

SCIENCE

AHSGE VOCABULARY TERMS WITH DEFINITIONS

1. **control**: the part of an experiment that serves as a standard of comparison with another
part of the experiment to which it is identical except for one factor
2. **variable**: parts of experiments that can be controlled or manipulated
3. **Systeme international units**: a uniform metric system of measurement used worldwide
4. **autotrophs (producers)**: organisms that are able to synthesize food using either light or chemical energy
5. **heterotrophs (consumers)**: organisms unable to make their own food; they rely on autotrophs as their nutrient and energy source
6. **decomposers**: organisms that break down and absorb nutrients from dead and decaying organic matter
7. **food chain**: a possible route for the transfer of matter and energy through an ecosystem from autotrophs through heterotrophs and decomposers
8. **food web**: shows all the possible feeding relationships in a community at each trophic level; represents a network of interconnected food chains
9. **energy pyramid**: illustrates the energy decrease at each trophic level from the base (autotrophs) to each level of heterotrophs.
10. **reactants**: substances that react in a chemical equation
11. **products**: substances that are produced in a chemical reaction
12. **photosynthesis**: process by which autotrophs produce simple sugars from water and carbon dioxide using energy absorbed from sunlight by chlorophyll
13. **respiration**: process in which cells break down molecules of food (simple sugars -and sometimes proteins or fats) to produce energy, water and carbon dioxide.
14. **carbon cycle**: the process in which carbon travels from the atmosphere and/or ocean into producers, then heterotrophs, and then back into the ocean and/or atmosphere
15. **nitrogen cycle**: the process in which atmospheric nitrogen is converted into usable forms and moves throughout organisms and then back into the atmosphere
16. **water cycle**: the movement of water from the atmosphere and/or water sources through ecosystems and then back into the cycle (a cycle that links all of the Earth's solid, liquid, and gaseous water together)
17. **transpiration**: in plants, the evaporation of water from the stomata of leaves
18. **matter**: anything that has mass and occupies space
19. **kinetic energy**: the energy of an object in motion
20. **phase/state**: the physical forms in which a substance can exist; states include solid, liquid, gas, and plasma
21. **proton**: a particle of the atom carrying a positive electrical charge
22. **neutron**: an uncharged particle of an atom
23. **electron**: an atomic particle carrying a unit of negative electricity

24. **element**: a pure substance that cannot be decomposed by a naturally occurring event
25. **periodic table**: a grouping of the atomic elements by atomic numbers or weights
26. **metals**: an elementary substance possessing opacity, conductivity, plasticity, and luster
27. **nonmetals**: an element that has none of the characteristics of metals
28. **metalloids**: an element having some, but not all of the characteristics of metals
29. **noble gases**: group 18 (8) elements He, Ne, Ar, Kr, Xe, and Rn , the unreactive elements
in group 18 of the periodic table; their atoms have 8 electrons in their outer level (except for helium, which has two electrons.)
30. **electron shell**: energy levels of an atom that may contain electrons; also known as sub- levels
31. **atom**: the smallest particle having the properties of a specific chemical
32. **dot diagram**: system of arranging dots (representing valence electrons) around the symbols of elements
33. **ion**: an atom or molecule that gains electrons and carries a positive electrical charge or loses electrons and has a negative electrical charge
34. **rate**: the change in concentration of reactants per unit time as a reaction proceeds
35. **physical change**: a change in property of matter that does not result in a change in identity
36. **chemical change**: any change in which one or more substances are converted into different substances with different characteristics
37. **taxonomic classification**: a system of organizing living things into categories based on their similarities, chemical make-up, and evolutionary relationships
38. **organisms**: any unicellular or multicellular form exhibiting all the characteristics of life
39. **species**: population of interbreeding organisms capable of producing fertile offspring
40. **kingdom**: taxonomic grouping of related phyla
41. **scientific name**: the Latin name for an organism comprised of its genus and species
42. **binomial nomenclature**: two-word classification system originated by Linnaeus for naming species; the first word is the genus name and the second is the descriptive name or specific epithet (species name)
43. **vascular**: in plants, the tissues made of tubular cells that transport water and dissolved nutrients from one part of a plant to another
44. **nonvascular**: plants that lack vascular tissue to efficiently transport water and nutrients, limiting their size and distribution
45. **mechanism**: sequence of steps in chemical reaction
46. **angiosperm**: flowering plants; extremely diverse plants with seeds enclosed in a fruit; most complex and highly adapted plants on Earth
47. **gymnosperm**: nonflowering vascular plants with seeds produced on the scales of cones
48. **characteristic/traits**: inherited characteristics; these can be either dominant or recessive
49. **vertebrates**: animals with a backbone

