

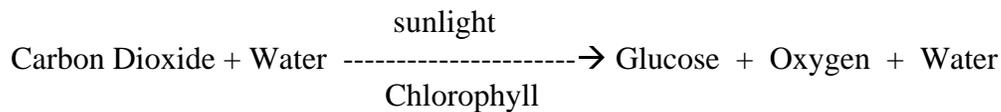
## Plant & Ecosystems Vocabulary

1. **seed**- Made up of an embryo (baby plant) and endosperm (stored food) enclosed in a seed coat
2. **orientation**- Placement; the direction an object is pointing or facing
3. **germination**-Early growth of an embryo plant from the seed
4. **gymnosperm**- A plant that produces seeds not enclosed in a fruit. Some gymnosperms called conifers produce seeds enclosed in cones.
5. **angiosperm**- A plant that has flowers and produces seeds in a fruit
6. **annual plant**- A plant that must be replanted each year
7. **perennial plant**- A plant that grows for several growing seasons
8. **tissues**- A group of similar cells that perform the same function
9. **organs**- A group of tissues working together to perform certain functions
10. **roots**- Anchor the plant. Absorb water and dissolved minerals. Store food made by the plant
11. **root hair**- Thread –like strands attached to roots to increase the surface area of the roots so that they can absorb more water.
12. **stem**- Supports plant and leaves attach to it. Transports water, minerals, and food throughout the plant. If it is green photosynthesis can happen there.
13. **xylem**- Vein –like plant tissue that transports water and dissolved minerals upward from the roots.
14. **phloem**- Vein –like plant tissue that transports food downward
15. **cambium**- Growth tissue of a plant stem
16. **leaf**- Main place where a plant makes its food using a process called photosynthesis. Photosynthesis also takes place in other green parts of the plant that contain a pigment called chlorophyll, which helps capture the sun's energy.
17. **stoma**-Small openings (pores) in the bottom side of a plant's leaves that allow gases to enter and leave a plant (oxygen and carbon dioxide). Water can be evaporated from the stomates in a process called transpiration.
18. **Guard Cells**: Specialized cells located on both sides of a stomata that control whether the stomates are opened or closed.
19. **carbon dioxide**- Plants take in carbon dioxide and use it during the process of photosynthesis. Carbon dioxide is the waste gas released by animals (and plants) during respiration.
20. **oxygen**- Waste product given off by plants during photosynthesis. Animals and plants take in oxygen and use it for respiration.

21. **transpiration**- Evaporation of water through the stomates on the leaves of a plant

22. **photosynthesis**- Process by which green plants make their own food.

**Formula for Photosynthesis:**



23. **chlorophyll**- Green pigment in plant cells used to capture the sun's energy for photosynthesis

24. **chloroplast**- Plant cell structure (organelle) that contains chlorophyll, place in a plant cell where photosynthesis takes place.

25. **glucose**- Simple sugar produced by photosynthesis

26. **respiration**- Process that releases energy as the food (sugars) in cells gets broken down. During respiration, cells take in O<sub>2</sub> and give off CO<sub>2</sub>

27. **nitrogen cycle**- The movement of nitrogen between the living and non-living parts of an ecosystem. All living things need nitrogen for building proteins (cells are largely made up of proteins and lipids (fats)). The nitrogen in the atmosphere is not in a form that most living things can use. **Nitrogen fixing bacteria** found on the roots of certain plants are able to convert the nitrogen from the atmosphere into a form that the plants can use. The plants use the nitrogen to build plant proteins. Animals come along and eat the plants, taking in the nitrogen, and using it to build animal proteins. When the animals produce wastes or die, some bacteria break down the waste or dead animal and return the nitrogen to the soil. Other bacteria called **denitrifying bacteria** return the nitrogen back to the atmosphere and the whole cycle begins again.

28. **nitrogen fixation**- Nitrogen in the air is changed to a form usable by plants by certain bacteria

29. **Nitrogen Fixing Bacteria (nitrifying bacteria)**- Bacteria in the soil and roots of certain plants that can take nitrogen out of the air and convert it to a useful form.

