FOSS Diversity of Life, Next Generation Edition
Glossary

abdomen the third section of the insect body, including the digestive and reproductive organs and most of the circulatory and respiratory systems (SRB)

adaptation any structure or behavior of an organism that allows it to survive in its environment (SRB, IG)

aerobic cellular respiration a process by which organisms convert glucose into usable energy (SRB, IG)

alga (plural **algae**) an aquatic protist containing chlorophyll. Algae may be single-celled or multicellular. (SRB)

allele variations of genes that determine traits in organisms; the two corresponding alleles on paired chromosomes constitute a gene (SRB, IG)

antibiotic a medicine that can kill many types of bacteria (SRB)

aquatic living or occurring in water (SRB)

archaea a microscopic, single-celled organism that lacks a nucleus and organelles (prokaryotic). Archaea have different cell walls and cell membranes than bacteria or eukaryotes. (SRB, IG)

asexual reproduction the production of genetically identical offspring from a single parent (SRB, IG)

atom a particle that is the basic building block of matter (SRB, IG)

bacterium (plural **bacteria**) a microscopic, single-celled organism that lacks a nucleus and organelles (prokaryotic). (SRB, IG)

behavior a manner of acting (SRB, IG)

biodiversity the variety of life that exists in a particular habitat or ecosystem (SRB, IG)

cell the basic unit of life. All organisms are cells or are made of cells. (SRB, IG)

cell membrane the boundary between a cell and its environment (SRB, IG)

cell structure a part of a cell with a specific job that enables an organism to carry out life's functions (SRB, IG)

cell wall a semirigid structure that surrounds cells of plants, fungi, and bacteria (SRB, IG)

characteristic a trait that helps identify an organism (IG)

chlorophyll a green pigment in chloroplasts that captures light energy to make sugars during photosynthesis (SRB, IG)

chloroplast an organelle containing chlorophyll, found in plant cells and some protists (SRB, IG)

chromosome a structure made of coiled DNA that transfers hereditary information to the next generation (IG)

cilium (plural **cilia**) (SILL•ee•uh) a short hairlike structure that propels protists through their fluid environment (SRB)

classification a system or way of organizing living things (IG)

coevolve when two or more species affect each other's evolution (SRB, IG)

colony a group of organisms of the same species living together. A bacterial colony is a visible group of bacteria. (SRB, IG)

compound microscope a microscope that uses two lenses (eyepiece and objective lens) (SRB, IG)

contractile vacuole an organelle found mostly in protists that collects extra water in a cell and expels it (SRB)

control an experimental test used to compare results with tests where a variable was changed (IG)

cotyledon the white, starchy part of a flowering plant seed. The cotyledon contains food to nourish the embryo during germination. (SRB)

cross the transfer of sperm from one plant to the egg of another plant of the same species (IG)

culture a growth of organisms on a prepared material (SRB, IG)

cuticle a waxy covering that covers leaves, reducing water loss through evaporation (SRB)

cytoplasm all of the interior of a cell outside the nucleus (SRB, IG)

daughter cell a cell created during cell division that is an exact copy of the original (SRB)

dead no longer alive (SRB, IG)

decomposer an organism that breaks down dead material and returns nutrients to the soil (SRB, IG)

deoxyribonucleic acid (DNA) a molecule that contains an organism's genetic information (IG)

digestive enzyme a chemical that breaks down food (SRB)

dispersal the process of spreading out from a starting place (SRB)

domain one group in the most currently accepted biological classification system. The three domains are Bacteria, Archaea, and Eukaryota. (IG)

dominant a form of gene that is expressed as the trait when a dominant allele is present (SRB, IG)

dormant a state of suspended activity. Dormant organisms are alive but inactive. (SRB, IG)

dormancy the quality or state of being dormant (IG)

ecosystem a system of organisms and environmental factors (SRB)

E.coli a species of rod-shaped bacteria in the large intestine of humans and other animals (IG)

egg the female sex cell (SRB, IG)

elodea an aquatic plant that grows in freshwater ponds and slow-moving streams (SRB, IG)

embryo the early developmental stage of a plant or animal (SRB)

endoplasmic reticulum a cell structure involved in making proteins (SRB)

energy the capacity to do work. Most energy used by organisms comes from the Sun. (SRB)

environment the area in which an organism lives (SRB)

environmental factor a condition of the environment that affects how suitable it is for a living thing (SRB, IG)

eukaryote an organism made of a cell or cells that contain a nucleus and organelles. All cells except bacteria and archaea are eukaryotic. (SRB, IG)

evidence information gathered by observation or experimentation (IG)

evolution changes to a species' genes over time (many generations) as different genes are passed from parent to offspring (SRB)

evolve how a species changes over time (many generations) as different genes are passed from parent to offspring (SRB)

