

1. abiotic	Nonliving. Compare biotic.	11. carbon cycle	Cyclic movement of carbon in different chemical forms from the environment to organisms and then back to the environment
2. aerobic respiration	Complex process that occurs in the cells of most living organisms, in which nutrient organic molecules such as glucose (C ₆ H ₁₂ O ₆) combine with oxygen (O ₂) to produce carbon dioxide (CO ₂), water (H ₂ O), and energy. Compare photosynthesis.	12. carnivore	Animal that feeds on other animals. Compare herbivore, omnivore.
3. anaerobic respiration	Form of cellular respiration in which some decomposers get the energy they need through the breakdown of glucose (or other nutrients) in the absence of oxygen. Compare aerobic respiration.	13. community	Populations of all species living and interacting in an area at a particular time.
4. Anthropocene	A new era in which humans have become major agents of change in the functioning of the earth's life-support systems as their ecological footprints have spread over the earth. See ecological footprint. Compare Holocene.	14. consumer	Organism that cannot synthesize the organic nutrients it needs and gets its organic nutrients by feeding on the tissues of producers or of other consumers; generally divided into primary consumers (herbivores), secondary consumers (carnivores), tertiary (higher-level) consumers, omnivores, and detritivores (decomposers and detritus feeders). In economics, one who uses economic goods. Compare producer.
5. aquifer	Porous, water-saturated layers of sand, gravel, or bedrock that can yield an economically significant amount of water.	15. detritivore	Consumer organism that feeds on detritus, parts of dead organisms, and cast-off fragments and wastes of living organisms. Examples include earthworms, termites, and crabs. Compare decomposer.
6. atmosphere	Whole mass of air surrounding the earth. See stratosphere, troposphere. Compare biosphere, geosphere, hydrosphere.	16. detritus	Parts of dead organisms and cast-off fragments and wastes of living organisms.
7. autotroph	Organism that uses solar energy (green plants) or chemical energy (some bacteria) to manufacture the organic compounds it needs as nutrients from simple inorganic compounds obtained from its environment. Compare consumer, decomposer. See producer.	17. detritus feeder	Consumer organism that feeds on detritus, parts of dead organisms, and cast-off fragments and wastes of living organisms. Examples include earthworms, termites, and crabs. Compare decomposer. See detritivore.
8. biogeochemical cycle	Natural processes that recycle nutrients in various chemical forms from the nonliving environment to living organisms and then back to the nonliving environment. Examples include the carbon, oxygen, nitrogen, phosphorus, sulfur, and hydrologic cycles.	18. ecology	Biological science that studies the relationships between living organisms and their environment; study of the structure and functions of nature.
9. biosphere	Zone of the earth where life is found. It consists of parts of the atmosphere (the troposphere), hydrosphere (mostly surface water and groundwater), and lithosphere (mostly soil and surface rocks and sediments on the bottoms of oceans and other bodies of water) where life is found. Compare atmosphere, geosphere, hydrosphere.	19. ecosystem	One or more communities of different species interacting with one another and with the chemical and physical factors making up their nonliving environment
10. biotic	Living organisms. Compare abiotic.	20. evaporation	Conversion of a liquid into a gas.
		21. fermentation	Form of cellular respiration in which some decomposers get the energy they need through the breakdown of glucose (or other nutrients) in the absence of oxygen. Compare aerobic respiration. See anaerobic respiration.
		22. food chain	Series of organisms in which each eats or decomposes the preceding one. Compare food web.
		23. food web	Complex network of many interconnected food chains and feeding relationships. Compare food chain.

24. geosphere	Earth's intensely hot core, thick mantle composed mostly of rock, and thin outer crust that contains most of the earth's rock, soil, and sediment. Compare atmosphere, biosphere, hydrosphere.	32. hydrosphere	Earth's liquid water (oceans, lakes, other bodies of surface water, and underground water), frozen water (polar ice caps, floating ice caps, and ice in soil, known as permafrost), and water vapor in the atmosphere. See also hydrologic cycle. Compare atmosphere, biosphere, geosphere.
25. greenhouse effect	Natural effect that releases heat in the atmosphere near the earth's surface. Water vapor, carbon dioxide, ozone, and other gases in the lower atmosphere (troposphere) absorb some of the infrared radiation (heat) radiated by the earth's surface. Their molecules vibrate and transform the absorbed energy into longer-wavelength infrared radiation in the troposphere. If the atmospheric concentrations of these greenhouse gases increase and other natural processes do not remove them, the average temperature of the lower atmosphere will increase. Compare global warming.	33. microorganisms	Organisms such as bacteria that are so small that it takes a microscope to see them.
26. gross primary productivity (GPP)	Rate at which an ecosystem's producers capture and store a given amount of chemical energy as biomass in a given length of time. Compare net primary productivity.	34. net primary productivity (NPP)	Rate at which all the plants in an ecosystem produce net useful chemical energy; equal to the difference between the rate at which the plants in an ecosystem produce useful chemical energy (gross primary productivity) and the rate at which they use some of that energy through cellular respiration. Compare gross primary productivity.
27. groundwater	Water that sinks into the soil and is stored in slowly flowing and slowly renewed underground reservoirs called aquifers; underground water in the zone of saturation, below the water table. Compare runoff, surface water.	35. nitric oxide (NO)	Colorless gas that forms when nitrogen and oxygen gas in air react at the high-combustion temperatures in automobile engines and coal-burning plants. Lightning and certain bacteria in soil and water also produce NO as part of the nitrogen cycle.
28. herbivore	Plant-eating organism. Examples include deer, sheep, grasshoppers, and zooplankton. Compare carnivore, omnivore.	36. nitrogen cycle	Cyclic movement of nitrogen in different chemical forms from the environment to organisms and then back to the environment
29. heterotroph	Organism that cannot synthesize the organic nutrients it needs and gets its organic nutrients by feeding on the tissues of producers or of other consumers; generally divided into primary consumers (herbivores), secondary consumers (carnivores), tertiary (higher-level) consumers, omnivores, and detritivores (decomposers and detritus feeders). In economics, one who uses economic goods. Compare producer. See consumer.	37. nitrogen dioxide (NO₂)	Reddish-brown gas formed when nitrogen oxide reacts with oxygen in the air.
30. Holocene	A geological period of relatively stable climate and other environmental conditions following the last glacial period. It began about 12,000 years ago. Compare Anthropocene.	38. nutrient cycle	Natural processes that recycle nutrients in various chemical forms from the nonliving environment to living organisms and then back to the nonliving environment. Examples include the carbon, oxygen, nitrogen, phosphorus, sulfur, and hydrologic cycles. See biogeochemical cycle.
31. hydrologic cycle	Biogeochemical cycle that collects, purifies, and distributes the earth's fixed supply of water from the environment to living organisms and then back to the environment	39. omnivore	Animal that can use both plants and other animals as food sources. Examples include pigs, rats, cockroaches, and humans. Compare carnivore, herbivore.
		40. organism	Any form of life.
		41. phosphorus cycle	Cyclic movement of phosphorus in different chemical forms from the environment to organisms and then back to the environment

