

## UNDERSTANDING PLANTS: ECOSYSTEM SERVICES

Plants hold a vital role in ecosystems. They provide significant benefits (known as *ecosystem services*) that generally fall into the following categories:

- **Provisions:** Plants offer a variety of food and material resources.
- **Regulations:** Plants assist in filtering air and water, in preventing erosion by holding soil in place with their roots, and many other activities that benefit environmental conditions.
- **Supports:** Plants play a role in many natural cycles (like the water cycle, carbon cycle, and nitrogen cycle)
- **Culture:** Plants are a part of our daily lives, from having houseplants, to hiking in forests, to inspiring art. They have strong influence on human societies and our interactions with the world around us.



For each of the following statements, describe the services that the plant is providing and which of the above categories those services include.

- The trunk of a tree is built when the leaves absorb carbon dioxide (CO<sub>2</sub>) and break it down during photosynthesis. The leaves release oxygen (O<sub>2</sub>) and then uses the remaining carbon to make the sugars, starches, and other compounds that build the tree.
- Plant roots draw water and nutrients from the soil. Water is filtered through the plant's stems and can eventually be released into the atmosphere through the leaves. Plant roots work with other organisms in the soil (including bacteria and fungi) to process and absorb nutrients and minerals.
- Up to 80% of a plant's nutrients are found in its leaves. When they fall to the ground, leaves release these nutrients back into the soil as they decompose.
- 90% of plants produce flowers, and almost all flowering plants produce fruit when pollinated.
- 31% of the Earth's land is covered by forest. Though forest ecosystems might be best known for their canopies of trees, they also provide homes for many smaller plants, microbes, fungi, and wildlife.

