up the compound.

condensation

(kon'den sã'shən)

The process in which matter changes state from gas to liquid.

When water vapor in the air **condenses**, it can form dew on cool surfaces.

condensing point

(kən dens'ing point)

The particular temperature at which a substance changes state from gas to liquid.

The **condensing point** of water is 100°C , or 212°F .

conduct

(kən dukt')

To transfer heat or electricity
from one place to another.

Metals, such as iron and copper,
are good **conductors**.

conductivity

(kən'dukt i'və tē)

The degree to which heat or electricity flows through a substance.

Electrical wiring is made from metals with high conductivity.

conservation

(kän'sərv ā'shən)

The act or policy of saving or protecting something.

Conservation leads people to use less of the planet's resources to help preserve them for the future.

contaminate

(kən ta'mə nāt')

To make dirty or impure.

Litter and other kinds of pollution
can contaminate fresh water.

convection

(kən'vek'shən)

The transfer of heat through the movement of a gas or liquid.

When **convection** occurs in the air, winds are formed.

Coriolis effect

(kôr'ē ō'lis i fekt')

In the northern hemisphere,
counterclockwise movement
caused by Earth's rotation.

The spiral of a hurricane shows
how this storm is shaped by the
Coriolis effect.

corrosion

(kə rō'zhən)

The gradual weakening and wearing away of something, usually due to a chemical reaction.

Corrosion occurs when the metal iron reacts with water and forms rust.

current

(kûr'ənt)

An ongoing movement in
one direction.

An ocean **current** is a large stream
of water that flows through
the ocean.

Electrical **current** describes the flow
of charged particles through a wire.

cyclone

(sī'klōn)

A storm with a low pressure closure and a circular pattern of winds.

Tornadoes and hurricanes are both types of cyclones.

cytoplasm

(sī'tə pla'zəm)

The gel-like substance
that fills a cell.

The **cytoplasm** supports all
of the other cell structures.

dam

(dam)

A barrier that prevents or restricts the normal flow of water.

Reservoirs are usually made by constructing a dam across a stream or river.

density

(den'si tē)

A measure of how tightly matter is packed in a given amount of space.

Density can tell you whether an object will float or sink in a liquid.

desalination

(dē sa'lə nā'shən)

To remove salt from a substance.

At a **desalination** plant, salt and other impurities are removed from ocean water to create fresh water.

dialysis

(dī a'lə səs)

A medical treatment that carries out the same processes as the human kidney.

A **dialysis** machine filters the blood to remove waste and excess water.

diaphragm

(dī'ə'fram)

A flat muscle that
controls breathing.

Your **diaphragm** is beneath
your lungs near the bottom
of the rib cage.

diffusion

(di fyü'zhən)

The movement of particles
from areas with high
concentrations to areas with
low concentration.

Oxygen passes from the lungs into
the blood by diffusion.

digestion

(di jes'chən)

The process by which food is broken down into usable substances.

Digestion begins the moment you start to chew something.

digestive system

(di jes'tiv sis'təm)

The organ system that breaks down food into nutrients that cells need.

The mouth and stomach are parts of the digestive system.

disperse

(di spərs')

To scatter or spread.

Plant seeds are dispersed
in many ways, including animals
and the wind.

draw conclusions

(drô kən klü'zhənz)

To arrive at possible answers.

After you analyze data from an experiment, you can draw conclusions about what you observed.

drought

(drout)

A long period of dry weather.

A drought can destroy crops and lead to water shortages.

ductile

(duk'təl)

Capable of being drawn out
into wire or thread.

Copper and gold are both
ductile metals.

ecology

(ē kol'ə jē)

The study of how all things
in an environment interact
with one another.

A scientist may study the **ecology**
of plants in specific environments,
such as wetlands
or farms.

electron

(i lek'tron)

A particle in the space outside the nucleus of an atom that carries one unit of negative electric charge.

Atoms have the same number of protons and electrons.

electron microscope

(i lek'tron mī'krə skōp')

A magnifying tool that uses electron beams instead of light to “see” small objects.

Atoms can only be seen using an electron microscope.

element

(el'ə mənt)

A pure substance that cannot be broken down into any simpler substances.

Oxygen, carbon, and iron are all elements.

elimination

(i li'mə nā'shən)

The process of removing or getting rid of something.

