

arthropod an invertebrate with an exoskeleton, jointed legs, and a segmented body

asexual reproduction reproduction that involves only one parent

atmosphere the layer of gases that surrounds Earth

autotroph an organism that can produce its own food

bar graph a data display that uses bars to represent numbers

barometer a tool used to measure air pressure

behavior anything an organism does in response to changes in its environment

bird an endothermic vertebrate with a beak, two legs, and two wings

camouflage the ability of an organism to blend into its surroundings

characteristics the traits or physical attributes of an object

chemical energy energy stored in particles of matter

chlorophyll a green material that plants use for photosynthesis

chloroplast a structure in plant leaves that contains chlorophyll and makes food for the plant

circle graph a data display that uses pieces of a circle to show parts of a whole

cirrus cloud a thin, wispy cloud formed at a high elevation

class a division of a phylum

classification the grouping of organisms based on common traits

classify to group things based on common traits

climate the average weather of an area over a long period of time

cold front a front formed when a cold air mass pushes under a warm air mass

complex machine a machine made up of two or more simple machines

conclusion a summary of an investigation, stating what the data seem to mean and whether they support the hypothesis

condensation a change from a gas to a liquid

conditioning a form of learned behavior in which an organism learns to respond in a specific way to a stimulus

conduction the transfer of heat between objects that are touching

conductor a material that heat flows through easily

controlled scientific investigation an investigation or test in which only one variable is changed at a time

controlled variable anything in an experiment that is not allowed to change

convection the transfer of heat energy by the movement of a liquid or gas

convection current a circular movement of air caused by the cycle of warm air rising and cool air sinking

Coriolis effect the curving of the paths of wind and ocean currents due to Earth's rotation

cotyledon the part of a seed that stores food; also known as a seed leaf

courtship the process of finding a mate

cumulonimbus cloud a cumulus cloud that has grown very tall

cumulus cloud a puffy white cloud with a flat bottom that forms at a low or medium elevation

data information, often in the form of numbers

data table a chart that organizes information into rows and columns

dependent variable something that changes as a result of changes in an independent variable

development the process of becoming more complex

dew small drops of water formed when water vapor condenses on a surface

diagram a picture that shows data

dichotomous key a way to classify objects using a series of questions, each with two possible answers

dicot a plant that has two seed leaves

dormancy a state of inactivity

dormant inactive

echinoderm an aquatic invertebrate which has arms that extend outward from the center of the body and a skeleton made of calcium

ectothermic having a core body temperature close to that of the environment

effort force the force that is applied to do work

electric circuit a path for the flow of electrical energy

electric current energy in the form of a flow of charged particles

electric motor a machine that turns electrical energy into mechanical energy

electrical energy the energy of moving electric charges

electromagnet a magnet made by winding a wire around an iron bar and passing electric current through the wire

embryo the part of a seed that develops into a new plant

endoskeleton a skeleton inside an organism's body

endothermic having a core body temperature that stays about the same, regardless of the environment

energy the ability to do work

evaporation a change from a liquid to a gas

exoskeleton a skeleton outside an organism's body

exosphere the outermost part of the atmosphere

experiment an investigation done in order to make a discovery or test a hypothesis

external stimulus a signal from or change in an organism's environment that the organism responds to

family a division of an order

fertilization the joining of pollen and an ovule

fibrous root system a root system made up of many roots that are about the same size

fish a vertebrate that lives in water and uses gills to breathe

fog a cloud that is near or touching the ground

force a push or pull

front a boundary between two air masses

frost ice formed when water vapor changes directly into ice crystals

fulcrum the point around which a lever rotates

Fungi a kingdom of organisms that have cell walls and get their energy by breaking down other organisms

fungus a mushroom, yeast, or other organism classified in the kingdom Fungi

generator a machine that converts mechanical energy into electrical energy

genus a division of a family

germinate to begin to grow

germination the sprouting of a seed

global wind belt an area of winds that tend to blow in the same direction over thousands of kilometers

