absorption line a dark area of a spectrum, indicating the wavelength of absorbed light  
accretion sticking together  
altitude the distance above Earth’s surface  
anthropocene a new geologic epoch some scientists think we have entered because of human-driven changes
asteroid a small, rocky object that orbits the Sun
asteroid belt a region between Mars and Jupiter that consists of small chunks of matter that orbit the Sun
astronomical unit (AU) the average distance between Earth and the Sun, about 150 million kilometers
atmosphere a layer of gases that surround an object, held in place by gravity
axis an imaginary axle that a planet spins on
barycenter a center of gravity
big bang theory a theory that one explosion created the universe
binary star a system of two stars orbiting their barycenter
biosphere a system of interacting living organisms
bird’s-eye view a point of view directly above the area being studied
black hole an extremely dense cosmic object that can form after a star becomes a supernova
circumference the distance around a circle
comet a chunk of ice, dust, and rock material a few kilometers in size
complex crater a crater that has central peaks and ejecta thrown out in long rays
core the center of Earth, made of iron and nickel
cosmos the universe
crater a change in land created by an impact
crescent Moon the shape of the Moon just after and just before the new Moon phase
crust the rigid outer layer of Earth
diameter the distance from one point in a circle to an opposite point in the circle
**Doppler shift** the shifting of a star’s spectrum as it moves (SRB)

**dwarf planet** an object that orbits the Sun and is big enough to be round but doesn’t clear away all objects near its orbit (SRB)

**ecosystem** a community of organisms interacting with each other and with the nonliving environment (SRB)

**ejecta** the material displaced from the land when a crater is formed (SRB, IG)

**electromagnetic spectrum** the range of electromagnetic radiation arranged in order of energy level (SRB)

**elevation** the vertical distance or height above sea level (IG)

**emission line** a bright line of a spectrum, indicating the wavelength of emitted light (SRB, IG)

**emit** to give off (SRB)

**equator** the imaginary line that runs around the middle of a planet, halfway between the North and South Poles (SRB, IG)

**equinox** a day of the year when the Sun’s rays shine straight down on the equator (SRB, IG)

**exoplanet** a planet orbiting a star other than the Sun (SRB, IG)

**first-quarter Moon** the phase that occurs halfway between the new and full Moon (SRB, IG)

**flooded crater** a crater from a large impact that filled with magma from beneath the surface (SRB, IG)

**fossil fuel** the remains of organisms that lived long ago preserved as oil, coal, or natural gas (SRB)

**fracking** a type of technology that injects liquids into the ground to force oil out (SRB)

**frame of reference** the assemblage of objects, distances, and directions that you use to establish the location of something (SRB)

**full Moon** the phase of the Moon that occurs when the Moon is opposite the Sun as seen from Earth (SRB, IG)

**galaxy** an enormous collection of tens of millions to hundreds of billions of stars, interstellar gas, and dust (SRB, IG)

**geosphere** Earth’s core, mantle, and crust (SRB, IG)

**gibbous** a Moon shape that is larger than a first or third quarter Moon, but smaller than a full Moon (SRB, IG)

**gravity** a force of attraction between masses (SRB, IG)

**greenhouse gas** a gas that absorbs and radiates energy in the atmosphere, trapping thermal energy and heating the atmosphere (SRB)

**highlands** light-colored areas of the Moon with lots of rough mountains and craters (SRB, IG)

**hydrosphere** the interacting water on, under, and above Earth’s surface (SRB, IG)
**impact** the crash between one object (impactor) and another object (SRB, IG)

**interacting** to act upon one another (SRB)

**Kuiper (K•per) Belt** the region of the solar system beyond the orbit of Neptune; plutoids are located here (SRB)

**latitude** the angular distance north or south from Earth’s equator (SRB, IG)

**light signature** spectrum; every substance has its own specific light signature (IG)

**light-year (ly)** the distance light travels in 1 year. One ly is about equal to 9.5 trillion kilometers. (SRB, IG)

**Local Group** a relatively small cluster of several dozen galaxies, including the Milky Way (SRB)

**location** the position of an object relative to other objects (SRB, IG)

**longitude** the distance measured on Earth's surface east or west of the prime meridian (IG)

**lunar** pertaining to the Moon (SRB)

**lunar eclipse** when Earth is exactly between the Moon and the Sun, and the Moon passes through Earth’s shadow (SRB, IG)