In the body, **elimination** takes place through many pores and openings, such as the anus.

ellipse

(i lips')

A nearly circular orbit.

Planets move through space
in ellipses.

endocrine system

(en'də krin sis'təm)

The organ system that produces chemicals to regulate and control body functions.

The chemicals of the endocrine system also affect the reproductive system.

epidermis

(ep'i dûr'mis)

The outermost layer.

In plants, the epidermis
is the outermost layer of a leaf.
In humans, it is the surface
layer of the skin.

epiglottis

(e'pə glä'təs)

The flap of tissue in the back of the throat that protects you from choking.

The epiglottis closes when you swallow food.

equator

(i kwā'tər)

The imaginary line that runs around the middle of Earth.

Sunlight strikes Earth most directly at the equator.

esophagus

(i sə'fə gəs)

A long muscular tube
leading to the stomach.

Your **esophagus** is lined with
mucus that helps food slide along.

evaporation

(i vap'ə rā'shən)

The slow changing of a liquid into a gas.

Evaporation is slower than boiling and can occur at lower temperatures.

evergreen

(ev'ər grēn')

A type of gymnosperm that replaces leaves that are lost.

The leaves of evergreens, such as pine, spruce, and firs, are sometimes called needles.

excretory system

(ek'skri tōr' ē sis'təm)

The organ system that removes waste materials from the body.

The kidneys are part of the excretory system.

exhale

(eks hāl')

To breathe out.

When you exhale, your body expels carbon dioxide.

family

(fa'mə lē)

A group of things that are related in some way.

In the classification of living things, families fall between orders and genera.

In the periodic table, families of elements have similar chemical properties.

feces

(fē'sēs)

Solid animal waste.

In humans, feces are stored in the rectum until they can be expelled.

fertilization

(fûr'tə lī zā'shən)

The joining of a male sex cell with a female sex cell to make one new cell.

Fertilization in plants occurs when pollen transfers to the egg cell.

fibrous root

(fī'brəs rüt)

One of the many thin, hairy, fibrous roots that characterize some plants.

Grasses have fibrous roots.

filtration

(fil trā'shən)

The passing of a mixture through a system that can separate small particles from larger particles.

A mixture of dirt and water can be separated by **filtration**.

fish

(fish)

A vertebrate animal that lives its entire life in the water.

The bodies of fish are covered with scales.

flood

(fləd)

The flow of water over the banks of a body of water and across land.

Large amounts of rainfall can cause floods along rivers.

fog

(fog)

A cloud that forms
near the ground.

Dense fog is considered to be a
severe form of weather.

forecast

(fôr'cast)

To predict; a prediction.

A weather **forecast** makes the best guess at what the weather will be in the near future.

freezing point

(frēz'ing point)

The particular temperature at which a substance changes state from liquid to solid.

The freezing point of water is 0°C , or 32°F .

freshwater

(fresh'wô'tər)

Characterized by water
that is not salty.

Most ponds and most rivers are
freshwater environments.

front

(frunt)

The place where two air masses meet.

A change in weather usually occurs when a front passes over an area.

fungus, n. sing.,
fungi, pl.

(fung'gəs, fun'jē)

Members of a kingdom that cannot make their own food and must absorb it from their environment.

Mold, mildew, and mushrooms are all examples of fungi.

fusion

(fū'shən)

The smashing together
of particles to create
new particles.

Fusion can create energy
and produces the light and
heat of the Sun.

gallbladder

(gôl'bla'dər)

A small structure in the body's digestive system that stores bile.

The **gallbladder** looks like a small sack.

gas

(gas)

Matter in a state that has no definite shape or volume.

The particles in a gas are moving very rapidly and are widely spread out.

genera, n. sing.,

genus, pl.

(jen'ər ə, jē'nəs)

A group made up of two or more very similar species.

Genera fall between families and species in the classification of living things.

glacier

(glā'shər)

A large body of ice that moves slowly over land.

Glaciers are capable of creating deep valleys.

gland

(gland)

A cell or group of cells that can filter blood and/or produce substances that assist in various bodily processes.

The salivary glands in the mouth and throat assist with digestion.

global wind

(glō'bəl wind)

A wind that blows in a predictable direction.

Global winds blow because of differences in air pressure between Earth's poles and the equator.

gravity

(gra'vi tē)

The force of attraction
between two masses.

