

**Marin Master Gardener's
University of California Cooperative Extension**

Farm Day 2018 Teacher Packet



Introduction:

This teaching resource is designed for teachers whose students will visit our exhibit at the 2018 Farm Day. Marin Master Gardeners will have an exhibit with three themes:

1. The importance of worms in soil, including a worm bin;
2. Making your own starter pot and planting a green bean and a pea seed; and
3. The role of ladybugs in our gardens.

1. The Importance of Worms in Soil

Activity:

We will have a worm bin where the children can handle earthworms and learn about their role in our gardens.

We also will have a “worm tunnel” for the children to crawl and slide through, to experience being a worm.

Teaching objective:

From <https://www.gardeningknowhow.com/composting/vermicomposting/benefits-of-garden-worms.htm>

Worms play many important roles in our gardens.

Worms are “nature’s plow.” That’s because an earthworm pushes through soft earth with the point of its head. If the soil is hard, the worm eats its way through, forming interconnected burrows, some several feet deep. Burrows loosen the soil, admitting air and water and helping roots grow.

Worms recycle organic waste. They are a part of a network of organisms that turn garbage into nutrient rich soil. The fertilizer the worms provide is called castings. An earthworm produces its weight in castings daily. Technically, this is worm poop, derived from their processing of organic waste. The nutrients in castings are one of the benefits of garden worms to plant growth.

Worms abound in soils that are around 70 degrees Fahrenheit (21 C.). A single acre of cultivated land may be home to as many as 500,000 earthworms. Any extremes of cold, heat or moisture are not good for worm activity. Worms in gardens are most active when soil is moderately warm and moist. Pesticides can kill entire populations of worms in gardens. Avoid the use of pesticides whenever possible. If you want to pro-

mote the spread of worms, you can move one or two shovels full of soil containing worms to an area that has few worms. They will soon populate the new area. Worm eggs are also available at some nurseries and online.

If you want to take advantage of the recycling ability of worms, you can grow them in bins. Red wigglers are the organisms of choice for worm composting, also known as vermicomposting, which is done in a bin. Earthworms are diggers and would try to get out. Placid red wigglers will turn your kitchen scraps into compost quickly and also provide compost tea for plants that need extra babying. Here is how to do it. Line a bin with newspaper or shredded organic material and layer in good quality compost. Add finely cut kitchen scraps, add worms and cover with a light dusting of soil. Keep the compost lightly moist and put a lid on with air holes punched in for the worms. As they compost the scraps, scrape finished product to one side and add more. This small set up provides similar earthworm benefits, but on a small scale.

Note: CalRecycle publishes a number of free guides for Teachers on worms and vericomposting, including classroom activities and projects.

See: <https://www2.calrecycle.ca.gov/Search/default.aspx?q=worms>

2. Making Your Own Starter Pot and Planting a Green Bean and a Pea Seed

Activity:

1. Start with 2 toilet paper tubes taped on the bottom. 2. Add soil, then green bean and snap pea seeds. 3. Insert both toilet paper tubes with plantings into small bag for transport. Care and planting instructions will be on the bag.

Teaching objective:

Seed starting doesn't always mean going out and spending money on all those nifty peat pellets and peat pots and plug trays. Often times, you can use what you already have in your house. We are using empty toilet paper tubes filled with soil this year to germinate the seeds. Toilet paper tubes are biodegradable and can be planted directly into the garden soil once all chance of frost has past, and the seeds sprout and have true leaves. The toilet paper tubes will decompose naturally over time. This method provides easy planting and because you don't have to dig the young plants out of a plastic container, you won't disturb the young roots.

3. The Role of Ladybugs in Our Gardens

Activity:

Look at a display of active ladybugs in an aquarium with ladybug habitats.

Teaching objective:

Beneficial garden ladybugs for controlling pests in your garden are the most popular and widely used beneficial insects for commercial and home use. Ladybugs, also called lady beetles or ladybird beetles, are a very beneficial group of insects. Ladybugs are natural enemies of many insect pests and it has been demonstrated that a single ladybug may consume as many as 5,000 aphids in its lifetime.

Ladybugs are among the most familiar beetles, easily recognized by their round, often spotted bodies, less than 1/16-3/8" long. Most are shiny red, orange, or yellow with black markings, or black with red or yellow markings. Both adults and larvae are predators, mostly of aphids. They are common on plants and often over-winter as adults in large swarms under fallen leaves or bark. If food supply is good there are many generations a year. In fact, this is a type of warning coloration to other animals that may try to eat lady beetles. Like many of other brightly-colored insects, ladybugs are distasteful to predators. When disturbed, they may secrete an odorous, distasteful fluid out of their joints to discourage enemies.



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