



# REAL TREES 4 Kids!

The story and science of REAL TREE farming.



Grades 3-5 | Grades 6-8 | Grades 9-12

## Map It! Teacher Guide

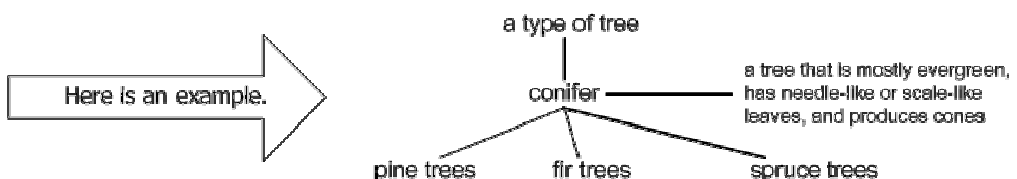
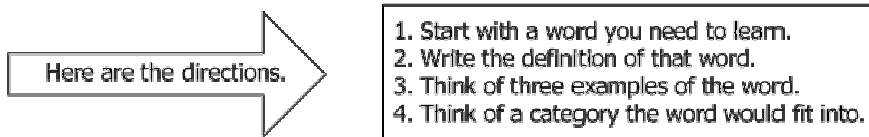
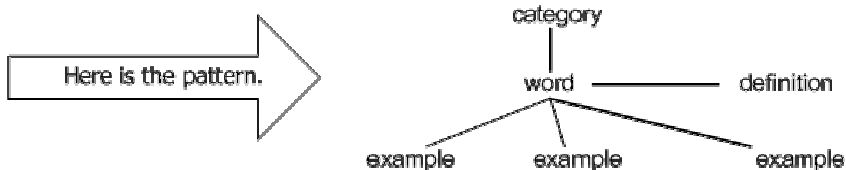
When students finish working through this activity:

1. They will have practiced using vocabulary words in context.
2. They will have defined and categorized vocabulary words.
3. They will have composed sentences using new vocabulary words.

### Suggested Use:

- As a class (or in small, teacher-led groups), work through the pattern of creating a vocabulary map. The purpose of this work is to get students comfortable with this method of vocabulary study. Because the goal in this first step is mastery of method rather than vocabulary, use a word or words that students are very familiar with (i.e., school or music).
- Ask students to work in small student-led groups to create maps for a word they are unfamiliar with (either from the REAL TREES list or from another class list). Share and discuss their maps.
- Allow students to use the pattern to create maps for the REAL TREE vocabulary. This can be done before or during the study of REAL TREES and can include art/graphics if students wish.
- One of the strengths in this method is the context that is created by categorizing each word. Asking students to share these in some way is one way for all students to review vocabulary and see other ways of thinking about vocabulary.

The Pattern:





Combined List from all *Words to Know* Sections:

- **accounting:** organizing and maintaining financial records
- **adaptation:** the way a plant or animal becomes better able to live in its environment
- **agronomist:** a person who studies the science of land cultivation and management
- **air:** the mixture of nitrogen, oxygen, argon, carbon dioxide, hydrogen, neon, helium, and other gases that surrounds the earth
- **artificial propagation:** man's use of vegetative reproduction to grow more plants that would occur naturally
- **asexual reproduction:** reproduction without the joining of gametes; also called agamogenesis
- **atom:** the smallest part of an element
- **autotroph:** an organism that uses energy to produce the food they need
- **biodegradable:** able to be broken down naturally by bacteria
  
- **biologist:** a scientist who studies living things
- **biome:** large geographical region characterized by distinctive types of plants and animals and a specific climate: tundra, tropical forest, desert, savanna, coniferous forest, deciduous forest, and temperate grassland, for example.
- **biosphere:** the part of the earth's crust, water, and atmosphere that supports life
- **botanist:** a scientist who studies plants and plant life
  