The gravity between your body
and Earth prevents you from
floating into space.

groundwater

(ground'wô'tər)

Precipitation that seeps
below the surface of Earth.

People drill wells to tap
into Earth's groundwater.

gymnosperm

(jim'nə spûrm')

A seed plant that does not produce a flower.

Most **gymnosperms** are evergreens that have seeds inside their cones.

hardness

(härd'nis)

How well a mineral resists
scratching or a metal
resists denting.

Gold has a low hardness.

halogen

(ha'lə jən)

An element in the most reactive family of nonmetals.

Fluorine and chlorine are both halogens.

heart

(hjärt)

The muscular organ
that pumps blood
throughout the body.

The human heart beats about 70
to 90 times a minute in the chest.

heavy metals

(he'vē met'əlz)

Certain toxic elements, such as lead and mercury.

Heavy metals in drinking water can make a person sick.

heterogeneous

(het'ər ə jē'nē əs)

Made up of things that differ
in kind and/or nature.

In a heterogeneous mixture,
you can see the particles
of different substances.

homogenous

(hō'mō jē'nē əs)

Made up of things that either look the same or are the same.

In a **homogeneous** mixture, the individual particles are too small to distinguish and look the same throughout.

high pressure system

(hī pre'shər sis'təm)

A large mass of air with
high atmospheric pressure
at the center.

The wind in a high pressure system
turns in a clockwise direction.

humidity

(hū mid'ī tē)

The amount of water vapor
in the air.

As humidity increases,
air pressure decreases.

hurricane

(hûr'î kân')

A very large, swirling storm with very low pressure at its center and wind speeds higher than 73 miles per hour.

Hurricanes have an “eye” that forms at the center.

hydrocarbon

(hī'drō kär'bən)

A compound made only of hydrogen and carbon atoms.

Methane is an example of a hydrocarbon.

hypothesis

(hī poth'ə sis)

A testable statement about what someone thinks is logically true.

A hypothesis is tested using an experiment that may either support or disprove it.

ice sheet

(īs shēt)

A large covering of ice and snow that lasts a long time.

Antarctica is an ice sheet.

immune system

(im ūn' sis'təm)

The organ system that fights disease and helps heal injuries.

The **immune system** includes cells that attack harmful organisms in the body.

incisors

(in sī'zərz)

The teeth in the front
of the mouth.

Incisors are used for
biting into food.

indicator

a person or thing
that indicates.

Litmus paper is used as an
indicator for acids or bases.

inertia

(i nər'shə)

The tendency of a moving object to continue moving in a straight line.

Gravity and friction affect an object's inertia.

infer

(in fûr')

To come up with an
idea based on facts or
observations.

The data from an experiment can
help you **infer** what happened.

inhale

(in hāl')

To breathe in.

When you **inhale**, air enters the body through the nose and mouth.

insulator

(in'sə lā tər)

Something that resists the flow of energy, such as heat, electricity, or sound.

Most nonmetals, such as wood and rubber, are good **insulators**.

integumentary system

(in te'gyə men'tə rē sis'təm)

The organ system that covers and protects the body from injury and infection.

The integumentary system includes hair, skin, and nails.

invertebrate

(in'vûr'tə brit)

An animal that does not have a backbone.

Mollusks, sponges, and arthropods are all invertebrates.

jet stream

(jet strēm)

Powerful high altitude global winds above high and low pressure systems.

Jet stream winds can move faster than 150 miles per hour.

kidney

(kid'nē)

A bean-shaped organ that filters waste out of the blood.

The kidneys produce urine.

kingdom

(king'dəm)

The broadest group into which organisms are classified.

The animal kingdom and the plant kingdom are two of the six kingdoms.

land breeze

(land brēz)

The movement of air
from land to water.

Land breezes are more common
during the fall and winter seasons.

large intestine

(lärj in tes'tən)

A thick, tubelike organ that removes waste from the body.

The large intestine is shorter and thicker than the small intestine.

latitude

(la'ti tüd)

A measure of how far
north or south something
is from the equator.

You can describe an object's
location on Earth in terms of its
latitude and longitude.

leaf

(lēf)

The part of a plant that
collects light from the Sun
and makes sugar.

The **leaves** take in carbon dioxide
and release oxygen.

lightning

(līt'ning)

A large spark caused by the discharge of electricity in a thunderhead.