global winds winds that blow steadily in consistent paths for thousands of kilometers

gravitropism a plant's growth in response to gravity

greenhouse effect the trapping of heat by certain gases in the atmosphere

groundwater flow water that is flowing beneath Earth's surface

growth the process of becoming larger

guard cells cells in a plant's leaves that open and close stomata

heat energy the movement of thermal energy from a warm object to a cooler object

heterotroph an organism that cannot produce its own food

hibernation a state when an animal's breathing and heart rate slow down and the animal goes into a period of deep sleep

high-pressure system an area of high air pressure where the air is slowly sinking

hurricane a low-pressure storm that forms over warm ocean water and has sustained wind speeds of at least 120 km/h

hydrotropism a plant's tendency to grow toward water

hypothesis a possible answer to a scientific question

investigation a close study of something to answer a question about it

life cycle all the stages of life from birth to death

imprinting a behavior in which newborn animals recognize and follow the first moving thing they see

isobar a line on a weather map that connects areas of equal pressure

line graph a data display that shows how something changes over time

inclined plane a flat, sloping surface

isotherm a line on a weather map that connects areas of equal temperature

low-pressure system an area where the air pressure is low and the air is slowly rising

independent variable something that an investigator changes in an experiment

jet stream a high-altitude ribbon of wind flowing thousands of miles west to east at up to 400 km/h

magnetic field the field around a magnet that exerts the magnetic force; the area around a magnet where the magnetic force is effective

inference an explanation of data based on prior knowledge or experience

kinetic energy the energy of motion

magnetism the force of attraction or repulsion of magnetic materials

inherited behavior an action or response that an animal gets from its parents and does not have to learn

kingdom one of the largest groups into which scientists classify living things

mammal a vertebrate that has fur or hair and makes milk to feed its young

instinct an action or response that an animal gets from its parents and does not have to learn

land breeze cool air over land moving toward the ocean

mass the amount of matter in an object

insulator a material that heat does not flow through easily

law of conservation of energy the scientific law stating that energy cannot be created or destroyed

mechanical energy the energy of moving objects

internal stimulus a stimulus that comes from within an organism

learned behavior a behavior that an animal is taught by its parents or learns through experience

mesosphere the middle layer of the atmosphere

invertebrate an animal without a backbone

lever a simple machine made of a bar that pivots around a fixed point

meteorologist a scientist who studies weather

migration an animal's movement to a new location when the seasons change

mimicry looking like another living thing, or like a nonliving part of the environment

mollusk an invertebrate whose body is divided into a head, a body mass, and a foot

monocot a plant that has one seed leaf

multicellular made up of more than one cell

newton a unit of force

nonvascular plant a plant without a system of tubes for the transport of water and nutrients

observation information gathered with the senses

occluded front a front formed when a warm air mass is caught between two cold air masses

order a division of a class

organism a living thing

ovary a plant reproductive part that protects seeds as they develop

ovule a plant reproductive part that develops into a seed

parasite an organism that lives on or inside another organism and gets its energy from that organism

phloem a plant stem tissue that carries nutrients from the leaves to the rest of the plant

photosynthesis the process that plants use to produce their own food

phototropism the way a plant moves or grows in response to light

phylum one of the largest groups a kingdom is divided into

pictograph a data display that uses pictures to represent numbers

pistil the female reproductive part of a plant

polar winds winds that blow away from the poles and westward from the poles to 60 degrees latitude

pollen a powder that contains sperm, produced by the male part of a plant

pollination the transfer of pollen from one flower to another

potential energy the energy of an object because of its position or composition

precipitation water that falls to Earth as rain, snow, freezing rain, sleet, or hail

prediction a statement about what is likely to happen, based on knowledge and information

pulley a grooved wheel with a rope wrapped around it

qualitative observation information described in words

quantitative observation information described using numbers

radar a device that detects objects by sending out high-frequency signals and recording their reflections

