

**Place-Based Education at Our Table Cooperative Farm
Fall 2020: Heroes and Villains in the Garden**

Primary School (PreK- Grade 2) LS1: From Molecules to Organisms: Structures and Processes

LS1.C: Organization for Matter and Energy Flow in Organisms:

All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Lesson:

Books:

Up in the Garden and Down in the Dirt: By Kate Messner

<https://www.youtube.com/watch?v=lq7hkJOVitA>

Videos:

Think Garden: Pests and Helpers (3:25 minutes):

<https://net.pbslearningmedia.org/resource/thnkgard.sci.ess.pests/think-garden-garden-pests-and-helpers/>

Think Garden: What's a Food Chain (2:20 minutes):

<https://thinktv.pbslearningmedia.org/resource/thnkgard.sci.ess.chain/think-garden-whats-a-food-chain/>

Discussion: Talk about how the garden is a community. Every garden is a part of an ecosystem composed of sunlight, water, plants, insects, birds and lots of other living organisms. Every living thing in the garden has a job to do and most of the time that job is focused on either growing or eating (finding energy) and all these things are part of a food chain. Most of the creatures in a garden are considered helpful heroes and play a vital role in keeping the garden healthy, but there are a few we may think of as endlessly hungry and mischievous villains.

Which creatures do you think are garden heroes? Which are the villains? Might there be a few double agents in there too? Why?

How do we know we have pests in the garden?

What things tell us a garden is healthy?

What can farmers do to help balance the ecosystem and keep the fields and crops healthy?

Can you give an example of a food chain?

Do you have a favorite garden character? Spend some time learning more about your favorite garden creature: study its life cycle, what does it look like, where does it live, what does it like to eat, and what role does it play in the garden? Is it a hero, villain or double agent?

Some of our favorite characters to learn about in the garden are:

Ladybugs: These adorable and heroic red beetles are a gardener's delight. Their favorite treat to eat are plant destroying aphids. One ladybug can eat up to 5,000 insects in its lifetime.

Praying Mantis: Just like the ladybug, a praying mantis is a welcome guest in the garden. It happily devours aphids and grasshoppers. The downside of having this amazing hunter in your garden, is that it will eat almost anything it can catch, and that includes the beneficial bugs you want in your garden, too. Fun fact: mantids are masters of camouflage and some species can even resemble a leaf, stick, tree bark or a flower.

Bees: There are over 20,000 different types of bees in the world! These beautiful and busy garden heroes play a vital role as pollinators. Without pollination, plants could not produce fruits for animals and humans to eat or seeds to grow for more plants. Pollinators are essential for making sure every living thing has a steady food supply to survive.

Some of our favorite garden characters to learn about down in the dirt are:

Snakes: Not always a favorite critter to cross paths with, but garden snakes are incredible hunters and not only eat hungry insects like grasshoppers, but they can help keep strawberry munching mice populations in check, too. Maybe he isn't such a bad guy after all.

Worms: These super tunnel builders and dirt eaters are a favorite! They eat rotting roots and decomposing leaves at one end and cast out finer more nutrient dense soil from the other. Worms help build healthy soil for plants to thrive in.

Gophers and Moles: For the most part we consider gophers and moles a pesky villain, they dig up gardens, leave holes in the lawn and eat our carrots and snack on helpful earthworms... but they do good things for the earth, too. They help dredge up important nutrients that plants need to grow and survive from deep in the earth and their tunnels help aerate the soil to keep water moving and oxygen flowing... and the snakes get to make their homes in the tunnels as well.

Some of our favorite characters to learn about high in the sky are:

Song-Birds: While fun to listen to, song-birds are great at snacking on pesky insects like crickets, beetles and grubs that can eat a farmer's crop. Many gardeners will try to draw song-birds in by providing bird houses for nesting and leaving a portion of their crops in the field a little longer so they go to seed, a very tempting treat for the tiny birds.

Hawks and Kestrels: These powerhouse birds of prey help keep larger flocks of birds like crows from devouring crops like blueberries and grapes. They chase larger flocks of these hungry birds away and keep them from spending too much time in the ripening fields. They also have excellent eyesight and can help keep rodent populations in check by hunting the ground dwellers that like to feed on the farmer's fresh leafy greens and roots. In order to encourage more of these birds to come to the farm, Our Table Cooperative has built predator perches in several areas of our growing fields so the stealthy fliers have a handy place to perch and look for their next meal.

As you can see, every living thing in the garden serves a purpose and has its place in the food chain...and that's long before those tasty veggies from the field even have a chance to make it to your plate.

Hands-on Activities:

Bug Observation Sheet

Scavenger Hunt