Lightning can jump from one cloud to another or from a cloud to the ground.

liquid

(lik'wid)

Matter in a state that has a definite volume but not a definite shape.

The particles in a liquid move faster than in a solid but remain relatively close together.

liver

(li'vər)

A large glandular organ that produces digestive juices and breaks down harmful substances in the blood.

The **liver** is part of both the digestive and the excretory systems.

low pressure closure

(lō pre'shər clō'zhər)

An area of low pressure
surrounded by an area
of high pressure.

A low pressure closure can lead to
the creation of a tornado.

low pressure system

(lō pre'shər sis'təm)

A large mass of air with
low atmospheric pressure
at the center.

The wind in a low pressure system
turns in a counterclockwise
direction.

lungs

(ləŋz)

The main organs of the
respiratory system.

The **lungs** fill with air and allow
gases to enter and leave the blood.

malleable

(ma'lē ə bəl)

Capable of being rolled or
pounded into flat sheets.

Tin, copper, and aluminum
are malleable metals.

mammal

(ma'məl)

A vertebrate animal with hair
that feeds its young milk.

Some **mammals**, such as horses,
live on land while others, such as
whales, live in water.

mass

(mas)

The amount of matter
in an object.

Mass is measured in
units called grams (g).

matter

(ma'tər)

Anything that has mass
and takes up space.

Everything in the universe
is composed of matter.

measure

(mezʰər)

To find the size, volume, area, mass, weight, or temperature of an object, or to find how long an event occurs.

When you **measure** something, you gather data or information about it.

melting point

(melt'ing point)

The particular temperature at which a substance changes state from solid to liquid.

The melting point of water is 0°C , or 32°F .

metal

(met'əl)

Any of a group of elements found in the ground that conduct heat and electricity.

Metals, such as gold and iron, are shiny when polished and can be bent or flattened into shapes without breaking.

metalloid

(met'ə loid)

A small group of elements with some properties of both metals and nonmetals.

Boron and silicon are metalloids.

metamorphosis

(met'ə mōr'fə sis)

A process in which something changes form from one thing into another thing.

Caterpillars undergo metamorphosis to change into moths.

meteor

(mē'tē ər)

A small piece of ice,
rock, or metal that enters
Earth's atmosphere.

Most shooting stars
are also **meteors**.

meteorologist

(mē tē ə rā'lə jist)

A scientist who studies Earth's atmosphere and weather.

Meteorologists try to predict the weather.

microscope

(mī'krə skōp')

A tool that magnifies objects.

A **microscope** allows us to see and study very small objects like cells.

mitochondria

(mī'tə kon'drē ə)

Structures within a cell
that break down food and
turn it into energy.

The more energy a cell needs, the
more mitochondria it will have.

mixture

(miks'chər)

A physical combination of two or more substances that does not form a new substance.

A bowl of raisins, nuts, and pretzels is a mixture.

molars

(mō'lərz)

The flat teeth in the
back of the mouth.

Molars are useful for crushing
and grinding food.

molecule

(mol'ə kŭl')

A particle that contains two or more atoms joined together.

Oxygen **molecules** are made up of two oxygen atoms.

mollusk

(mä'ləsk)

Invertebrate animals with an external or internal shell.

Snails, clams, and squid
are mollusks.

monsoon

(män sün')

A seasonal wind usually associated with heavy rains.

Monsoon winds occur in southern Asia and the southwestern U.S.

moon

(mün)

An object that circles
around a planet.

Some planets have many moons
of different shapes and sizes.

mucus

(myü'kəs)

A slippery liquid inside
the body.

Mucus in the esophagus keeps
food from getting stuck.

multicellular

(mul'tē sel'ū lər)

Made up of more
than one cell.

Animals and plants are
multicellular organisms.

muscular system

(mus'kyə lər sis'təm)

The organ system made up of muscles attached to bones.

The muscular system helps you move.

nanotechnology

(na'nō tek nă'lə jē)

Science that works with materials at the atomic or molecular level.

Nanotechnology refers to devices and procedures that are very, very small in size.

nephron

(ne'frän')

Small individual filters
within the kidneys.

Nephrons separate waste from
useful substances in the blood.

nervous system

(nûr'vəs sis'təm)

The organ system
that controls all other
body systems.

