Garden Habitats

A Garden-Based Curriculum

Developed by The Southern Boone Learning Garden

ABOUT

Summer is the *perfect* time for teachers and students to get their feet wet in exploring all the educational opportunities the garden has to offer. The curriculum during summer school programs is often more flexible, allowing educators to make even more time for garden activities. Not to mention, with the garden at the peak of its season, there's never a dull moment—a gardener's work is never done!

During the summer school session in June 2013, Southern Boone Learning Garden collaborated with K-2nd and 5th grades to facilitate garden-based lessons that integrated with summer school topics. Every class had a designated time to come out to the garden each week. The five lessons provided in this unit were originally implemented with 2nd grade with an emphasis on habitats—learning about insects, animals, and plants that live in a garden, in addition to maintaining it. Each one is designed to enhance student's learning in a real-world setting while soaking up the summer sun—and fun!

A special note: please refer to our units *Summertime and the Garden is Busy!* and/or *Nature's Best: Starting & Maintaining a Student-Run Farmer's Market* for more detailed information about our K /1st and 5th grade summer school programming.

HOW TO USE THIS UNIT

- We suggest you use the lessons consecutively—building on topics learned from the previous lesson. They can be done as stand-alone activities as well.
- The standards-based lessons are laid out in a template form with specific objectives and standards.
- The last section *Extension, Digging Deeper* offers modifications for different grade levels and/or additional activities to do after the lesson
- This is an example of what SBLG has done in the past. Modify and add what works best for your needs. We are constantly changing our units, so we encourage you to do the same!

Habitat Hunt

Time & Description	45 min-1 hour Start the unit out with a scavenger hunt—allowing students to explore and become familiar with the garden and all the creatures who call it home.
Objective	To identify different animals and the habitat they live in.
Teaching Standards	**Next Generation Science** • **LS4.D**: There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) • **LS4.B**: Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2) • **ESS2.E**: Living things can affect the physical characteristics of their regions. (4-ESS2-1) • **LS2.A**: A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)
Materials	❖ Writing utensils ❖ Clipboards ❖ Glue/tape ❖ Pictures of animals found in the garden (e.g. bird, turtle, frog, bee, worm, etc.) ❖ Checklists of animals in the garden ❖ Popsicle sticks
Preparation	○ Print and cut out various pictures of animals found in the garden • Glue each picture to a popsicle stick and place them in appropriate places throughout garden (e.g. bird picture in a tree, bee picture near a flower, etc.) ○ Type and print a checklist of animals found in the garden
Procedure	1. Introduction of self and school rules within the garden 2. Explain and practice "I like veggies: I do too!" call and response to get their attention 3. Assign partners 4. Hand partners clipboard with checklist and writing utensils 5. Dismiss students to walk around looking for animals hiding throughout the garden 6. Students check them off as they find them and write the type of habitat they live in 7. Regroup: share what they found and noticed—brainstorm other additional animals that might live in the garden 8. Tour of the garden: visit each raised bed/high tunnel and taste test whatever is available
Extension, Digging Deeper!	❖ Find a book all about habitats and end the day with read aloud ❖ Search for *live* animals and their habitats—quietly observe and record ❖ Go on a similar scavenger hunt looking for specific vegetables, fruits, herbs, and/or flowers growing in the garden ❖ Use the five senses while walking around the garden

Building Frog and Toad Houses

Time & Description	45 min.-1 hour As students discover all about a frog and toads living environment, they will have the opportunity to get creative and build a home for them.
Objective	To understand where and how frogs & toads survive by constructing a habitat out of natural materials.
Teaching Standards	**Next Generation Science** • **2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats. • **K-2-ETS1-2.** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **Common Core** • **ELA/Literacy.SL.2.2:** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media
Materials	❖ Frog and Toad Are Friends by Arnold Lobel ❖ Amphibians and Reptiles of Missouri by Tom R. Johnson ❖ Scraps of cardboard ❖ Markers ❖ Plastic pots ❖ Glue gun ❖ Other miscellaneous arts & crafts materials: beads, popsicle sticks, moss, etc.
Preparation	○ Obtain books and materials—set out in accessible spot
Procedure 	1. Read Frog and Toad Are Friends and discuss similarities & differences to characters in story vs. real world amphibians & reptiles 2. Review what a habitat is—brainstorm where a toad or frog might live, what materials make up its home, etc. 3. Share an excerpt from Amphibians and Reptiles of Missouri providing examples to spark inspiration for building ideas and materials 4. Dismiss students to search for and gather natural materials to use for their house 5. Bring collected materials to tables and start designing the habitat by gluing on materials to cardboard and plastic pot 6. Let dry and either place in garden or send home
Extension, Digging Deeper!	❖ Make bee or butterfly houses for native pollinators in the garden ❖ Check on the habitat regularly, record any observations

The Good Guys vs. the Bad Guys: Insects

Time & Description	45 min-1 hour Using what they know about habitats, students must think about where certain insects might live in order to find them. They could, without a doubt, spend far more than an hour searching for insects!
Objective	To identify the beneficial and harmful insects found in the garden and to understand why some are considered good and others bad.
Teaching Standards	**Next Generation Science** • **LS2.A**: Plants depend on animals for pollination or to move their seeds around. (2-LS2-2) • **LS4.D**: There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) • **LS4.B**: Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2) • **4-ESS1-1:** Science assumes consistent patterns in natural systems.
Materials	❖ Printed out "ID cards" with labeled pictures of various insects (good and bad) found in the garden ❖ 2 mason jars ❖ Markers (permanent) ❖ Duct tape
Preparation	○ Print out "ID cards" of various insects (good and bad) found in the garden—enough for partnerships, *see example on next page* ○ Obtain two mason jars • Label one "good insects" and the other "bad insects" using duct tape
Procedure	1. Remind students of the garden rules and expectations 2. Ask: what are some insects you have seen in the garden? 3. Show pictures of the good and bad insects • Briefly discuss why each one is considered either good or bad • Mention, although gardeners/farmers consider certain insects a pest, they might play an important role for other living things in the ecosystem 4. Assign partners 5. Hand out "ID cards" to partnerships 6. Students search for the real insects living in the garden 7. As insects are found, students can place them in the appropriate mason jar 8. Regroup: discuss findings 9. *If time,* taste test on way out
Extension, Digging Deeper!	❖ Come back during a different time of the year to find different insects! ❖ Raise beneficial insects (ladybugs, butterflies) inside with your class and once they transform, release them back into the garden ❖ Start a worm compost (vermicomposting) project using food scraps from the cafeteria.

