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"Befriend the garden bug, inherit good earth"

We are in an exchange, whether we know it or not. How often do we think about our life-dependent connection to the soil under our feet? We depend on healthy soil to support plant life, the source of our food and oxygen. Soil is a complex living system. Plants require basic raw materials, like minerals and sugars, to be healthy and so do we. Soil creatures like beatles, bacteria, fungi and worms are busy creating conditions that allow plants and people to absorb these nutrients by breaking down the natural matter left behind by plants and animals. Decomposition of waste from living things, like leaves, dead insects, manure, and food scraps is key to the sustainability of soil. Without this return of materials the whole life-supporting process that exists is undermined. This life cycle permits nutrients to flow from soil to plant and moves forward only with the help of the microoganisms and other creatures that make up the soil community. Soil critters maintain the fertility of the soil. In terms of engagment, these critters are considered friends. Getting to know them can be fun! Begin with the Ground Beetle, one of the most common watch-dogs of North American soils. Fun to observe in the backyard, the Ground Beetle can usually be found munching well over its weight on decaying matter and problematic crop pests. The beetle's effective role as a hunter in the soil has gained it a reputation in the world of organic food production. Experiments done on cabbage crops in Britain showed that fields treated with presticides suffered more damage than fields that were left untreated. When checked more closely, it became clear that over 30 species of beetles had been feasting on the eggs and larvae of the cabbage root fly, however pesticides killed the beetles. Left to their predatory tendancies, the beetles were much more sucessful than the pesticides were at keeping the root flys at bay. Just imagine what beetles are doing to keep the balance in your homegrown veggie patch! Beetles keep the creeps out. Moving from large to small is the renowned actinomycetes (act-eeno-my-see-tees). This is the soil partner responsible for giving off the hearty aroma of good earth when plowing a planting field, or turning over a rotting log. Under a microscope, actinomycetes look both a bit like bacteria and fungi. Long, white and feathery, they are commonly seen radiating through compost piles and woody debris. Very helpful decomposers, actinomycetes are better known for their sources of antibiotics in medicine. Similar to the way we use them to control disease-causing bacteria in the body today, they've helped to corral mounting bacterial and fungal populations in the soil for millions of years. Who could forget the wonderful worm?! A farmer's natural companion, earthworms both aerate and fertilize as they manuver through the dirt. Slurping up minerals, leaf litter and other plant debris, soil takes on new characteristics as it passes through the body of an earthworm. Earthworm poo, or castings as they are called, contain about 50 percent more calcium, nitrogen, phosphorus, potassium, and bacteria and are less acidic than neighboring soil. Simply by digesting a meal, earthworms help to

create the fertile soils best known for vegetable gardening. And since tilling releases carbon dioxide into the atmosphere, who needs to do it when you can harbor a healthy earthworm population in your garden beds and compost piles? Millions of creatures exisit as part of the soil community, some of them especially interesting and beneficial. All of them are an integral part of a vibrant soil ecosystem. Largely, farming practices have been industrialized by attempting to manage large areas of farmland with petroleum based fertilizers and pesticides. As a result, our soil has been compromised because the ingredients needed by the living soil community are not returned. We can do our part to reverse this damage by fostering an understanding for these soil building, nutrient recycling critters in our own backyards. Consider less toxic weed control alternatives, and learn how to grow a hot and healthy compost pile. Rather than resort to poisoning garden pests like slugs and snails, educate yourself about the character of the creature and where it lands in the soil food chain. Befriend the garden bug, and you're set to inherit good earth.

* Visit www.watoxics.org and find Healthy Homes and Gardens for tips on greening your chemical free lawn.

**Build a Berlese Funnel**

A good way to learn more about members of the soil community is to make a Berlese Funnel. Rescue a one liter soft drink bottle from the recycling bin. One fourth of the way down from the nozzle, make a cut and sever the top portion of the bottle from the bottom. Now separate pieces, cover the bottom half of the bottle with foil to create a darkened environment. Next, acquire a small piece of mesh (this could be a left over scrap of mesh produce bag) and rubberband it around the nozzle of the upper portion of the bottle, closing the nozzle off. *Make sure that the holes in the mesh are large enough to allow soil critters to fall through. Nest the upper portion of the bottle, nozzle down, into the lower portion of the bottle to form a funnel. The upper portion should now form a cup. Fill that with leafy debris, or a clump of soil from your garden. Place the funnel under a lamp. The heat and brightness of an electric light will drive the soil creatures down into the dark chamber below the funnel. Here they can be collected and observed at close range.

* Picture to come of students using Berlese Funnel