The nervous system includes the
brain, the spinal cord, and nerves.

neutralization reaction

(nü'trēl ī zá' shən rē ak shən)

The reaction that occurs when an acid and a base react to form water and salt.

When scientists wish to lower the acidity of a liquid, they react it with a base in a neutralization reaction.

newton

(nü'tən)

A basic unit that measures a force, such as gravity.

A person's weight can be expressed in newtons.

noble gases

(nō'bəl gas'əz)

The nonmetallic elements helium, neon, argon, krypton, xenon, and radon.

Noble gases rarely react with other elements.

nonmetals

(non'met əlz)

A group of elements that are poor conductors of heat and electricity.

Many nonmetals, such as oxygen and helium, are gases at room temperature.

nonvascular

(non vas'kyə lər)

Containing no plant tissue through which food or water moves.

Mosses are **nonvascular** plants that get water and food directly from the ground.

nucleus

(nü'klē əs)

An object positioned at the center; in cells, the structure that controls all activity within a cell.

The **nucleus** is the central command center of the cell.

nutrient

(nü'trē ənt)

Any substance that is
useful to an organism.

Cells draw their energy
from nutrients.

observe

(əb zûrv')

To use one or more of your senses to identify or learn about an object or event.

You conduct an experiment to **observe** what happens in a particular situation.

ocean

(ō'shən)

A large body of salt water.

The Atlantic and the
Pacific are both oceans.

orbit

(ôr'bit)

The path an object takes as it travels around another object.

Earth's orbit requires about 365 days to complete.

order

(ôr'dər)

A smaller group within a class
of similar organisms.

Orders are made up of even
smaller groups called families.

organ

(ôr'gə n)

A group of tissues that work together to perform a specific bodily function.

The lungs, heart, and stomach are all organs.

organism

(ôr'gə niz'əm)

An individual living thing.

All organisms carry out
five basic life functions.

organ system

(ôr'gə n sis'təm)

A group of organs that work together to perform a specific bodily function.

The digestive system and the respiratory system are examples of animal organ systems.

oscillation

(ä'sə lā'shən)

Movement back and forth.

Shifting wind patterns can lead to an oscillation in weather conditions.

pancreas

(pang'krē əs)

A gland that produces digestive fluids and other helpful chemicals.

The pancreas is located on top of the small intestine.

paramecium

(pa'rə mē'shē əm)

A common animal-like protist that cannot produce its own food.

A **paramecium** moves using hairlike structures that stick out of its cell membrane.

pericardium

(per'ə kär'dē əm)

The sac of tissue
around the heart.

The pericardium protects the heart.

periodic table

(pîr'ē od'ik tā'bəl)

A chart that shows all
of the known elements
and their properties.

The **periodic table** places elements
with similar chemical properties
in groups or families.

petiole

(pet'ē ōl)

The part of a plant that connects the leaf to the stalk.

Veins in a leaf usually branch out from the petiole.

pharynx

(fa'ringks)

The part of the throat that connects the mouth to the digestive tube.

The **pharynx** is located just above the esophagus.

pH scale

(pē'aitch')

The scale that measures the acidity of a solution.

Fourteen on the pH scale is basic.

phloem

(flō'əm)

The tissue in a plant that moves food down from the leaves to other parts of the plant.

The location of **phloem** depends on the type of stem.

photosynthesis

(fō'tō sin'thə sis)

The process by which plants turn sunlight, water, carbon dioxide, and other nutrients from the soil into food.

Photosynthesis takes place in the chloroplasts of a plant.

phylum, n. sing.
phyla, pl.
(fī'ləm, fī'lə)

The level of classification of living things below kingdom and above class.

The two **phyla** in the animal kingdom are vertebrates and invertebrates.

pistil

(pis'təl)

The parts of a plant that produce the female sex cells.

The ovary is part of the plant's pistil.

plasma

(plaz'mə)

A fluid in which other materials are suspended, as with blood cells in blood.

Blood plasma is made up of water and proteins.

platelet

(plāt'lət)

Small cell fragments that
help the body heal.

Platelets clump together to form
patches that stop bleeding.

pollen

(pɒl'ən)

The powder-like grains
in a flower that contain
the male sex cells.

During pollination, pollen is
transferred from stamen to pistil.

pollination

(pɒl'ə nā'shən)

The process in which the male
and female cells of plants
come together.

