

What is a garden?

A **garden** is a designated space — on land or in a container — for presenting, enjoying or producing plants. Often it includes both natural and human introduced elements.

Natural Elements

- Plants and Seeds
- Animals
- Soil and Rocks
- Organic matter
- Sun, Wind, Water and Air

Made by People

- Benches
- Gates
- Pathways
- Fences
- Buildings

Living and Non-living

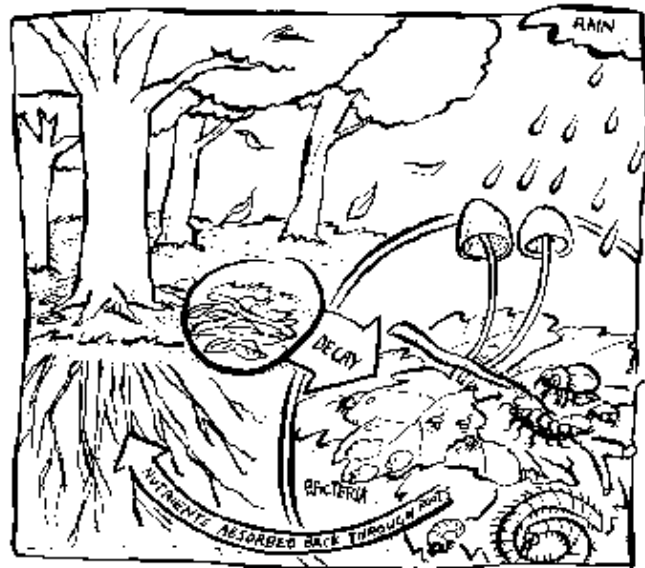
What makes up a garden? Often we think of living things, such as plants and animals . Actually, a garden contains both living and non-living things, each supporting the other.

Living things:

- Grow and die.
- Reproduce. That means they can make babies or produce seeds.
- Need nutrients — food and water.
- Produce waste.
- Respond to their environment. That means they move so that they face the sun.

Non-living things:

- May never have been alive.
- May have *once* been living but are now dead. Dead means they have none of the characteristics of living things listed above.
- Are just as important to the garden as living things: **Soil** is necessary to provide water and nutrients to plants. **Water** and **sunlight** provide energy to a plant and to a larger food web. Dead and rotting plant and animal matter break down and return vital nutrients to the soil.



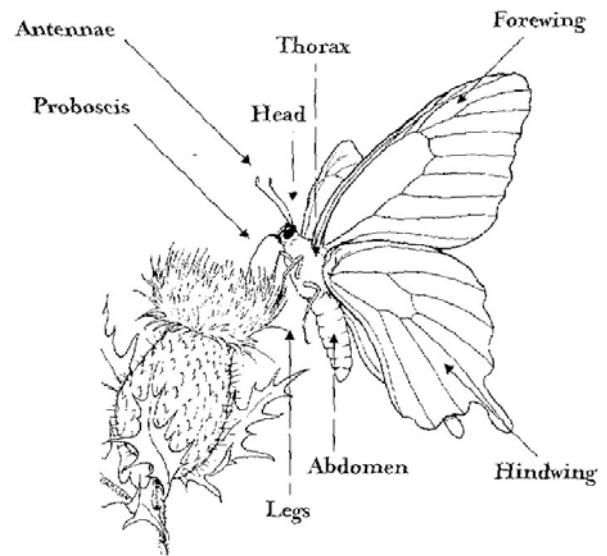
Source : www.maf.govt.nz/mafnet/schools/kits/pag4soil.gif

Characteristics of Butterflies

Butterflies are insects. They have six legs and three body parts, including the head, thorax and abdomen.

