



Forts and Garden Homes

1st Grade

Standards

GPS S1-L1 b, d
NGSS K-LS1c; K-ESS2e

Time

3 45-minute sessions

Supplies

For Fort building:

8 sets of structural supports (ropes, sticks, rolled newsprint; cardboard)

8 sets cover materials (old sheets, fabric, cardboard, large towels, leafy branches)

8 sets of fasteners (duct tape, large binder clips, rope)

For Wildlife Habitat Project:

materials students choose for habitat project (native plants, clay saucers for water, materials for wildlife homes)

Garden Connection

Students will use the schoolyard as a setting for fort building and the garden as a setting for investigating survival needs, and will create a schoolyard habitat project

Overview

Students will investigate the survival need of animals – including air, water, food and shelter - by building forts for themselves and determining what else they would need to live there, indefinitely. Students will extrapolate from this activity to identify the basic survival needs of any animal, and use that information to improve the garden as wildlife habitat.

Essential Question

What would I need to survive on my own in the wild? What would any animal need?

Engaging Students

Students will build forts and furnish them with (or identify) items they would need to live there permanently; then discuss survival needs of humans and other animals.

Exploration

Students will observe the garden or schoolyard and dig in the soil to look for evidence of animals that live there; investigate the specific survival needs of those particular animals; and determine whether they are all met in the garden.

Explanation

Students will differentiate between survival needs and wants or preferences.

Environmental Stewardship

Students will improve the garden (or schoolyard habitat) to better meet the needs of a specific type of animal or microorganism by creating a wildlife habitat improvement that provides for a survival need.

Evaluation

A rubric is provided to assess student demonstration of competency in identification of basic needs of an animal, distinguishing those needs from wants, and improving the suitability of a school garden to serve as a wildlife habitat.

Extension

Students may apply to have their schoolyard habitat certified; or may go on wildlife habitat quests created by the teacher. (Smartphone or tablet and app download needed).

Standards

Georgia Performance Standards in Science

GPS: Georgia Performance Standards in Science (1st Grade)

S1-L1. Students will investigate the characteristics and basic needs of plants and animals.

b. Identify the basic needs of an animal.

1. Air
2. Water
3. Food
4. Shelter

d. Compare and describe various animals—appearance, motion, growth, basic needs.

Next Generation Science Standards

NGSS (Kindergarten)

K- 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)

K-ESS2.E: Biogeology

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)

Teacher Background Information

Teacher Preparation

Survey the fort-building area in advance for poison ivy, poison oak, poison sumac, fire ant hills, yellow jacket nests or other obvious hazards. This [Poison Ivy Quiz](#) may be helpful both to teachers and students, to identify plants that can cause skin rashes. Request materials from parents or scavenge them, as necessary.

PROCEDURES FOR LESSON ACTIVITIES

Day 1

Engagement: Fort Building (45 min – 1 hour)

Identify a relatively safe area in the schoolyard where students will build be allowed to build forts. Set boundaries for the activity by placing soccer cones or laying ropes at the perimeter of the area where students are allowed to explore. Establish a call or signal at which students should immediately reassemble in front of the teacher. The class should practice coming back to the teacher in record time when the special signal is given, without running, shoving or losing track of buddy pairs or teams.

Divide the class into small teams of 4 students and challenge them to work together to design and build forts where they think they could live for a few minutes, a whole week, or forever.

Allow children to gather items from the schoolyard to use for fort-building (or provide a variety of materials for this purpose, requesting donations from parents). Ideally, these materials will include structural items such sticks, branches, cardboard, or newspaper that can be rolled tight and fastened; as well covering items such as fabric, tablecloths, sheets, large towels, butcher paper, or leaves or pine needles that may found be on the ground, etc.

After the forts have been built, reassemble the class and go together on a fort tour. At each fort, ask the students who built it to point out its key features and then answer questions *from their classmates* about what else they would need to live there forever, and how far they would have to travel to meet their other needs. Accept and record all answers, without comment.

At the end of the fort tour, seat the class and continue the discussion by displaying their responses. Ask students to divide the list into things needed for survival and things that it would be nice or convenient to have but which are not essential to stay alive. Encourage students to argue from evidence to make their points. (Example questions: What evidence or proof do you have for that idea? How do you know that is true? How could we design an experiment to find out if that is so?) Eventually, the class will determine that humans need water, food, shelter, and space to survive. Everything else is optional (criterion question: could you stay alive without that?). It may be necessary to clarify that space refers to a hiding or home place (such as the fort) and whatever surrounding area is needed to find food, water, and a mate. Ask the class to consider whether the survival needs of humans are the same for other animals? (yes) For plants? (plants also need light, which they use to make their own food).

Day 2

Exploration: Garden Habitats (45 min – 1 hour)

Ask students what animals may live in or near the school garden. Suggest they consider animals that live above ground and those that live underground, including animals which consider the garden part of their territory but roam farther afield. Observe (or use magnifying glasses) to inspect leaves, soil, and other parts of the garden for evidence of animal life (e.g. tracks, chewed leaves, eggs, scat, webs, actual animal sightings). What other animal life do students think they might see, if they had a hidden motion-detecting camera? Use a trowel or large spoons to dig in the soil and look for signs of animals living underground.