radiation the transfer of heat through space

rain gauge a tool used to measure precipitation

relative humidity the amount of water vapor in the air compared to the maximum amount of water vapor the air could hold at that temperature

reproduce to make more organisms

reptile an ectothermic vertebrate that has scales and lays its eggs on land

respiration the process that organisms use to get energy from their food

response a reaction to a stimulus

root hair a microscopic extension of an individual root cell

runner a specialized plant stem that grows on the soil's surface and produces new plants

runoff water that is flowing across Earth's surface

satellite a spacecraft that is sent into orbit around Earth

scientific model something that stands for a real object or system and is used to help explain or understand how that object or system works

scientific name a unique, two-part name for a species

scientific observation something learned using one of the five senses or a tool

screw a simple machine made up of an inclined plane wrapped around a cylinder

sea breeze cool air moving from over an ocean onto land

segmented worm an organism that has a tubelike body that is divided into segments

sexual reproduction reproduction that involves two parents and produces offspring that are different from either parent

simple machine a machine with few or no moving parts that makes work easier

slings psychrometer a tool containing two thermometers that is used to measure relative humidity

solar cell a device that changes solar energy into electrical energy

solar energy energy from the sun

species a group of organisms that can mate to produce offspring that can then mate

sponge a simple animal that lives in the water, attached to a solid surface

spore a tiny particle that some plants use to reproduce

spring scale a tool that uses a spring to measure weight

stamen the male reproductive part of a plant

station model a graphic that uses symbols to show the weather at a reporting station at a certain time

stationary front a front formed when a warm air mass and a cold air mass meet and stop moving

stimulus a change in the environment that causes an organism to react

stomata small pores in the underside of leaves through which plants take in carbon dioxide

storm a system of severe weather that includes strong winds or large amounts of precipitation

stratosphere the layer of Earth's atmosphere just above the troposphere

stratus clouds low sheets of gray clouds that cover the sky

surface current a streamlike movement of water at or near the surface of an ocean or other body of water

surface-water flow water that can be easily seen flowing over Earth's surface

taproot the large, main root of a plant, with smaller roots branching from it

taxonomy the study of classification

technological design using science to create new technology

technology the use of science to solve a problem or meet a need

thermal energy the energy of moving particles

thermometer a tool used to measure temperature

thermosphere the layer of Earth's atmosphere just outside the mesosphere

thigmotropism a plant's response to touch

thunderstorm a small, intense weather system that produces lightning

tornado a rapidly whirling, funnel-shaped cloud that extends down from a storm cloud

trade winds winds that blow westward and toward the equator from 30 degrees latitude

trait a characteristic of an organism, such as body shape or what it eats

transpiration the flow of water from leaves into the air

trial each repetition of an experiment

triple beam balance a tool for measuring mass

tropism movement or growth toward or away from an external stimulus

troposphere the layer of Earth's atmosphere closest to the ground

valid conclusion a reasonable statement about what data mean, based on the data and observations

vascular plant a plant with a system of tubes that carry water and nutrients

vertebrate an animal that has a backbone

warm front a front formed when a warm air mass slides up and over a cold air mass

water cycle the never-ending movement of water between Earth's surface and atmosphere

weather the condition of the atmosphere at a certain time and place

weather map a map that shows weather data for an area at a particular time

wedge a simple machine made of two inclined planes, back to back

weight the force of gravity's pull on an object

westerly winds winds that blow eastward and toward the poles in the temperate regions between 30 and 60 degrees latitude

wheel and axle a simple machine made of two different-size wheels, one inside the other

wind vane a tool used to find the direction of the wind

work the use of a force to move an object

x-axis the horizontal line on a line graph that shows possible values of the independent variable

xylem a plant stem tissue that carries water from the roots to the leaves

y-axis the vertical line on a line graph that shows possible values of the dependent variable