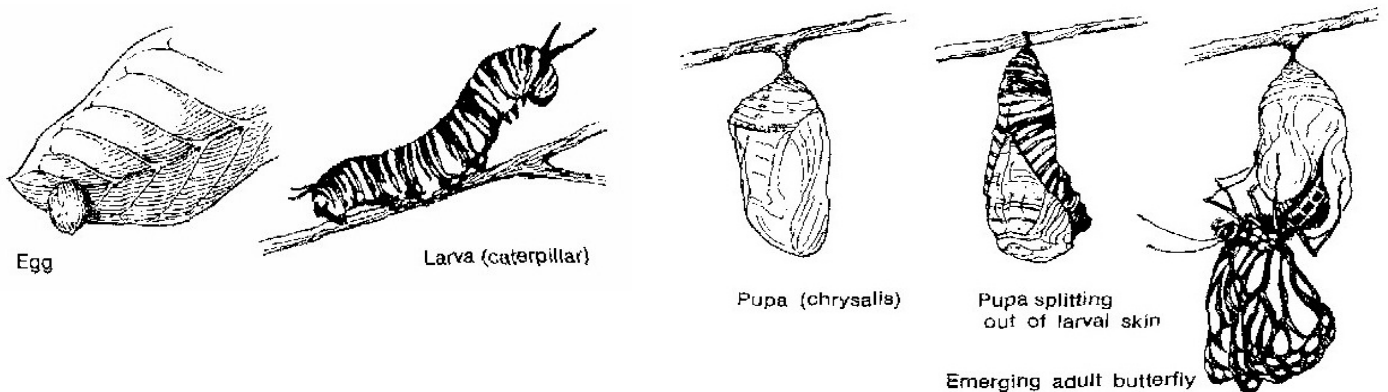
To eat, butterflies use a **proboscis**, which is like a straw that enables them to sip nectar from flowers. Butterflies also have **antennae**, which they can use to smell and to keep their balance while flying.

Butterflies can be identified in general by their varying colors and markings.



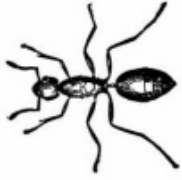
Source: Opler, Paul A. *Peterson First Guides: Butterflies and Moths*. (1994). New York: Houghton Mifflin Company

Butterflies go through four distinct life stages, called **metamorphosis**. Each butterfly starts out as an **egg**. Then it becomes a **larva**, and then a **pupa**. Finally it becomes an **emerging adult butterfly**.



Source: Opler, Paul A. *Peterson First Guides: Butterflies and Moths*. (1994). New York: Houghton Mifflin Company

Common Invertebrates at Wave Hill



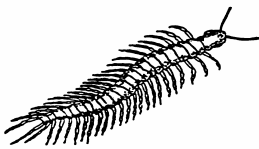
Ants have three body parts and six legs. That makes them insects. Most ants live underground, but come above ground to find food. They live together in a colony, in which each ant has a specific job. Each colony has its own smell, and members of a colony will follow the scent of their own colony only. That is why you often see ants walking in single file.



Earthworms are red or brown, with a soft, segmented body and no legs. Earthworms have no eyes or ears, but are very sensitive to vibrations. They live in moist soil because their skin needs to be slightly damp to allow them to breathe. During winter, they dig deep into the ground to hibernate.



Millipedes have many legs — four per body segment — and a hard shell called an exoskeleton. Millipedes are found in leaf litter on the surface of the ground. They are scavengers, which means they eat dead and decaying matter.



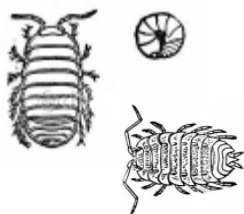
Centipedes have long, flat-segmented bodies with two legs per body segment. They are usually yellow, red or brown, and are characteristically brighter in color than millipedes. Centipedes are predators, which means they eat other animals. They are usually found in leaf litter.



Spiders have two body parts — a cephalothorax and an abdomen — and eight legs. They are found in diverse environments, from the heat of the deserts and rain forests to the cold of Antarctica. Spiders are predators, often helping control pest populations by trapping and eating insects.



Slugs have soft, un-segmented bodies, one pair of eyestalks and no legs. They move on their bellies, leaving behind a slimy trail. Slugs differ from snails in that they do not have a protective shell. In extreme weather, slugs can burrow underground and hibernate under a protective covering of slime.



Sow Bugs and **Pill Bugs** have seven or more pairs of legs and a segmented, flat body. Both must remain in moist areas because they use gills to breathe, like other land crustaceans. That means their closest relatives are in fact crabs and lobsters! Pill bugs curl up into a ball when startled, but sow bugs cannot. This is the easiest way to tell them apart, as they are otherwise very similar.