F_1 generation the offspring of the parent generation (SRB)

F_2 generation the offspring of the F_1 generation (SRB)

feature a structure, characteristic, or behavior of an organism, such as eye color, plant height, or timing of migration (SRB, IG)

fertilization the union of the nucleus of an egg cell with the nucleus of a sperm cell to produce a cell that will divide to become a new organism of the same type as the parent cells (SRB)

fertilize to make (an egg) able to grow and develop (IG)

field of view (FOV) the diameter of the circle of light seen through a microscope (SRB, IG)

filial related to sons and daughters (SRB, IG)

flower the part of a seed plant that includes the reproductive organs (SRB, IG)

food a substance that provides energy and nutrients for organisms. Organisms use food for growth, repair, and cellular processes. (SRB)

food-borne illness any illness resulting from the consumption of contaminated or poisonous food (SRB)

fruit the ripened ovary of a plant, containing the seeds (SRB)

function the specific activity performed by an organ or part; the purpose of a behavior (SRB, IG)

fungus (plural **fungi**) a eukaryotic organism, including molds, mushrooms, and yeasts. Can be single-celled or multicellular. (SRB, IG)

gas exchange one of the characteristics of life. Gas exchange occurs at the cellular level, with carbon dioxide, oxygen, and water vapor being the most common gases exchanged. (SRB)

gene the basic unit of heredity carried by the chromosomes; codes for proteins which determine the traits of an organism (IG)

generation offspring that are at the same stage of descent from a common ancestor (IG)

genetic factor genes in an organism's DNA (SRB, IG)

genetic material codes for the characteristics of organisms. Passed on from one generation to the next. Found in the form of deoxyribonucleic acid (DNA) or ribonucleic acid (RNA). (SRB)

genetics the study of genes and how they affect the traits of an organism (SRB)

genotype an organism's particular genetic makeup (IG)

germinate the start of growth and development of a seed (SRB)

germination the resumption of growth and development of the new plant in a seed (IG)

growth increase in size of an organism. Growth is a characteristic of life. (SRB)

guard cell a specialized plant cell that controls the opening and closing of the stomata, thus regulating transpiration (SRB, IG)

heredity the passing of traits from parent to offspring (IG)

heterozygous a gene composed of two different alleles (a dominant and a recessive) (SRB, IG)

homozygous a gene composed of two identical alleles (SRB, IG)

inference an explanation or assumption that people make based on their knowledge, experiences, or opinions (SRB)

inheritance the passing on of genetic traits from parents to offspring (IG)

insect a class of animals with three body parts (head, thorax, and abdomen), six legs, and antennae (SRB)

larva (plural **larvae**) the immature, wingless, feeding stage in the life cycle of many insects (SRB)

living the condition of being alive (SRB, IG)

lysosome an organelle in animal and protest cells that digests cellular waste (SRB)

magnification the amount by which an object is magnified by a lens (IG)

magnify to make something appear larger than it actually is (IG)

microorganism an organism so small that a microscope must be used to view it (SRB, IG)

microscope an instrument used for viewing very small objects (SRB)

mitochondrion an organelle that uses aerobic cellular respiration to change glucose into usable energy for the cell. Found only in eukaryotes. (SRB, IG)

molecule a particle made of two or more smaller particles held together by chemical bonds (SRB, IG)

multicellular organism an organism made of more than one cell (SRB, IG)

nonliving referring to something that has never been alive (SRB, IG)

nucleus an organelle that regulates protein production and contains genetic material (SRB, IG)

oral groove a fold leading to the food vacuole in some single-celled organisms (SRB)

organ a structural unit made up of tissues that serves one function in a multicellular organism (SRB, IG)

organ system a group of organs that works together for one purpose in a multicellular organism (SRB, IG)

organelle a membrane-bound structure inside eukaryotic cells that performs specialized functions (SRB, IG)

organism an individual living thing, such as a plant, animal, fungus, bacterium, archaeon, or protest (SRB, IG)

ovary the part of the plant at the base of the pistil that contains the egg. After fertilization, the ovary turns into a fruit. (SRB)

ovule a potential seed found within the ovaries of a plant (SRB)