**Magellanic Clouds** the galaxies closest to the Milky Way (SRB)

**mantle** the layer of Earth below the crust; upper part is solid and lower part is semisolid (SRB)

**mare** (plural **maria**) the dark surface of cooled magma in a flooded crater (SRB, IG)

**meteor** a streak of light in the sky from gravel- and pebble-sized meteoroids; also known as a shooting star (SRB)

**meteorite** a piece of a meteoroid that hits the ground (SRB)

**meteoroid** a small- or medium-sized piece of rock or metal from space (SRB, IG)

**Milky Way** the name of the galaxy that our solar system is a part of (SRB)

**model** a representation of thinking to help others understand your thinking (SRB, IG)

**Moon** Earth’s natural satellite (SRB)

**nebula** (plural **nebulae**) a cloud of gas and dust in space between stars (SRB, IG)

**new Moon** the phase of the Moon that occurs when the Moon is in the direction of the Sun as seen from Earth (SRB, IG)

**nonrenewable** a material that cannot be replaced once used up (SRB)

**North Star** the reference star pointed to by Earth’s North Pole (SRB, IG)

**Oort Cloud** an area of icy planetesimals in the outer solar system past the planets (SRB)
**orbit** the path one object takes to travel around another object (synonym: revolution)  
(SRB, IG)

**orbital period** how long it takes an object to orbit another object  
(SRB, IG)

**orbital radius** the average distance between an object and the object it is orbiting  
(SRB, IG)

**orrery** a mechanical device that shows the relative positions and motions of planets as they orbit the Sun  
(IG)

**parallel** continuing in the same direction and always the same distance apart  
(SRB)

**phase** each different shape of the Moon  
(SRB, IG)

**planet** an object that orbits a star and is massive enough for its own gravity to force it into a spherical shape  
(SRB)

**planetesimal** a piece of material from the collision of planets  
(SRB)

**plutoid** a type of dwarf planet that has an orbit beyond Neptune  
(SRB)

**point of view** the position from which a visual observation is made  
(IG)

**radiometer** an instrument that detects microwave emissions  
(SRB)

**ray** the white lines that extend in all directions from some craters  
(SRB, IG)

**red giant** the stage of a star when it becomes very large and has a relatively cool surface  
(SRB)

**regolith** the pulverized surface material of the Moon; also known as lunar soil  
(IG)

**renewable** able to be replaced or restored by nature  
(SRB)

**revolution** the path one object takes to travel around another object (synonym: orbit)  
(SRB, IG)

**rille** a structure on the Moon's surface that looks like a canyon or streambed  
(IG)

**rotation** spinning on an axis  
(SRB, IG)

**satellite** an object orbiting a larger object  
(SRB)

**scaling factor** the ratio of the real size of an object to its modeled size  
(IG)

**season** a period of the year identified by changes in hours of daylight and weather  
(SRB, IG)

**simple crater** a small, bowl-shaped crater that has a fairly uniform blanket of ejecta distributed around the rim  
(SRB, IG)

**solar** pertaining to the Sun  
(SRB)

**solar angle** the angle at which light passes through the atmosphere; measured from Earth’s surface  
(IG)

**solar eclipse** when the Moon passes exactly between Earth and the Sun  
(SRB, IG)

**solar energy** energy from the Sun  
(SRB)
**solar system** a region of space occupied by a system of objects orbiting a star, such as the Sun and all things orbiting it  (SRB, IG)

**solstice** a day of the year when Earth’s North Pole is leaning either toward the Sun or away from the Sun  (SRB, IG)

**spectroscopy** a tool used to study the spectrum of colors coming from a light source  (SRB, IG)

**spectrum** a pattern of wavelengths that can identify different kinds of light  (SRB, IG)

**star** a large, hot ball of gas  (SRB)

**star cluster** a group of stars held together by their mutual gravitational attraction  (SRB)

**subsystem** a system that also makes up part of a larger system  (SRB, IG)

**Sun** the star at the center of our solar system  (SRB)

**supernova** an explosion that ends a star’s life  (SRB)

**system** a collection of interacting parts  (SRB, IG)

**third-quarter Moon** the phase that occurs halfway between the full and new Moon  (SRB, IG)

**transit** when one object appears to move across another object as seen from the perspective of an observer  (SRB, IG)

**universe** the sum total of all things that can be observed or detected  (SRB, IG)

**visible light** wavelengths of electromagnetic radiation that can be seen by the human eye  (SRB, IG)

**waning** getting smaller  (SRB, IG)

**wavelength** the length of one wave cycle  (SRB)

**waxing** getting bigger  (SRB, IG)

**white dwarf** the stage of a star when it has no more fuel for nuclear reactions  (SRB)

**wobble method** a method to detect a possible planet by studying the spectrum lines of stars  (SRB)