Suggest that students think back to their fort building experience, and identify what one particular garden animal might need to survive. Questions to consider and investigate might include the following: Can the school garden provide all of this animal's needs for habitat? Why or why not? What does this animal eat? (Here is a short film on [foods animals eat](#). Prompt students to notice that not all animals like the same food. For instance, ladybugs eat aphids – which are other animals, but aphids eat plants.) Consider these questions: Do humans and animals need the same things to survive? Are humans also animals?

Explanation

Create a large mural or space on the smartboard or blackboard for two categories of items: Things I Want and Things I Need. Ask students to make drawings of things they want and things they need to stay alive. (See Lab Report forms). Students will tape their drawings to the mural under whichever heading they feel is most appropriate (things needed to stay alive vs things wanted). Ask students to explain their drawings and why they placed them in each category. Encourage classmates to ask each other whether each item is needed to stay alive. Ask students to reposition their drawing if they change their mind about where it belongs. By the end of the discussion, each student should be able to articulate that the way to separate a “want” from a “need” is to determine whether it is necessary to stay alive. Only those things that are needed to stay alive are truly needs. Students should be able to identify needs of animals as water, food, space and shelter; and to know that plants need light instead of food.

Environmental Stewardship

Divide the class into teams of four students. Explain that building the school required removing the natural area that originally provided habitat for wildlife. This [video from National Wildlife Federation](#) provides reasons to garden for wildlife and tells why native plants are important to use, rather than ornamental plants that are not native to the area.

Each team will select a creature that lives (or once lived) in the schoolyard or garden, investigate its survival needs, and decide on a project that will help meet one of those needs (air, water, food or shelter) by restoring some aspect of wildlife habitat to the schoolyard. Useful references may include the [Make a Home for Wildlife web site](#) (organized by needs of [animals found in gardens](#) in the UK or by [wildlife habitat projects](#)) and the [Garden for Wildlife web site](#) (from National Wildlife Federation's Schoolyard Habitat program). Examples of projects: plant a plant species that provides food for wildlife; add a birdbath or wildlife water splash; provide materials that animals use to make homes or nesting spaces; or ensure clean air for animals by planting native plants, since plants release oxygen into the air.

Evaluation

A rubric is provided to assess how well students perform required lesson activities and demonstrate understandings.

Extensions

- Students may formally have their [garden project certified as a Schoolyard Habitat](#).
- Students may use the [AAAS Active Explorer App](#) to create a garden wildlife quest for other students, who can use smart phones or tablets to complete and document their mission in the schoolyard. The free app must be downloaded. (Create an account or try user name: captain planet and password: Planet to try it out).
- Students may make a frog house from an old clay pot turned on its side and half buried in dirt.



Forts and Garden Homes Lab Report 1: THINGS I NEED TO STAY ALIVE

Name: _____

Draw yourself and things you need to stay alive: air, water, food, shelter



Forts and Garden Homes Lab Report 2

THINGS I WANT BUT DO NOT NEED TO STAY ALIVE

Name: _____

Draw yourself and things you like, but don't need to stay alive.



Assessment Rubric for Forts and Garden Homes

Student Name(s): _____

Date: _____

Level of Mastery Benchmark or Performance Measure 	 EMERGING Not yet proficient 1 point	 COMPETENT Partially proficient 4 points	 PROFICIENT Mastered task 5 points	TOTAL POINTS
Fort building	Student builds a fort but cannot name any survival needs	Student builds a fort and shows or tells how it meets all four survival needs with some prompting	Student builds a fort and shows or tells how it (or surrounding resources) meets all four survival needs for shelter, water, food, and air.	
Garden Habitat Investigation	Student works in a team to identify animals living in the schoolyard	Student works in a team to identify animals living in the schoolyard, selects one, and researches its unmet needs	Student works in a team to identify animals living in the schoolyard, selects one, discovers any of its unmet needs, and enhances the schoolyard or garden to meet this need	
Lab Report 1: Draw and label things a person needs to stay alive	Student is unable to distinguish between wants and needs	Student draws and labels three things an animal needs to stay alive	Student draws and labels four things an animal needs to stay alive	
Lab Report 2: Draw and label things a person might like but does not require to stay alive	Student is unable to distinguish between wants and needs	Student draws and labels at least one want that is not a survival need (and no needs)	Student draws and labels at least two wants that are not survival needs (and no needs)	
Garden Wildlife Habitat Project	Student/ team designs a project that provides a basic need for a particular animal species, but does not complete or explain it	Student/ team designs and conducts a project that provides a basic need for a particular animal species, but does not explain how the habitat supplies the need	Student/ team designs and conducts a project that provides a basic need for a particular animal species, and articulates how the habitat provides that need	