



# How Does Your Garden Grow?



## What is a Garden?



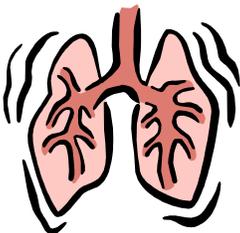
A **garden** is a collection of plants that we grow in spaces like a window box, a schoolyard, or a backyard. A garden can also grow in a bucket, a used tire, or even an old bathtub! Gardens come in many shapes and sizes, but no matter how big or small, gardens provide a fun way to learn how parts of nature work together.

## What Plants Need



In order to have a garden, you must have plants. And in order for plants to grow, they must have basic needs met for them to survive. All plants need **S.W.A.N.** sunlight, water, air and nutrients in order to grow. Without these things—or if these things are out of balance—plants won't be able to grow. For instance, some plants won't grow if they don't get a lot of sunlight, and other plants will burn if they get too much sunlight. Some plants need very little water, while others need daily watering.

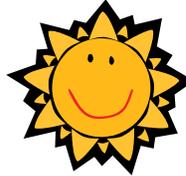
## How Plants Breathe



Just like people, plants need air in order to live. Human beings use lungs to breathe in a gas called **oxygen** and breathe out a gas called **carbon dioxide**. Without our lungs, we couldn't survive. Plants on the other hand, use their leaves and roots to breathe in carbon dioxide and turn it into clean, pure oxygen that humans and animals then breathe. If it weren't for

plants—including trees—we wouldn't have enough oxygen!

## Energy from the Sun



Besides air, all green plants need sunlight. A special **substance**, or thing, called **chlorophyll** (KLOR-oh-fill) is found in plants' leaves.

Chlorophyll is what makes leaves green and allows plants to gather light from the sun, which gives them energy.

## Plant Food Factories



Plants need plenty of food to grow. Unlike people, plants do not order their food in a restaurant or buy it from a store. That's because plants **manufacture**, or make, their own food! The plant's leaves are its food factories. Using energy that they gather from the sun, leaves combine water with the carbon dioxide that they breathe in from the air, and make sugars. These sugars are the plant's food. The process how plants make their own food is called **photosynthesis** (fo-toe-SIN-the-sis). It is also how plants make oxygen.

## Nutritious Soil



Just like people, plants need vitamins and minerals, or **nutrients**, to stay strong and healthy. Nutrients can be found in good, natural soil. Unfortunately, not all soil contains enough nutrients to grow strong plants. You can make the soil in your garden more nutritious for plants by adding **fertilizer**, or soil food, which is full of vitamins. Many fertilizers sold in stores

however, are made with chemicals that can poison our air, water, and land.

**Compost**, on the other hand, is a natural fertilizer that does not contain harmful chemicals. Compost looks like soil and is the dark color of chocolate. It is crumbly, smells clean and fresh like the earth after it rains, and is full of nutrients that help plants grow.

### Plants Need a Drink



Like all other living things, plants cannot live without water. Water is an important part of photosynthesis, and water also carries nutrients from the soil to different parts of the plant.

Nutrients in the soil **dissolve**, or mix, with water. Tiny hairs on the plant's roots act like straws and suck up the water. Finally, the water moves from the plant's roots and carries the nutrients up through its stem and into its leaves.

In order for plants in a garden to grow, you must make sure they have enough water. Check the soil around your plants every day. When the soil feels dry, use a watering can or gentle sprinkler until the soil feels as damp as a wrung out sponge. Remember that to **conserve**, or save water you should only water your plants when they need it.

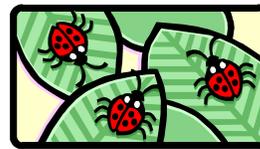
### Pesky Pests



Plants aren't the only things that live in gardens; pests live there too! Although all living things or **organisms** have a role in nature, when they are found out of place, they are considered **pests**. In a garden, pests will often eat weak or young plants and tend to leave the healthy ones alone. So, the best thing you can do to protect your garden is to

keep your plants healthy by giving them water, sunlight and nutrients. If insects continue to munch on your plants, try picking bigger pests like snails out by hand, setting sticky traps for slugs, and spraying aphids with soapy water. Some people use poisonous chemical sprays called **pesticides** to kill pests, but those sprays can harm people and animals, kill good insects like ladybugs, and pollute our water and land.

### Plant Pals



Not all insects will harm your garden. Many insects actually protect plants by eating pests.

These good, or **beneficial** insects such as ladybugs and praying mantises eat pests like aphids. Birds, bats, frogs, toads, lizards, and snakes also eat insect pests that harm plants. Build birdhouses to attract plant pals to your garden. You can also plant flowers like cosmos, marigolds, and clover that attract good bugs.

### Pollinators



Garden plants also benefit from **pollinators**. A pollinator is an insect or animal that helps plants create fruit and seeds. They do this by moving pollen

from one part of a plant's flower to another part. This pollen then **fertilizes** or gives the plant what it needs to grow fruit and seeds. Butterflies, bees, and hummingbirds are all pollinators.

### Budding Gardeners



Gardens are a wonderful way to learn about nature. Whether at school or in a bucket by your window—start a garden and you will learn how plants live and grow.