Planting Seedlings

Time & Description	45 min. – 1 hour Planting is *always* a favorite activity among students. They will learn how to plant seedlings through hands-on experience and discuss what their plants will need in order to continue to grow successfully.
Objective	To plant seedlings in the garden.
Teaching Standards	**Next Generation Science** • **ESS3.A**: Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) • **LS2.A**: Plants depend on water and light to grow. (2-LS2-1) • **LS1.C**: Plants acquire their material for growth chiefly from air and water. (5-LS1-1) **Common Core** • **MP.5**: Use appropriate tools strategically. (2-LS2-1)
Materials	❖ Plants (tomatoes, peppers, Brussels sprouts, herbs, etc.) ❖ Hand tools ❖ Open space in garden ❖ Organic fertilizer
Preparation	○ Place plants and hand tools in an accessible spot
Procedure	1. Remind students of the garden rules and expectations 2. Explain how to plant, what will be planted, and plant needs: • Make a hold deep enough to cover all the roots • Add fertilizer and mix it in • Loosen the roots • Use one hand to hold the plant and the other to cover with soil • Water 3. Decide the best location/habitat to plant discussing: • Beneficial factors • Negative factors—how can we minimize/eliminate these for best growth? How can we help maintain the plants habitat? 4. Split into two groups (planting and garden maintenance) 5. Switch groups 6. *If time,* weed, water, and/or taste test
Extension, Digging Deeper!	❖ Invite students to water, weed, and mulch around their plants with their family. Harvest when ready! ❖ Record the plant's growth progress by making a science journal or start a photo/timeline project ❖ Write a class "How-To" book about the steps of planting ❖ Research native plant habitats—what types thrive, why, etc. and plant them!

Habitat Helpers

Time & Description	45min.-1 hour Get students moving around by performing day-to-day garden tasks. They will have such a blast doing it; they won't even realize they're doing work!
Objective	To understand the purpose behind garden maintenance: to ensure plant and habitat survival.
Teaching Standards	**Next Generation Science** • **LS1.C**: 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) • **ESS3.A**: Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) • **LS1.C**: Plants acquire their material for growth chiefly from air and water. (5-LS1-1) **Common Core** • **MP.5**: Use appropriate tools strategically. (1-LS3-1)
Materials	❖ Watering cans ❖ Hand tools ❖ Buckets/containers
Preparation	○ Place watering cans, tools, and buckets out in an accessible spot ○ Fill up one watering can
Procedure	1. Remind students of the garden rules 2. Ask: what do plants need to live? 3. Demonstrate how to water plants (e.g. pour slowly and close to the plant roots) and where to get the water from (e.g. rain barrels) 4. Regroup: what are weeds? Are they good or bad? Why or why not? 5. Demonstrate how to find and remove them 6. Split up into two groups (waterers and weeders) • Fill up watering cans and water • Pull out weeds, place in bucket, and empty into compost pile 7. Taste test on way out
Extension, Digging Deeper!	❖ Come back and do more garden maintenance, there is always something to do! ❖ Investigate other habitats in ecosystem—for instance a rain or butterfly garden. Research what grows and lives in this habitat. Plan and install one.

Eating and Exploring the Parts of a Plant

Time & Description	30-45 min There's no better way to celebrate the last day than with a harvest party! Students will harvest, wash, and enjoy a salad they make themselves.
Objective	To identify different parts of a plant, harvest, and eat them!
Teaching Standards	**Next Generation Science** • **LS1.C:** All animals need food in order to live and grow. They obtain their food from plants or from other animals. (K-LS1-1) • **LS1.A:** Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) • **LS1.A:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1) • **LS1.C:** Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (5-PS3-1)
Materials	❖ Salad spinner ❖ Plates and knives ❖ Produce bags ❖ Salad dressing (balsamic vinaigrette or ranch) ❖ Tops and Bottoms by Janet Stevens
Preparation	○ Check out book ○ Buy dressing
Procedure	1. Remind students of the garden rules 2. Ask: what does it mean to harvest? 3. Divide into three harvesting groups: (at least one adult per group) • Turnips and radishes • Pea pods and broccoli • Lettuce and kale 4. Each student harvests about one of each and places in bag 5. Wash and remove inedible parts 6. Regroup: hold up examples of either a root part, leaf part, or stem part from harvest • Ask: what part of the plant are we eating? 7. In the meantime, another adult combines all the salad ingredients 8. Pass out plates, salad, and dressing 9. Read aloud while eating 10. Students throw uneaten scraps in compost and rinse off dishes 11. Reflection: students share either their favorite thing they did or something they would like to do in the future
Extension, Digging Deeper!	❖ Make salad dressing (buttermilk or balsamic vinaigrette) ❖ Harvest different vegetables to make another salad. Be sure to highlight why different plants grow during different seasons—research what produce grows in other habitats, make a salad recipe using the crops they grow in different parts of the world ❖ With older students, include "fruit" (pea pod, squash) and "seed" (pea) in plant part discussion