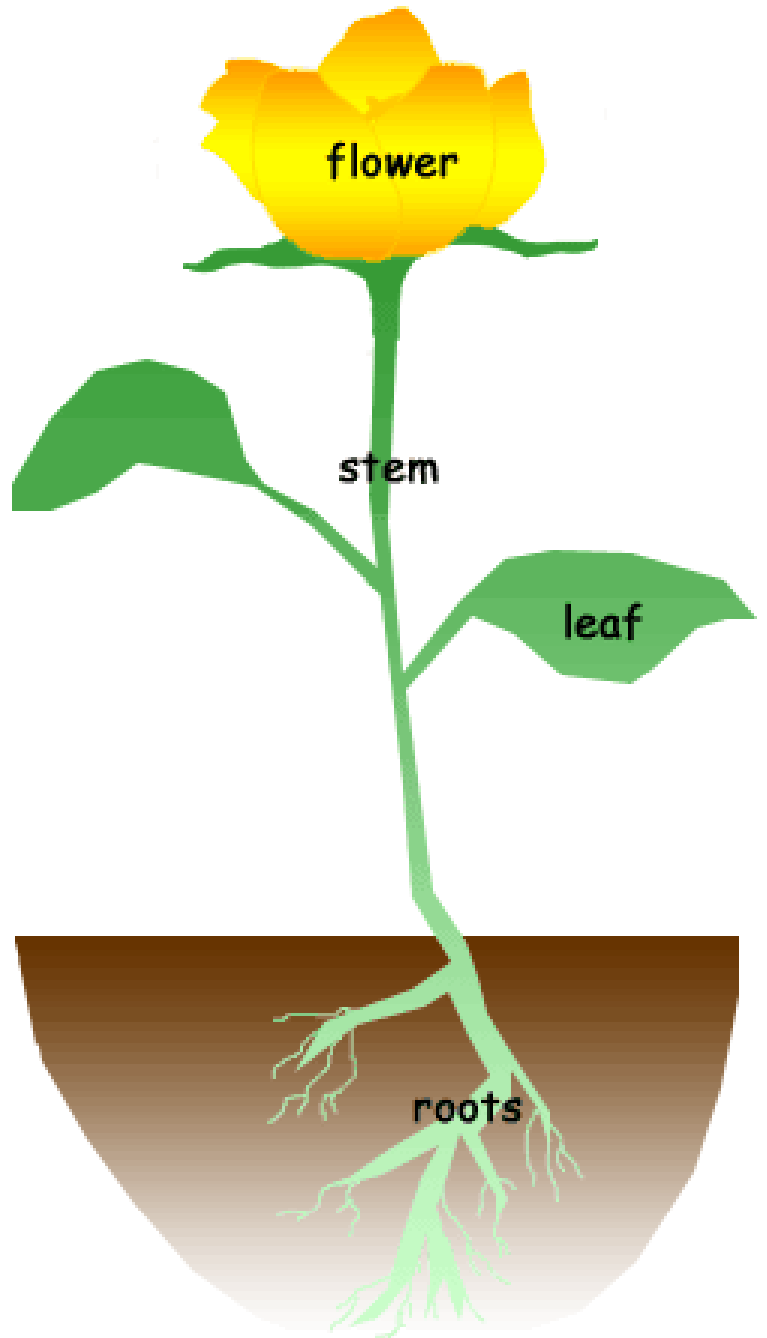
Plant Parts and Vocabulary

Flowers are the reproductive parts of some plants that become the fruit and seed/s.

Stems move water and nutrients up and through plant parts, including leaves and flowers. Stems also help to support plant parts.

Leaves are plant food factories. Leaves absorb sunlight and use chlorophyll to create sugar for the plant through a process called **photosynthesis**.