P generation (parent) the first generation in a group of organisms that are being studied (SRB)

paramecium (plural **paramecia**) (pair•uh•ME•see•uh) a ciliated protest that lives in fresh water and eats other tiny organisms for food (SRB, IG)

penicillium a type of mold that releases a chemical that keeps bacteria from forming new cell walls when they divide, effectively killing them; used to create the antibiotic penicillin (IG)

phenotype the traits produced by the genotype; the expression of genes (SRB, IG)

pheromone a chemical released by an animal to communicate with or influence another organism (SRB)

phloem (FLO•em) tissue within a vascular plant that transports food made in the leaves to all other parts of the plant (SRB, IG)

photosynthesis the process by which organisms that have chloroplasts use light energy, carbon dioxide, and water to make sugar (SRB, IG)

pistil a female reproductive structure in a flower. It consists of the ovary, containing the seeds, and the stigma. (SRB)

plasmid circular pieces of genetic material (DNA) (SRB, IG)

pollen the tiny particles that contain the male sex cells. Pollen develops on the anthers. (SRB)

pollen tube a tube through which a sperm travels to fertilize an egg in a flowering plant (SRB)

pollination the transfer of pollen from the anther (male part) of a plant to a stigma (female part) of a plant, allowing fertilization of an egg (SRB, IG)

pollination syndrome a group of characteristics of a flower that has evolved to attract pollinators to help the plant successfully reproduce (SRB, IG)

pollinator an organism that transfers pollen from the anther (male part) of a plant to a stigma (female part) of a plant (SRB, IG)

population all the individuals of one kind in a specified area at one time (SRB, IG)

power the amount a lens magnifies an object viewed through a microscope (IG)

prokaryote a single-celled organism that has no nucleus or organelles. All prokaryotes are bacteria or archaea. (SRB, IG)

protist (PRO•tist) eukaryotic, usually a single-celled organism (SRB, IG)

Punnett square a mathematical model that predicts the probability of possible genotypes and the phenotypes resulting from a genetic cross (SRB, IG)

recessive a form of a gene that is expressed only when a dominant allele is not present (SRB, IG)

reproduce to create new individual organisms of the same kind. Some reproduce asexually (without the joining of two cells), and others reproduce sexually (the joining of egg and sperm cells). (SRB)

response an organism's reaction to its environment (SRB)

ribosome a cell structure involved in making proteins in all cells (SRB)

root the underground part of a plant that functions as an organ to take up water and minerals, store food, and anchor the plant (SRB)

root hair an extension of a cell near the root tip that takes in water and minerals (SRB)

salinity the amount of salt in a substance (SRB, IG)

salt tolerant a characteristic of some plants that allows them to germinate and grow in salty environments (SRB, IG)

scale the proportional size of a magnified image compared to the original (SRB, IG)

seed a young plant in a dormant or resting stage, capable of growing into an adult plant (SRB, IG)

seed-dispersal mechanism a structure or feature of a seed that allows it to travel some distance from a parent plant (SRB)

seed-dispersal strategy a way that seeds can travel away from the parent plant, such as wind or animals (SRB)

sexual reproduction the creation of offspring when genetic material from two parents (in the form of an egg and a sperm) is combined. (SRB, IG)

single-celled organism an organism made of one cell that carries out all the functions of living. Also known as a unicellular organism. (SRB, IG)

species a unit of biological classification that refers to one kind of organism (SRB)

sperm the male sex cell (SRB, IG)

spiracle an opening on the side of an insect that allows for gas exchange (oxygen enters and carbon dioxide exits). (SRB)

spore a reproductive cell distributed through the air (SRB, IG)

stigma the tip of the pistil, which is often sticky and receives the pollen grain (SRB)

stoma (plural **stomata**) openings on the surface of leaves that allow gas exchange. Guard cells control the opening and closing of the stomata. (SRB, IG)

strain a genetic variant of a microorganism (SRB)

structure a tissue, organ, or other formation made up of different but related parts (SRB, IG)

sugar one type of chemical compound produced by plants as a result of photosynthesis. Sugars are sources of energy for living organisms. (SRB)

tissue material in a multicellular organism composed of similar cells that work together for a purpose (SRB, IG)

trait the specific way a feature is expressed in an individual organism; for example, blue and green eyes are traits for eye color (IG)

transpiration the process by which water flows through plants, entering the roots and exiting the stomata (SRB, IG)

vacuole a fluid-filled membrane in the cytoplasm of plant cells, fungus cells, and protist cells. (SRB)

variation the range of expression of a trait within a population (IG)

vascular system a group of tubes that carry sugars and water to all parts of a plant (SRB, IG)

vein a tube within an organism that is part of the vascular system of the organism (SRB, IG)

virus a microscopic agent that can invade cells of organisms and replicate. Scientific debate continues as to whether viruses are living or nonliving. (SRB, IG)

waste solids, liquids, or gases that are unusable by the cells of organisms and must be moved out of the cell (SRB)

xylem (ZY•lem) a tissue made of long connected cells within a vascular plant that transports water and minerals from the roots to all the cells in the plant (SRB, IG)

yeast a single-celled fungus (SRB)