After **pollination** a seed develops
that lets the plant reproduce.

pollute

(pə lüt')

To make dirty, unclean,
or contaminated.

Litter pollutes the landscape.

pore

(pôr)

A small opening.

Pores in the skin are connected to sweat glands and assist in waste elimination.

precipitate

(prē sip'ə tət)

The solid product of a chemical reaction in a solution.

Magnesium carbonate is the **precipitate** formed when Epsom salts react with washing soda.

precipitation

(prē sip'ī tā'shən)

Water droplets that form in the atmosphere and fall to the ground.

Precipitation can take the form of rain, snow, sleet, or hail.

product

(prod'ukt)

A new substance resulting
from a chemical change.

Glass is the product of heated sand.

property

(prop'ər tē)

A trait of something that can be observed and measured.

The physical **properties** of matter include volume, mass, and weight.

prop root

(prop rüt)

Roots that grow like fingers
out of the stem of a plant.

Corn plants and mangroves
have prop roots.

protist

(prō'tist)

A member of the kingdom Protista, which contains mostly unicellular organisms with distinct nuclei.

Protists can be like animals, plants, or fungi in terms of how they get food.

proton

(prō'ton)

A particle in the space outside the nucleus of an atom that carries one unit of positive electric charge.

Atoms have the same number of protons and electrons.

pulmonary

(pùl'mə ner'ē)

Having to do with the lungs.

A **pulmonary** artery brings oxygen-poor blood from the heart to the lungs; a **pulmonary** vein brings oxygen-rich blood from the lungs to the heart.

reactant

(rē ak'tənt)

An original substance
at the beginning of a
chemical reaction.

Carbon and oxygen atoms
are **reactants** that yield the
product carbon dioxide
when carbon is burned.

reactivity

(rē ak'ti'və tē)

The ability of elements to take part in chemical reactions.

Most metals have high reactivity, while the noble gases do not.

reclamation

(re'klə mǎ'shən)

The act of recycling or restoring something to a usable state.

Land **reclamation** efforts can convert poor soil back into fertile farmland.

record data

(rē cōrd da'tə)

To make note of an observation in a permanent way, as in writing.

When you record data on a chart, you organize your observations.

rectum

(rek'təm)

The last part of the
large intestine.

Solid waste is stored in the rectum
until it can be expelled.

renal

(rē'nəl)

Having to do with the kidneys.

The renal artery brings blood into the kidneys.

reproduction

(rē'prə duk'shən)

The process of creating more of the same kind of organism.

Reproduction is one of the basic life processes of all living things.

reproductive system

(rē'prə duk'tiv sis'təm)

The organ system that produces offspring.

The reproductive system differs between males and females.

reptile

(rep'tīl)

A land vertebrate with
thick, dry, scaly skin.

Snakes, lizards, and turtles
are reptiles.

reservoir

(re'zə vwär')

A man-made lake that stores water for later use.

Most **reservoirs** are created by damming a stream or river.

respiration

(res'pə rā'shən)

The life process in
which energy is released
from food (sugar).

Plants and animals take in oxygen
during respiration.

respiratory system

(res'pə r ə tôr'ē sis'təm)

The organ system that brings oxygen to body cells and removes waste gas.

The lungs are part of the respiratory system.

root

(rüt)

The part of a plant that absorbs water and minerals, stores food, and anchors the plant.

The **roots** of a plant usually spread out and down into the soil.

saliva

(sə'li'və)

A watery fluid that moistens
and softens food.

Saliva helps digestion by chemically
breaking down food.

salt

(sôlt)

A compound that is composed of a metal and a nonmetal.

Salts are formed when an acid reacts with a base.

salivary glands

(sa'lə ver'ē)

Glands that produce a watery fluid that aids in digestion.

You have **salivary glands** in your mouth and throat.

satellite

(sa'tə līt)

An object in space that circles
around another object.

Earth's moon is a satellite.

sea breeze

(sē brēz)

The movement of air
from water to land.

You feel sea breezes on beaches.

seed

(sēd)

An undeveloped plant
with stored food in a
protective covering.

Seeds are formed when a male
and a female cell join.

skeletal system

(skel'i təl sis'təm)

The organ system made up of bones that support the body.

The **skeletal** and muscular systems work together to help you move.

small intestine

(smôl in'tes'tən)

A coiled, tube-like
digestive organ connected
to the stomach.