50. **invertebrates**: animals lacking a backbone
51. **adaptation**: evolution of a structural, internal, or behavioral features that help an organism better survive in an environment
52. **protective coloration**: adaptation to surroundings in which body colors blend with or mimic the environment
53. **mimicry**: structural adaptation evolved in some organisms resulting in the mimicking appearance to other organisms for protection and other advantages
54. **parent**: the first generation of a particular line of organisms
55. **offspring**: the results of sexual reproduction and the fertilization of an egg
56. **genetic trait**: a characteristic that can be inherited from parent to offspring
57. **pedigree**: graphic representation showing patterns of inheritance in a family or breeding group; yields genetic information about a related group
58. **monohybrid**: comparing one heritable trait resulting in the production of a given set of offspring
59. **Punnett square**: a square used to predict the possible genotypes of a given set of offspring
60. **DNA**: deoxyribonucleic acid: complex biological polymer; master copy of an organism's information code, which is passed on each time a cell divides and also from one generation to the next
61. **mutation**: random error or change in the DNA sequence that may affect whole chromosomes or just one gene
62. **gene**: a segment of DNA located on the chromosome; directs the protein production that controls the cell cycle
63. **chromosome**: cell structure that carries the genetic material
64. **meiosis**: cell division in which one diploid cell produces four haploid cells called sex cells or gametes, which have half the number of chromosomes as a body cell of the parent
65. **dominant**: visible, observable trait of an organism that masks a recessive from of the trait
66. **recessive**: hidden trait of an organism that is masked by a dominant trait
67. **diffusion**: net, random movement, eventually resulting in even distribution
68. **osmosis**: diffusion of water molecules through selectively permeable membrane depending on the concentration of solutes on either side of the membrane
69. **active transport**: process requiring energy by which cells move materials against a concentration gradient
70. **passive transport**: in cells, movement of particles across cells move materials against a concentration gradient
71. **energy**: ability to do work or move things; powers life processes
72. **plant cell**: the smallest unit of life composing all plants; includes cell walls, vacuoles, and plastids
73. **animal cell**: the smallest unit of life composing all animals; the outer border is the plasma membrane.
74. **prokaryotic**: cell lacking a true nucleus or membrane-bound internal organelles
75. **eukaryotic**: cell having a true nucleus and membrane-bound internal organelles; the majority of cells are eukaryotic
76. **locomotion**: motion or movement

77. **cilia**: short, numerous hairlike projections on a cell's surface that are composed of microtubules; their "beating" activity propels unicellular organisms and moves fluids over the cell surface in multicellular organisms
78. **flagella**: long, threadlike structure composed of microtubules; project from within the plasma membrane and propel cells and organisms by a whiplike motion
79. **cell organelles**: internal membrane-bound structures in a eukaryotic cell
80. **cell organization**: the formation of multicellular structures from the cellular level to the organism level
81. **cells**: building block of both unicellular and multicellular organisms; all living things are made of cells
82. **tissue**: group of cells that function together to carry out an activity
83. **organ**: group of two or more tissues that perform an activity together
84. **system**: group of two or more organs that perform an activity together
85. **mitosis**: cell division during which chromosomes are equally distributed to the two identical daughter cells that are formed; results in growth
86. **asexual reproduction**: any reproductive process, such as budding, that does not involve the fusion of gametes
87. **sexual reproduction**: reproductive pattern in which haploid gametes fuse to produce a diploid zygote, which then develops by mitosis into a new organism
88. **non-native species**: an organism that has been introduced into an environment; feral
89. **ecosystem**: populations in a community and abiotic factors with which they interact
90. **competition**: when more than one species requires the same resource resulting in a struggle for that resource
91. **biotic**: all living organisms inhabiting any of Earth's many different environments
92. **abiotic**: nonliving parts of the environment such as air currents, temperature, soil, light, and moisture
93. **dynamic equilibrium of population**: condition of continuous movement but no overall change in concentration of a population in a given area
94. **predator**: an organism that hunts, kills, and consumes another
95. **prey**: an animal killed by another for food
96. **diversity**: variations; differences
97. **heritable trait**: a trait or characteristic that can be passed on from one generation to another
98. **law of conservation of energy**: the law that states that energy can be converted from one form to another, but it cannot be created or destroyed in ordinary physical and chemical changes
99. **mechanical energy**: energy used to exert a force and produce motion
100. **electrical energy**: energy in electrical currents
101. **chemical energy**: energy associated with chemical change
102. **light energy**: energy from electromagnetic radiation
103. **sound energy**: energy from sound waves
104. **heat energy**: energy transferred between two systems that is associated exclusively with the difference in temperature between the two systems

105. energy transformation: the transfer of energy from one form into another form
106. wavelength: the distance from one crest of one wave to the crest of the next wave
107. Newton's three laws of motion: the three laws state: 1) a body remains in a state of rest, or, if in motion, continues along a straight line unless a force causes it to move or change direction 2) the acceleration of a body is directly proportional to the size of the force producing the acceleration and inversely proportional to the mass of the body 3) for every force there is an equal and opposite force
108. force: any push or pull
109. pressure: force applied per unit of area