

# Living Environment Vocabulary

By Prentice Hall 2001 Review Book Unit

| <u>Similarities and Differences Among Living Organisms</u> | <u>Topic 1</u>  |
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| cell   | the basic unit of structure and function that makes up all organisms  |
| metabolism   | all the chemical reactions that occur within the cells of an organism   |
| homeostasis  | the ability of an organism to maintain a stable internal environment even when the external environment changes     |
| reproduction   | the process by which organisms produce new organisms of the same type   |
| cell respiration   | the process in which nutrients are broken apart, releasing the chemical energy stored in them                       |
| synthesis  | a life process that involves combining simple substances into more complex substances                               |
| organic  | term used to describe molecules that contain both hydrogen and carbon   |
| inorganic  | a type of molecule that does not contain both carbon and hydrogen but can contain any other combination of elements |
| organelle  | a structure within the cell that carries out a specific function  |

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| tissues       | a group of specialized cells that perform a specific function   |
| organ         | a body structure made of different kinds of tissues combined to perform a specific function                                       |
| organ system  | several organs that work together to perform a major function in the body   |
| cytoplasm     | the jellylike substance that is between the cell membrane and the nucleus and that contains specialized structures                |
| nucleus       | a large structure within a cell that controls the cell's metabolism and stores genetic information, including chromosomes and DNA |
| vacuoles      | storage sacs within the cytoplasm of a cell that may contain either wastes or useful materials, such as water or food             |
| ribosomes     | tiny structures in the cell that are the sites of protein production  |
| mitochondria  | pod-shaped organelles that contain enzymes used to extract energy from nutrients  |
| enzymes       | proteins that speed up the rate of chemical reactions in living things  |
| chloroplasts  | green organelles that contain chlorophyll; where photosynthesis takes place   |
| cell membrane | the thin boundary between the cell and its environment  |

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| diffusion          | the movement of molecules from areas of high concentration to areas of low concentration  |
| active transport   | the process by which cells use energy to transport molecules through the cell membrane from areas of low concentration to areas of high concentration |
| digestion          | the process that breaks down large food molecules into simpler molecules that the organism can use  |
| amino acids        | any one of several building blocks of protein   |
| simple sugars      | the result of digested starches   |
| receptor molecules | certain protein molecules in the cell membrane that can receive chemical messages from other cells  |
| hormones           | a chemical produced in the endocrine glands   |
| respiration        | the process by which the chemical bond energy stored in nutrients is released for use in cells  |
| circulation        | the flow of materials within a cell as well as between parts of a multicellular organism  |
| excretion          | the removal of all the wastes produced by the cells of the body   |
| immunity           | the body's ability to destroy pathogens before they cause disease   |

**Homeostasis in  
Organisms**

**Topic 2**

enzymes

proteins that speed up the rate of chemical reactions in living things

respiration

the process by which the chemical bond energy stored in nutrients is released for use in cells

synthesis

a life process that involves combining simple substances into more complex substances

biochemical process

a chemical process that occurs in a living thing

photosynthesis

the process by which some organisms are able to capture light energy and use it to make food from carbon dioxide and water

homeostasis

the ability of an organism to maintain a stable internal environment even when the external environment changes

glucose

a sugar that is a major source of energy for cells

ATP

(adenine triphosphate) a compound that stores energy in cells

chloroplasts

green organelles that contain chlorophyll; where photosynthesis takes place

gas exchange

the process of obtaining oxygen from the environment and releasing carbon dioxide

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| catalyst            | a substance that can speed up the rate of a chemical reaction without being changed or used up during the reaction                  |
| pH                  | a measure of whether a substance is acidic, neutral, or basic   |
| dynamic equilibrium | the constant small corrections that normally occur to keep an organism's internal environment within the limits needed for survival |
| feedback mechanism  | a cycle in which the output of a system either modifies or reinforces the first action taken by the system                          |
| stimulus            | any change in the environment that causes an organism to react  |
| pancreas            | an endocrine organ that secretes insulin  |
| insulin             | a hormone that prompts glucose to move from the blood into body cells, resulting in a lower glucose level in the blood              |
| guard cells         | specialized cells that control the opening and closing of the pores on the surface of a leaf  |
| disease             | a condition, other than injury, that prevents the body from working as it should  |
| pathogen            | an organism that invades the body, causing disease  |

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| virus         | a nonliving particle of protein and genetic material that reproduces by invading the cell of a living organism                                    |
| bacterium     | any one of many single-celled organisms without a distinct nucleus  |
| fungi         | the kingdom of organisms that are mostly multicellular, have cell walls made of chitin, and are heterotrophic                                     |
| parasite      | an organism that survives by living and feeding on other organisms  |
| immune system | the body's primary defense against disease-causing pathogens  |
| antigen       | a molecule found on the outer surfaces of cells that the immune system recognizes as either part of the body or an outside invader                |
| antibody      | a protein, produced by the immune system, that either attacks invading pathogens or marks them for killing  |
| microbe       | any microscopic organism  |
| vaccines      | a substance made of weakened, killed, or partial pathogens and designed to protect the body from future invasions of that pathogen                |
| AIDS          | ( <u>a</u> cquired <u>i</u> mmunode <u>f</u> iciency <u>s</u> ndrome) the disease that results when the HIV virus attacks the human immune system |