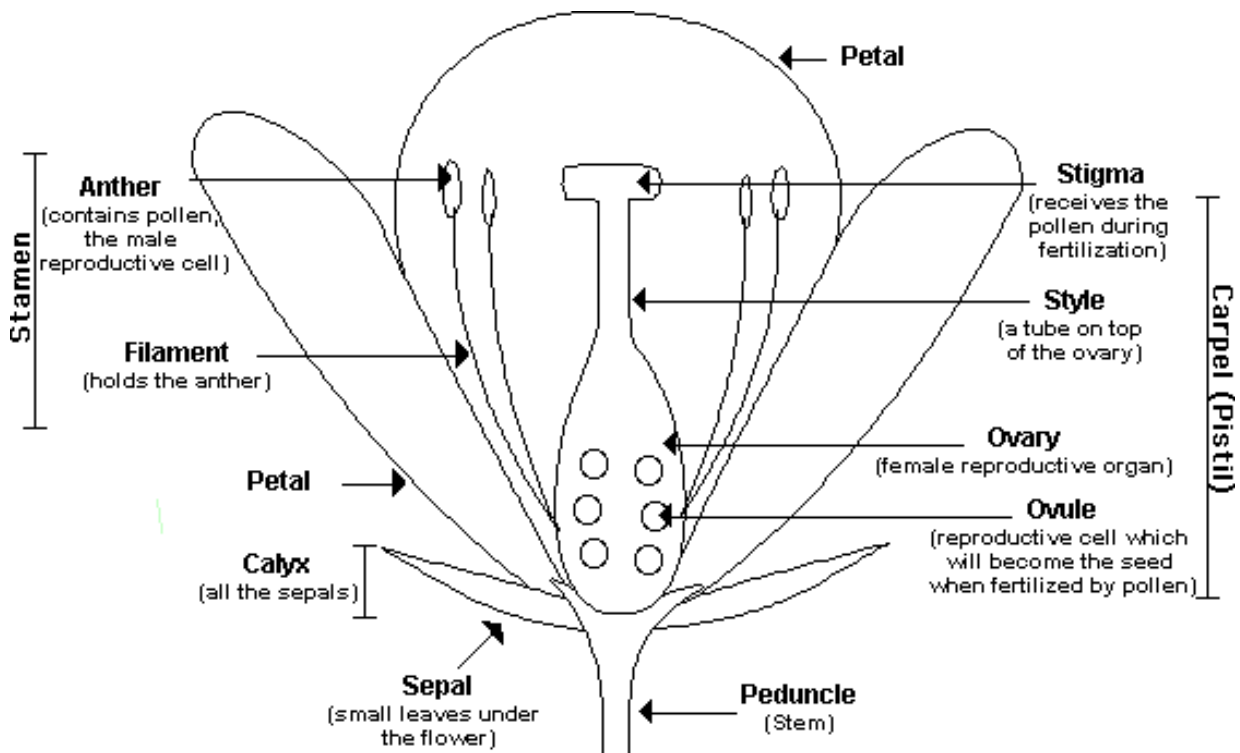
Roots are like straws, drawing water and nutrients from the soil for the plant. Roots also help hold the plant in the ground.



Source: Missouri Botanical Garden:
<http://www.mbgnet.net/bioplants/parts.html>

Flower Parts and Vocabulary

- **Flowers** are the reproductive parts of some plants. They become the plant’s fruit and seed/s.
- A **petal** is the part of the flower that surrounds the reproductive parts. They are often brightly colored to attract pollinators such as bees and butterflies.
- **Sepals** are the outer parts of flowers. They protect the buds. They are found below the petals when the buds open.
- **Pollen** is a fine dust made by the flower. It is often yellow.
- **Pollination** describes how pollen travels from flower to flower in order to produce more plants.
- **Nectar** is a sugary fluid secreted by some flowers. Many pollinators, such as bees, butterflies, and hummingbirds, drink nectar.



Source: © EnhancedLearning.com



YEAR 1 / Kindergarten: A Garden in the Classroom

Content Information

Garden Care and Maintenance

Gardens require care and maintenance. Take a walk each week to observe gardens in your neighborhood and what they need. Notice how quickly things change in the environment, especially in the garden. What has caused these changes — weather, new growth, additions to the garden, or human use? Each week, be sure to regularly water, feed and weed your class garden or plants.

Watering

Set up a classroom schedule so your students understand how often and how much to water the plants. Be sure to water your garden slowly so as not to damage young plants. Take this opportunity to encourage math skills by teaching students how to measure the quantity of water the classroom garden or plant needs throughout the week.

Feeding

Nourish your plants with fresh soil or organic materials, in order to provide nutrients for healthy growth. Ask a neighborhood gardener about any additional organic materials, such as compost or mulch, that they may be able to provide you, or ask if they can suggest a local resource.

Weeding

Weeding removes any unwanted plants that compete with or crowd what you have planted. Notice differences and similarities between your transplants and the weeds that your students remove.



YEAR 1 / Kindergarten: A Garden in the Classroom Content Information

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YEAR 1 / Kindergarten: A Garden in the Classroom Content Information

Resources

BOOKS

For classroom reading:

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Butterflies and moths. (2004). Nashua, NH: Delta Education.

Carle, E. (1987). *The tiny seed*. New York: Simon and Schuster.

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Scrace, C. (2002). *Growing things*. Danbury, CT: Franklin Watts.

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Resources

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White, J. M., Barrett, K. D., Kopp, J., Manoux, C., Johnson, K. & McCullough, Y. (2006). *Math in the garden: Hands-on activities that bring math to life*. Burlington, VT: The National Gardening Association in cooperation with the UC Botanical Garden and Lawrence Hall of Science at Berkeley, California.

WEB RESOURCES

The Exploratorium Science of Gardening. <http://www.exploratorium.edu/gardening>

KinderGarden. <http://aggie-horticulture.tamu.edu/kindergarten/kinder.htm>

National Gardening Association. <http://www.garden.org/home>

Exploring Butterflies in Kindergarten.

<http://www.shrewsburyma.gov/schools/beal/curriculum/butterfly/butterflies.html>