Partially digested food is
broken down into nutrients
inside the small intestine.

solar flare

(sō'lər flār)

A huge burst of heat
and energy from the
surface of the Sun.

Solar flares can affect electronic
equipment on Earth.

solar system

(sō'lər sis'təm)

The Sun and the objects
in orbit around it.

Our solar system is in the
Milky Way galaxy.

solid

(sol'id)

Matter in a state that has a definite shape and volume.

The particles in a solid are not moving around.

solubility

(sol'yə bil'i tē)

The greatest amount of a solute that can be dissolved by a given amount of solvent.

The **solubility** of table salt is 37 grams per 100 grams of water at room temperature.

solute

(sol'ūt)

The substance in a solution
that dissolves.

In salt water, salt is the solute.

solution

(sə lü'shən)

A mixture that is blended so completely that it looks the same everywhere.

When sugar dissolves in water, it forms a solution.

solvent

(sol'vənt)

The substance in a solution into which other substances dissolve.

In salt water, water is the solvent.

species

(spē'sēz)

The narrowest group
in the classification
system of living things.

Organisms in the same species
are very closely related.

spore

(spôr)

A single cell that can develop into a plant exactly like the one that produced it.

Spores will not grow and produce plants unless they are near water.

stamen

(stā'mən)

The part of the plant that holds the male cells for reproduction.

The **stamen** is the male part of the plant.

star

(stär)

An object in space
that produces its own
light and heat.

The nearest **star** to
Earth is the Sun.

starch

(stärch)

A complex carbohydrate
made of thousands
of sugar units.

Plants store sugar in the
form of starch.

state of matter

(stāt uv mat'ər)

One of three forms that
matter can take.

The states of matter are solids,
liquids, and gases.

stem

(stem)

The main stalk of a plant.

A plant's **stem** holds it uprights
and carries food and water.

sternum

(stər'nəm)

The vertical bone in the center of the chest.

The sternum helps to protect the heart from injury.

stomach

(stə'mæk)

The main digestive organ
in most animals.

The human **stomach** has
three layers of muscles and
glands that produce chemicals
for breaking down food.

stomata, n. pl.
stoma, sing.
(stō'mə tə, stō'mə)

Small pores on plants,
usually on the bottoms
of leaves, through which
air and water pass.

Stomata open and close to let in
and give off gases.

storm surge

(stôrm sûrj)

A bulge of water created
by an area of very low
pressure in the ocean.

The storm surge can be the most
destructive part of a hurricane
along the coast.

sublimation

(sə'blə mā'shən)

The process in which matter changes state from a solid directly into a gas.

When dry ice is exposed to room temperature, the crystals **sublime** rapidly into a vapor.

subscript

(sub'skript)

A number in a chemical formula that tells how many atoms of a particular element are in the compound.

The **subscript** is a small number written to the right and lower than the symbol for the element.

sunspot

(sun'spät)

A dark spot that occurs
on the Sun's surface.

The number of sunspots
changes over time.

superconductor

(sü'pər kən dək'tər)

A material that loses all resistance to electrical flow at extremely low temperatures.

Superconductors are used today in some fast-moving trains in Germany, Japan, and China.

suspension

(sə spen'shən)

A mixture whose
visible particles settle
and separate over time.

Oil and vinegar shaken together
create a suspension.

sweat

(swet)

Fluid that helps the body
eliminate excess water
and waste materials through
pores in the skin.

Sweat helps the body cool off.

taproot

(tap'rüt')

A root that grows deep into the ground and has a few hairy branches.

Dandelion, carrot, and beet plants have taproots.

telescope

(tel'ə skōp')

A tool that makes
distant objects appear
closer and larger.

The Hubble **telescope** allows
us to see distant planets and
stars more clearly.

temper

(tem'pər)

To warm up something cold,
or cool down something
hot, in a controlled way.

Cold air that comes in contact with
warm water is **tempered**, or heated.

thunder

(thun'dər)

The noise caused by
rapidly expanding
air heated by lightning.

Thunder can sound like a
big bang or a low rumble.

thunderhead

(thun'dər hed')

A cloud in which a
thunderstorm forms.

Most **thunderheads** are
cumulonimbus clouds.

thunderstorm

(thun'dər stôrm')

A rainstorm that includes
thunder and lightning.

