Back to the Roots Garden Toolkit

Unit 7: What makes a Garden

Overview

Back to the Roots is on a mission to help every kid experience the magic of growing. We're bringing this mission into your home or classroom with Unit 7 of the Garden Toolkit — What makes a garden? In this unit, we'll use our Kids Toolkit to understand what makes a garden, how it works, and how important it is to us and the world around us. What are you waiting for — let's explore how gardening connects us all!

What is gardening in simple words?

Gardening is the act of growing plants, flowers, fruits, and veggies. It's a great hobby that helps us connect with nature and provides us with organic food to eat, 2 factors that help us to live a healthy and happy life. The best thing about gardening is that you can do it inside or outside, it's a hobby for everyone no matter what climate you live in or how big your yard is!

To have a garden you'll need:

Soil — Living matter that provides a home full of nutrients to plants. Nutrients help them grow big and strong.

Seeds — The first stage of a plant's life. All plants start as seeds and once buried in the soil, begin their life cycle.

Water — Just like you, plants get thirsty. Water from rain or the ground helps the soil stay moist and hydrated.

Sunshine — An important factor in photosynthesis, which is how energy is created within plants.

Permaculture:

Ever wonder who the best gardener in the world is? Believe it or not, it's Mother Nature herself and we can learn a lot about gardening by listening to her! Nature provides us with a lot of benefits that we can't live without - like oxygen, for example. Because nature provides such important functions, we want to make sure we work to preserve and support the nature around us. The healthier our natural environment is, the healthier we are. We want to learn how best to live in unison with it without harming it. This practice is known as permaculture.

Permaculture helps us to understand how we can build a life that benefits both us and nature at the same time. A garden is a great example of permaculture. It helps us to produce our own organic food and connect with nature even if we don't have a big yard or outdoor space.

ACTIVITY: Let's say you have a friend who lives in a big city. Cities usually don't have yards or a lot of gardening space. Can you think of any places your friend could start a garden?

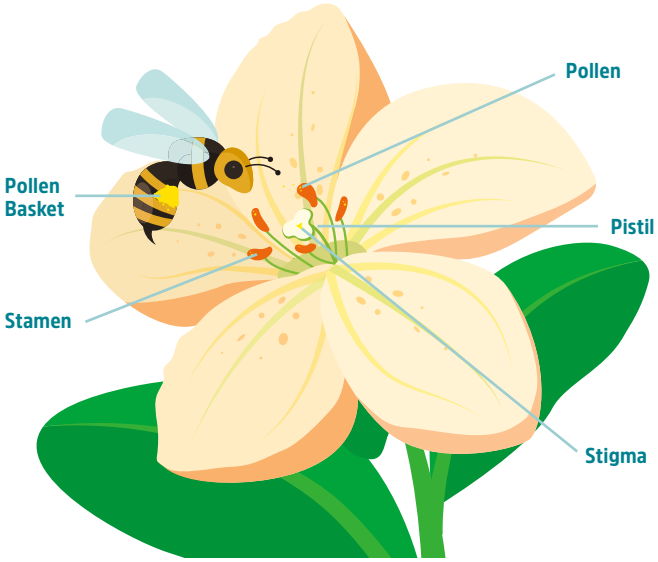
Bee Pollination

Bees are helping

Gardening can turn you into a busy bee. It takes a lot of care and effort to make sure your plants are healthy. Thankfully, nature provides us with gardening sidekicks, like your favorite superheroes have! One of the best gardening sidekicks are bees. They carry out the very important job of pollinating.

What is pollinating?

To understand this, we need to know what pollen is and how it's made. Every plant has a male part, the **stamen**, which produces a sticky powder called **pollen**. There's also a female part, the **pistil**, which has a sticky end called the **stigma**. In order for a flower to produce and grow, it needs pollen to travel from the stamen (boy) to the stigma (girl). However, the flowers need help from the bees to do this.

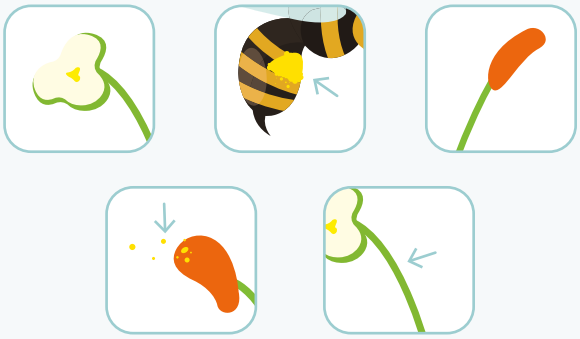


Because bees get most of their energy from feeding on pollen, they spend a lot of their time gathering pollen in flowers. They collect the pollen and store it in their pollen baskets to bring back to the young, developing baby bees and the Queen Bee. As they move around the flower, some pollen falls out of their baskets which helps to move it from the stamen to the stigma, which is called pollination. Pollination gives us happy, healthy plants. Without bees, our gardens would not be able to pollinate as easily, which would lead to unhealthy fruits that never make it to the harvest stage!