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| allergy                          | a condition in which a person's immune system is overly sensitive to environmental substances that are normally harmless                |
| <b><u>Genetic Continuity</u></b> | <b><u>Topic 3</u></b>   |
| gene                             | a segment of DNA (on a chromosome) that contains the code for a specific trait  |
| trait                            | a characteristic that is passed from parent to offspring through the genes  |
| heredity                         | the passing of traits from parent to offspring  |
| DNA                              | ( <u>d</u> eoxyribo <u>n</u> ucleic <u>a</u> cid) the material found in all cells that contains genetic information about that organism |
| chromosome                       | a thick threadlike structure that contains genetic information in the form of DNA   |
| asexual reproduction             | a method of reproduction in which all the genes passed on to the offspring come from a single individual or parent                      |
| sexual reproduction              | a method of reproduction that involves two parents producing offspring that are genetically different from either parent                |
| clone                            | an organism that is genetically identical to the organism from which it was produced  |
| sperm                            | the male sex cell   |

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| egg                   | a sex cell produced by a female  |
| genetic recombination | the formation of a new combination of genes during sexual reproduction   |
| subunit               | the section of a DNA molecule that contains a sugar, a phosphate, and a base   |
| bond                  | a chemical link between atoms that hold molecules together   |
| replicate             | to copy  |
| template              | the pattern for a new molecule   |
| mutation              | any alteration in the sequence of DNA  |
| expressed             | the way that an unseen gene is seen in an organism as an actual physical trait                                       |
| genetic engineering   | a set of technologies that humans use to alter the genetic instructions of an organism by substituting DNA molecules |
| biotechnology         | the combination of technology and biological sciences  |
| selective breeding    | the process of choosing a few organisms with desirable traits to serve as the parents of the next generation         |

**Reproduction and Development**

**Topic 4**

asexual reproduction

a method of reproduction in which all the genes passed on to the offspring come from a single individual or parent

sexual reproduction

a method of reproduction that involves two parents producing offspring that are genetically different from either parent

sperm

the male sex cell

egg

a sex cell produced by a female

species

A group of organisms that share certain characteristics and can mate with one another, producing fertile offspring

sex cell

an egg (female) or a sperm (male)

gametes

an egg or sperm cell; a sex cell

mitosis

the process that divides the cell's nucleus into two, each with a complete set of genetic material from the parent cell

meiosis

the process that results in the production of sex cells (sperm and egg)

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| fertilization   | the process that combines a sperm cell and an egg cell  |
| zygote          | the cell that results from the joining of the egg and sperm   |
| recombination   | the additional mixing of genetic material from a sperm and egg which results in a unique combination of genes |
| differentiation | the process that transforms developing cells into specialized cells with different structures and functions   |
| embryo          | an organism in the early stages of development  |
| gene expression | the result of activated genes   |
| ovary           | the organ of the human female reproductive system that produces an egg cell, the female gamete                |
| progesterone    | a hormone associated with sexual development and the reproductive system                                      |
| estrogen        | a hormone (produced by the ovaries) that controls female sexual development and the reproductive process      |
| uterus          | the organ, in female animals, where the embryo develops into a fetus  |

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| placenta                | the organ that enables nutrients and oxygen to pass from the mother's blood to the fetus, and waste products to pass from the fetus to the mother's blood |
| testes                  | the male reproductive organ, that produces sperm and the hormone testosterone   |
| testosterone            | a hormone associated with male sexual development and reproduction  |
| fetus                   | the unborn, developing young of an animal during the later stages of development  |
| cloning                 | a technique used to make identical organisms  |
| <b><u>Evolution</u></b> | <b><u>Topic 5</u></b>   |
| evolution               | the process by which species have changed over time   |
| theory                  | an explanation, supported by many observations and/or experiments, that can be used to accurately explain related occurrences                             |
| fossil record           | a collection of fossils used to represent Earth's history   |

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| geologic time         | Earth's history as revealed by layers of rock   |
| natural selection     | the process by which the organisms that are best adapted to a specific environment survive and produce more offspring than organisms that are not as well adapted |
| overproduction        | the potential for a species to increase its numbers beyond the area's carrying capacity   |
| genetic variation     | the normal differences found among offspring  |
| adaptive value        | any trait that helps an organism survive and reproduce under a given set of environmental conditions  |
| mutation              | any alteration in the sequence of DNA   |
| extinction            | the disappearance of all members of a species from earth  |
| <b><u>Ecology</u></b> | <b><u>Topic 6</u></b>   |
| ecology               | The study of how living things interact with each other and with their environment  |
| environment           | Every living and non-living thing that surrounds an organism  |