Thunderstorms are the most
common type of severe weather.

tide

(tīd)

The rise and fall
of the ocean's surface.

The Moon's gravitational
pull affects tides on Earth.

tissue

(tish'ü)

A group of similar cells
that work together to
do the same job.

The cells in muscle **tissue** all work
to move parts of the body.

tornado

(tôr nā'dō)

A rotating, funnel-shaped
cloud with extremely
high winds.

Tornados are also called “twisters”
because they twist as they move.

toxin

(täk'sən)

A poisonous substance
within the body.

The liver and kidneys both help to
remove **toxins** from blood.

trachea

(trā'kē ə)

The strong tube that connects the throat to the bronchi of the lungs.

The **trachea**, or windpipe, is a major part of the respiratory system.

trade winds

(trād windz)

Winds that blow between
30°N latitude and 30°S latitude.

Sailors relied on trade winds
to transport items for sale
around the globe.

tropical storm

(trop'i kəl stôrm)

A large storm near the equator with low pressure at its center and rotating winds.

A tropical storm becomes a hurricane when its wind speed reaches 73 miles per hour.

troposphere

(trop'ə sfîr)

The layer of Earth's atmosphere that is closest to the surface.

All of the organisms on Earth exist in the troposphere.

unicellular

(ū'nə sel'ū lər)

Made up of only one cell.

A unicellular organism can carry out all the basic life processes in one cell.

ureter

(yùr'ə tər)

A tube that carries urine from the kidney to the bladder.

Ureters are part of the body's excretory system.

urethra

(yù rē'thrə)

A tube that carries urine from the bladder to the outside of the body.

The **urethra** is part of the excretory system.

urinary system

(yər'ə ner'ē sis'təm)

The part of the excretory system that handles most liquid wastes.

The kidneys, bladder, and urinary tract are parts of the urinary system.

urination

(yər'i nā'shən)

The process of releasing urine from the bladder and out of the body through the urethra.

Urination may become more frequent shortly after a person drinks more fluids.

urine

(yər'ən)

A fluid consisting of body waste and excess water.

The kidneys produce urine by filtering the blood.

vacuole

(vak'ū ōl)

A cell structure used
for storage.

Vacuoles can hold water, food,
and waste products.

valve

(valv)

A flap that allows fluids to flow in only one direction.

In the heart, **valves** allow blood to pass from the atrium into the ventricle and not the other way.

variable

(vâr'ē ə bəl)

Something that can be changed or controlled.

When measuring solubility, temperature is a significant variable.

vascular

(vas'kyə lər)

Containing vessels that transport water and food.

Vascular plants have tissue that allows them to grow tall and still move food and water throughout the organism.

vein

(vān)

A blood vessel that transports blood back to the heart.

Veins, such as the vena cava, connect to the heart's atriums.

vena cava

(vē'nə kā'və)

The main vein leading from the body back to the heart.

The vena cava enters the right atrium of the heart.

ventricle

(ven'tri kəl)

A lower chamber of the
human heart.

In the heart, blood flows from an
atrium into a **ventricle** and is then
pushed out into the body.

vertebrate

(vûr'tə brit)

An animal that has a
backbone.

Fish, amphibians, reptiles, birds, and
mammals are all **vertebrates**.

villi

(vi'li')

Small hairlike structures that protrude from a surface.

Villi in the small intestine increase absorption by providing more surface area.

volume

(vol'ūm)

The amount of space that
an object takes up.

The unit measure of **volume** for
liquids is the liter (L); for solids
it is the cubic meter (m^3).

water cycle

(wô'tər sī'kəl)

The continuous movement of water from a liquid state on the ground to a vapor state in the air and back again.

Cloud formation and rainfall are two parts of the water cycle.

watershed

(wô'tər shed)

An area of land that drains
into a specific river.

There are ten watersheds
in California.

water vapor

(wô'tər vā'pər)

The gas state of water.

Clouds are composed
of water vapor.

weight

(wāt)

A measure of how strongly gravity pulls on an object.

Weight can be measured in newtons or in pounds and ounces.

weather map

(wethu'ər map)

A model or representation
of one or more
weather variables.

A weather map might show
temperatures, precipitation
amounts, or wind speeds.

xylem

(zī'ləm)

Plant tissue that moves
water and minerals up
from the roots.

Most of the layers in a tree
trunk are made of xylem.