- **carbon:** an element found in all organic (living or once living) material
- **carbon dioxide:** a heavy odorless colorless gas that makes up about .03% of the earth's atmosphere
- **carrying capacity:** the point when the organisms in a community are using the resources of that community to the fullest extent
- **chlorophyll:** the green pigment of a plant; needed for photosynthesis
- **chromosomes:** strands of DNA that carry the genes and functions in the transmission of hereditary information
- **classify:** to arrange or organize into classes or groups
- **community:** a group of animals and plants that live together in the same environment
- **compound:** a substance made up of two or more elements that are always put together in the same way
- **condensation:** process by which a vapor (gas) changes into a liquid
- **cone:** the cone-shaped fruit of a conifer tree (pine, fir, spruce, etc.)
- **conifer:** A conifer is a needle-leaved or scale-leaved tree or shrub that produces cones. Conifers are a type of plant called a gymnosperm.
- **Coniferous (Conifer):** Coniferous trees are trees that are mostly evergreen, have needle-like or scale-like leaves, and produce cones. Conifers are a type of plant called a gymnosperm.
- **consumers:** a person who uses a commodity (good) or service
- **crop:** cultivated plants or agricultural produce, such as grain, vegetables, or fruit, considered as a group
- **cultivar:** Cultivar means cultivated variety. These plants have unique characteristics and have been cultivated (grown and maintained) for specific purposes.
- **cultivate:** to grow or take care of a plant or crop ... to help grow
- **cycle:** a repeated event or sequence of events over time



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- **daylily:** an herb having yellow, orange, or purple lily-like flowers that bloom only for a day.
- **deciduous:** falling off at a particular time or season
- **diploid:** a cell containing a double set of chromosomes, one from each parent
- **ecologist:** a person who studies the relationships between organisms and their environment
- **element:** a substance that cannot be separated into simpler elements
- **DNA:** the substance in every cell that contains genetic information and heredity characteristics; controls reproduction, formation, and growth of cells and organisms; deoxyribonucleic acid
  
- **ecological succession:** series of slow, generally predictable changes in the number and kinds of organisms in an area
- **economist:** an individual who studies the economy
- **environment:** the surroundings of all organisms ... the outside forces and factors of our surroundings
- **ecosystem:** a system formed by the interaction of a community of organisms with its environment
- **environment:** external factors and forces surrounding and affecting an organism
- **erosion:** the gradual wearing away of soil (or other substance) by wind or water
- **erosion:** natural processes which cause material to be worn away from the earth's surface
- **evaporation:** to take moisture from leaving the dry portion; to change into a vapor
- **evergreen:** a tree or shrub that remains green throughout the year
  
- **fertilize:** to add something to the soil to make it more fertile (better for growing plants)
- **fungicide:** a chemical that destroys fungi (like mold and mildew)
  
- **genus:** a group of closely related species. Members of the same genus share many common characteristics.
- **gamete:** a mature sexual reproductive cell that unites with another cell to form a new organism
- **gourd:** a hard-shelled fruit that grows on a vine; related to squash and melon
- **gametophyte:** a haploid plant that produces gametes
- **gene:** the basic physical unit of heredity, carried on a chromosome and transmitted from parent to offspring
- **genetic code:** the sequence of nucleotides that is the basis of heredity
  
- **habitat:** the natural environment of a plant or organism; the place an organism is usually found
- **haploid:** a cell containing a single set of chromosomes
- **herbicides:** substance used for killing plants - especially weeds
- **hereditary:** passing genetically from parent to offspring
- **heterotroph:** an organism that gets energy from the foods they eat
- **humus:** dark organic material in soils produced by decomposition of plant and animal matter
  
- **inventory:** complete list of stock on hand; the act of making such a list



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- **Laws of supply and demand:** The *law of supply* says that as the price of something increases, producers will produce or offer more. The opposite is also true ... if the price of something decreases, producers will produce or offer less. The *law of demand* says that as the cost of something increases, people will demand (or buy) less. The opposite is also true ... if the cost of something decreases, people will demand (or buy) more.
- **life cycle:** the progression through a series of different stages of development
- **limiting factor:** factors in an ecosystem that help determine the size of a population (i.e., food supply, predators, climate, and disease)
  