30. **denitrification**- The process where bacteria break nitrogen bearing substances down so that the nitrogen is released back into the atmosphere

31. **denitrifying bacteria**- Bacteria that break nitrogen bearing substances down so that the nitrogen is released back into the atmosphere

32. **Water Cycle**: The movement of water throughout an ecosystem- the water cycle has four parts:

**evaporation**- When liquid water changes into water vapor (a gas)

**transpiration**- Evaporation of water through the leaves of a plant

**Condensation**: When water vapor forms clouds and begins to turn back into a liquid.

**precipitation**-Water falling back to the Earth (rain, sleet, snow, hail)

33. **flower**- Purpose of the flower is reproduction

34. **Sepals**- Green leaf-like structures that enclose and protect the flower bud before the flower blooms and support the flower after it opens.
35. **pistil**- Female reproductive organ of a flower that contains the ovary
36. **ovary**- Contains the ovules (eggs). The ovary enlarges to become a fruit.
37. **ovules**- Inside the ovary; become seeds after they have been fertilized.
38. **stamen**- Male reproductive organ of a flower.
39. **anther**- A sac-like structure at the top of the stamen which produces pollen (plant sperm)
40. **filament**- A tube-like structure that supports the anther
41. **pollen**- Tiny grains produced by the stamen of a flower that contain nuclei for reproduction, carry the male part (sperm) of the genetic code
42. **petal**- Brightly colored, specialized leaves of a flower. They protect the reproductive organs of a flower and attract pollinators.
43. **pollination**- Transfer of pollen from stamen to pistil
44. **fertilization**- Joining of egg and sperm cells that allows a species to reproduce
45. **seed coat**- Tough covering around the seed
46. **cotyledons**- Seed leaves attached to the plant embryo
47. **endosperm**- The stored food for the baby plant (embryo)
48. **population**- The number of organisms of one species in a given area
49. **community**- All the living things in a certain area. Ponds, forests, and oceans are all communities.
50. **dominant species**- The species with the highest population in a community
51. **environment**- The surroundings of an organism including both living and non-living things.  
Ex: The environment of a bunny would include other bunnies, foxes, rocks, soil, water, air, food, etc.
52. **boundary community**- The area between two communities- a boundary community usually has more species living in it than in either of the two communities that it separates.
53. **competition**- When organisms fight for what they need to survive- food, water, shelter, mates, etc. Competition can take place within a species or between 2 or more species.
54. **immigration**- Organisms entering a community
55. **emigration**- Organisms leaving a community

56. **stable population**- A population that does not change over time

57. **unstable population**- A population that changes over time

58. **population density**- The number of organisms in a given area

**Formula for population density:**

$$\text{Population Density} = \frac{\text{\# of organisms}}{\text{area}}$$

59. **limiting factors**- Conditions that exist Which prevent a population from increasing too much (predators, food, water, disease, habitat)

60. **predator**- An animal that hunts another animal for food

61. **prey**- An animal that is hunted by a predator

62. **producer**- An organism that makes its own food

63. **consumer**- An organism that has to get food from another source (they need to eat something)

64. **decomposer**- Organisms that break down the remains of other organisms

65. **scavengers**- Animals that feed on the dead remains of other animals

66. **omnivores**- Animals that eat plants and animals (primary and secondary consumers)

67. **carnivores**- Animals that eat other animals

68. **herbivores**- Animals that eat only plants

69. **food chain**- A way to show the relationships between organisms and how they obtain food. Arrows show the direction of the flow of energy in the food chain.

70. **food web**- A way to show food and energy relationships among organisms. A food web is made up of many food chains

71. **energy pyramid**- Show how energy moves through a food chain. As you move up the energy pyramid, the amount of energy decreases. Less energy means fewer organisms can be supported at each level. This is why the pyramid gets smaller at the top.