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| ecosystem         | All the living and non-living things that interact in a specific area; a subdivision of the environment   |
| biotic            | The living parts of the environment   |
| abiotic           | Nonliving parts of the environment  |
| habitat           | The place where a plant or animal lives   |
| population        | All the individuals of a single species that live in a specific area  |
| community         | A combination of all the different populations that live and interact in the same environment   |
| biosphere         | All of Earth's ecosystems, collectively; the biologically inhabited portions of Earth, including all of the water, land, and air in which organisms survive |
| competition       | The struggle between organisms for the same limited resources in a particular area  |
| limiting factors  | Any factor in the environment that limits the size of a population  |
| predator          | An animal that hunts and kills other animals for food   |
| prey              | An animal that is hunted and killed by predators  |
| carrying capacity | The largest population of any single species that an area can support   |

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| ecological niche | The specific role played by an organism or a population of organisms in the ecosystem                               |
| food chain       | A representation that identifies the specific relationships among organisms   |
| autotroph        | An organism that produces its own food; the source of energy for all other living things on Earth (starts with “a”) |
| producer         | An organism that makes its own food from light energy and inorganic materials (starts with “p”)                     |
| heterotroph      | An organism that cannot make its own food; a consumer   |
| herbivore        | An organism that eats only plants   |
| carnivore        | An organism that survives by eating animals   |
| decomposer       | An organism, generally a bacteria or fungus, that consumes dead organisms and organic waste                         |
| scavenger        | A carnivore that feeds on the bodies of dead organisms  |
| parasite         | An organisms that survives by living and feeding on other organisms   |
| host             | The organism in a parasitic relationship that provides the home and/or food for the parasite                        |

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| food webs                                | A representation of many interconnected food chains that shows the feeding relationships among producers, consumers, and decomposers |
| energy pyramid                           | A diagram showing how food energy moves through the ecosystem  |
| biodiversity                             | The variety of species in an area  |
| ecological succession                    | The process by which an existing community is replaced by another community  |
| consumer                                 | An organisms that obtains it's energy from producers (starts with "c")   |
| <b><u>Human Impact on Ecosystems</u></b> | <b><u>Topic 7</u></b>  |
| renewable resources                      | Earth's resources, such as our food supply and solar energy, which, given time, can be replaced                                      |
| nonrenewable resources                   | Any resources, such as fossil fuels and minerals, that cannot be replaced  |
| pollution                                | A harmful change in the chemical makeup of the soil, water, or air   |
| water cycle                              | The process by which water continuously moves from Earth's surface to the atmosphere, and back                                       |
| energy flow                              | The movement of energy through an ecosystem  |

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| direct harvesting                           | The destruction of an organism, or the removal of an organism from its habitat                                |
| deforestation                               | Forest destruction that results from human activity   |
| technology                                  | All of the practical scientific knowledge that has been used to meet human needs                              |
| industrialization                           | The process of converting an economy into one in which large-scale manufacturing is the primary economic base |
| nuclear fuel                                | An energy source that results from splitting atoms  |
| fossil fuels                                | A fuel, such as coal and gas, that comes from the remains of organisms that lived millions of years ago       |
| global warming                              | An increase in Earth's average surface temperature caused by an increase in greenhouse gases                  |
| ozone shield                                | The layer of ozone gas in the upper atmosphere that protects Earth from some of the sun's radiation           |
| trade-off                                   | An exchange or agreement made to reach  |
| <b><u>Scientific Inquiry and Skills</u></b> | <b><u>Topic 8</u></b>   |

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| Evidence             | Support for the idea that something is true  |
| Inference            | A conclusion or deduction based on observations  |
| Assumption           | Something that is accepted as true, but may or may not actually be true  |
| opinions             | Ideas people have that may or may not be based on fact   |
| biased               | A tendency to favor something; prejudice   |
| scientific literacy  | A basic knowledge of the natural world combined with an understanding of the diverse ways that scientists gain knowledge   |
| research plan        | The initial stage of an experiment that involves finding background information, developing a hypothesis, and devising an experimental method for testing the hypothesis |
| hypothesis           | A statement that predicts a relationship between cause and effect in a way that can be tested  |
| dependent variable   | The part of an experiment that is measured to test the hypothesis.   |
| independent variable | A factor that might influence the dependent variable in an experiment. The factor that is purposely changed by   |

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|                       | the experimenter.   |
| control               | That group in an experiment in which everything – except the variable to be tested – is identical; the standard of comparison in an experiment.                           |
| controlled experiment | An experiment in which all variables – except the one being tested – are exactly the same.  |
| data                  | The results of specific trials or tests completed during experiments  |
| conclusion            | The decision made about the outcome of an experiment; usually based on how well the actual result matches the predicted result  |
| model                 | A representation used to explain or demonstrate a process or structure; also used to predict what might occur in a new situation  |
| peer review           | The process by which scientists carefully examine the work of other scientists to look for possible flaws in their experimental design or their interpretation of results |
| experiment            | A series of trials or tests that are done to support or refute a hypothesis   |

observation

Any information that is collected with any of the senses

**Laboratory Skills**

**Topic 9**

metric ruler  
graduated cylinder  
volume  
mass  
balance  
triple-beam balance  
electronic balance  
microscope  
magnification  
stereoscope  
compound light  
microscope  
electrophoresis  
chromatography  
stains  
indicator  
dichotomous key

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