42. photosynthesis	Complex process that takes place in cells of green plants. Radiant energy from the sun is used to combine carbon dioxide (CO ₂) and water (H ₂ O) to produce oxygen (O ₂), carbohydrates (such as glucose, C ₆ H ₁₂ O ₆), and other nutrient molecules. Compare aerobic respiration, chemosynthesis.	52. sulfur cycle	Cyclic movement of sulfur in various chemical forms from the environment to organisms and then back to the environment
43. phytoplankton	Small, drifting plants, mostly algae and bacteria, found in aquatic ecosystems. Compare plankton, zooplankton.	53. sulfur dioxide (SO₂)	Colorless gas with an irritating odor. About one-third of the SO ₂ in the atmosphere comes from natural sources as part of the sulfur cycle. The other two-thirds comes from human sources, mostly combustion of sulfur-containing coal in electric power and industrial plants and from oil refining and smelting of sulfide ores.
44. population	Group of individual organisms of the same species living in a particular area.	54. surface runoff	Water flowing off the land into bodies of surface water. See reliable runoff.
45. precipitation	Water in the form of rain, sleet, hail, and snow that falls from the atmosphere onto land and bodies of water.	55. tertiary (higher-level) consumers	Animals that feed on animal-eating animals. They feed at high trophic levels in food chains and webs. Examples include hawks, lions, bass, and sharks. Compare detritivore, primary consumer, secondary consumer.
46. primary consumer	Organism that feeds on some or all parts of plants (herbivore) or on other producers. Compare detritivore, omnivore, secondary consumer.	56. transpiration	Process in which water is absorbed by the root systems of plants, moves up through the plants, passes through pores (stomata) in their leaves or other parts, and evaporates into the atmosphere as water vapor.
47. producer	Organism that uses solar energy (green plants) or chemical energy (some bacteria) to manufacture the organic compounds it needs as nutrients from simple inorganic compounds obtained from its environment. Compare consumer, decomposer.	57. trophic level	All organisms that are the same number of energy transfers away from the original source of energy (for example, sunlight) that enters an ecosystem. For example, all producers belong to the first trophic level and all herbivores belong to the second trophic level in a food chain or a food web.
48. pyramid of energy flow	Diagram representing the flow of energy through each trophic level in a food chain or food web. With each energy transfer, only a small part (typically 10%) of the usable energy entering one trophic level is transferred to the organisms at the next trophic level.	58. troposphere	Innermost layer of the atmosphere. It contains about 75% of the mass of earth's air and extends about 17 kilometers (11 miles) above sea level. Compare stratosphere.
49. respiration	Complex process that occurs in the cells of most living organisms, in which nutrient organic molecules such as glucose (C ₆ H ₁₂ O ₆) combine with oxygen (O ₂) to produce carbon dioxide (CO ₂), water (H ₂ O), and energy. Compare photosynthesis. See aerobic respiration.	59. water cycle	Biogeochemical cycle that collects, purifies, and distributes the earth's fixed supply of water from the environment to living organisms and then back to the environment. See hydrologic cycle.
50. secondary consumer	Organism that feeds only on primary consumers. Compare detritivore, omnivore, primary consumer.	60. zooplankton	Animal plankton; small floating herbivores that feed on plant plankton (phytoplankton). Compare phytoplankton.
51. stratosphere	Second layer of the atmosphere, extending about 17?48 kilometers (11?30 miles) above the earth's surface. It contains small amounts of gaseous ozone (O ₃), which filters out about 95% of the incoming harmful ultraviolet radiation emitted by the sun. Compare troposphere.		