ACTIVITY: Can you draw a line connecting the word and its image?

STAMEN PISTIL POLLEN

POLLEN BASKET STIGMA



Also, there are a whole list of other sidekicks that act as pollinators as well. Check out the list below to find what they are and what foods or flowers they're responsible for:

Beetles — pollinate flowers like magnolias and waterlilies

Flies — apples, peppers, mangoes and cashews

Birds — bananas, papayas

Bats — guavas, mangoes, agave

Butterflies & Moths — celery, cilantro, lettuce, lavender, basil, sage, rosemary

Did you know that nearly every third bite of food you take comes from Pollinators doing their jobs? Think tomatoes, almonds, apples, pumpkins, strawberries, HONEY!

Activities & Questions

How worms are happening

Another one of nature's sidekicks are worms. Worms are very hardworking and are essential to happy soil and compost. Two of their main functions are:

1. Breaking down organic matter and excreting nutrients
2. Digging tunnels in the soil that help provide water and oxygen for the plants

Because of their scientific work underneath the soil, they are often called "engineers of the underworld."

FUN FACT!

Earthworms are very sensitive to the sun and have no natural protection from its ultralight radiation. Because of this, daylight can be fatal to them.

Book Recommendation: The Diary of a Worm

Yet ANOTHER sidekick is one you would not expect — it's called Mycorrizhae, or fungus that live in plant roots. It's a great friendship, that of plants and fungus — one that dates back to 400 million years ago! Although plants are able to collect nutrients through their roots on their own, they are limited. Fungus, however, has a superpower of collecting nutrients from every available area of soil and delivers it to plants. Plants in turn give Mycorrizhae sugar, it's a mutually beneficial exchange!

Questions? www.backtotheroots.com/contact

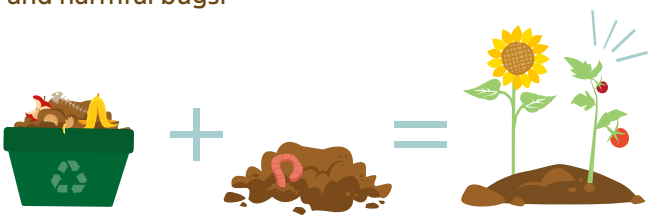
FUN FACT!

Mycorrhizae has been known to act as a network that help plants talk to each other. Through the Mycorrhizae system, plants can send messages and signals to other plants within their neighborhoods!

Compost and how everything is connected

Compost is a collection of organic ingredients that when mixed together create a dirt-like material that can provide nutrients for gardens. Compost can be put into a bin - like a trash can for organic matter. Things like banana peels, egg shells and grass cuttings can all be put into a compost bin.

For example, once you are finished with your banana, you can throw your banana peel into the compost bin and after time it will begin to decompose. As the banana peel decomposes it creates nutrients. As you add more organic material into the bin, the more nutrients are created. After time, this mixture turns into a dirt-like material that can be added to the soil in your garden. This mixture is full of nutrients, which help plants to grow stronger and fight diseases and harmful bugs.



ACTIVITY: Think about what you had for lunch today. Are there any items that can be composted? Can you draw these items in the box below?

Activities & Questions

Discussion Questions

Unfortunately, bees are slowly going extinct due to many factors, like loss of habitat. What are some ways we can help attract more bees and help give them habitats to thrive in?

ACTIVITY: First, think of all of nature's sidekicks that we learned about today. Next, take a walk outside and see how many sidekicks you can spot. Whoever spots the most, wins!

Key Vocabulary

Nutrients — a substance in food that gives energy to living organisms and allows them to grow and maintain a healthy life

Photosynthesis — The process in which energy from the sunlight is turned into chemical energy

Oxygen — a reactive gas that is vital for respiration, it is a component of air that helps all living organisms stay alive

Permaculture — this is the practice of planning systems and human oriented infrastructure around natural ecosystems that can sustain themselves

Pollinating — The transferring of pollen from a male part of the flower to the female part. It is what produces new flowers

Stamen — the male part of a flower

Pollen — a powdery substance created by the stamen, the most important ingredient in the pollination process

Pistil — the female part of the flower

Stigma — the sticky end of the pistil, this is the receiver of pollen

Decomposition — the natural process of organic matter breaking down into smaller components that then return to the earth in form of nutrients