- **manufacturers:** individuals or businesses who make goods by and or machinery market economy: an economic system where buyers and sellers trade goods and services using the laws of supply and demand. In a market economy, both buyers and sellers play a part in deciding what will be available for sale and how much it will cost. The United States is an example of a market economy.
- **megaspore:** the larger of two types of spore that produce a female gametophyte
- **microhabitat:** an extremely localized, small-scale environment, as a tree stump or a dead animal
- **mineral:** an inorganic element, such as calcium, magnesium, and potassium, that is essential to the nutrition of humans, animals, and plants
- **molecule:** atoms joined together
- **mulch:** a protective covering spread on the ground especially to reduce evaporation and control weeds
  
- **niche:** the position of a particular population in an ecological community
- **nitrogen:** a colorless and odorless gas that makes up about 78% (4/5) of the earth's atmosphere
- **nutrients:** a substance necessary for a plant or animal to grow; any substance that can be used by an organism to give energy or build tissue
  
- **organic:** of, or made from, living organisms
- **ovules:** the structure of a seed plant that develops into a seed after fertilization; a small egg
- **oxygen:** a colorless and odorless gas that makes up about 21% of the earth's atmosphere
  
- **parent material:** the material in which soils are formed
- **peat moss:** dark brown, partly decayed plant matter
- **photosynthesis:** the production of carbohydrates from carbon dioxide and water using sunlight as the source of energy with the aid of chlorophyll
- **pigment:** a substance that makes color in the tissues of organisms
- **pollen:** the part of a plant that allows for fertilization (the ability to create a seed)
- **pollination:** when pollen from the male cone comes in contact with the ovule of a female cone
- **population:** a group of the same species of organism living in one area at the same time
- **precipitation:** any form of water that falls to the earth's surface; rain, sleet, snow, or hail
- **producers:** someone who makes or manufactures
- **promote:** to encourage through advertising
- **propagation:** multiplication or increase as by natural reproduction
- **pruning:** cutting off undesired twigs, branches, or roots



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- **REAL TREES:** conifer trees that are grown to be sold for holiday celebrations
- **recycle:** to process something so it can be used again
- **repellent:** something that repels, as a substance that keeps away deer or insects
- **respiration:** the physical process by which a living organism gets oxygen and releases waste gases (like carbon dioxide)
  
- **sapling:** a young tree
- **scales:** small, thin, usually dry, parts of a plant
- **seedlings:** a plant or tree grown from a seed; any young plant
- **seed coat:** the outer protective covering of a seed
- **selective breeding:** intentional reproduction in an attempt to produce offspring with desirable characteristics or for the elimination of a trait
- **sexual reproduction:** reproduction by the union of a male and female gamete to form a zygote; also called gamogenesis
- **shear:** to cut or remove by cutting
- **soil:** the top layer of the earth's surface consisting of rock and mineral particles mixed with organic matter
- **soil profile:** shows and describes the layers of the soil just below the surface of the earth
- **soil survey:** a carefully planned study of the soils in an area
- **species:** a kind, variety, or type of organism
- **sporangia:** structures in which spores are produced
- **sporophyte:** a diploid plant that produces spores
- **system:** an assemblage or combination of things or parts forming a complex or unitary whole taxonomy: the science or technique of classification (especially organisms)
  
- **terminal buds:** the undeveloped shoot growing at the end of a stem, branch, or stalk
  
- **variety:** category within a species (subspecies). It is a more specific way to categorize a member of a species and is based on genetics or heredity.
- **vegetative reproduction:** reproduction that occurs as a result of a vegetative plant part (roots, stems, or leaves) growing into a new individual plant; sometimes called cloning
  
- **weathering:** any of the chemical or mechanical processes by which rocks exposed to the weather undergo changes and break down
  
- **zygote:** the cell formed by the union of two gametes