



Summer at The Battery

Lesson Plan | Self-Guided Field Trip | 60 min

SUMMARY

In this self-guided field trip, students will explore different areas of the park to observe the seasonal changes of our local ecology. They will use a worksheet to engage more closely with each area of the park they visit.

LEARNING OBJECTIVES

By the end of the lesson, students will be able to...

- Locate and describe seasonal changes in the environment.
- Describe animal and plant relationships in the park ecosystem
- Classify plants using field guides and observations

RELATED STANDARDS

K-ESS2-1. Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.

K-ESS2-2. Plants and animals can change their environment.

1-LS1-1. All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.

1-ESS1-2. Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.

2-ESS1-1. Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.

2-LS4-1. There are many different kinds of living things in any area, and they exist in different places on land and in water.

3-LS2-1. Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size

3-LS4-2. Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.

3-LS4-4. Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

3-ESS2-1. Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

3-ESS2-2. Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.

4-LS1-1. Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.

4-ESS2-1. Living things affect the physical characteristics of their regions.

5-LS2-1. The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. 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. Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.

5-ESS2-1. Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.

5-ESS3-1. Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

BACKGROUND INFORMATION

- Summer is characterized by long days, with the sun high in the sky. This sun pattern leads to high air temperatures, with hot and dry days affecting plant growth and animal behavior, and humid days leading to regular afternoon thunderstorms.
- Many flowers bloom in summer, leading to some of the fruits we love to eat. Fruits need time to mature, and also need the warmer temperatures and sunshine of the summer to ripen.
- The warm temperatures of summer allow for a lot of insect activity throughout the park, including a variety of pollinators that visit flowers as well as herbivorous insects that eat plant stems and leaves.

BEFORE YOUR VISIT

1. Be sure you've read through all instructions included in the emails you received.
2. If you'd like, consider one of the following optional activities to begin the conversation about seasonal change in your classroom:
 - a. Read one of these books for early elementary students:
 - [The Butterfly House](#) by Eve Bunting
 - [The Honeybee Man](#) by Lela Nargi
 - [My Garden](#) by Kevin Henkes
 - [Four Seasons Make a Year](#) by Anne Rockwell
 - b. Start seeds in your classroom and observe them opening, growing roots and young leaves.
 - c. Monitor the weather with a rain gauge and calculate the changes in day length from records of sunrise and sunset.
3. Since this worksheet provides talking points for different grade levels, you may find it useful to go through in advance of your visit and highlight the sections that apply to your class.

Summer at The Battery

Instructions

Note: You can focus your visit to the Battery around the worksheet “**Summer at The Battery.**” This worksheet can be used as a scavenger hunt that students refer to in each area of the park that you visit. Below, we’ve provided a structure for moving around the park that allows you to check in with the group in each area and then send them to complete a section of their worksheet – the map illustrates the suggested path for you to take between each area. Alternatively, you can split the group up among chaperones and let them navigate the site more freely. In each section of this guide, blue highlights contain suggested talking points for guiding students through their worksheet, so if you’d like chaperones to lead these discussions you may want to print out extra copies of this guide for them. Generally each of the four sections of the worksheet should require about 10 minutes, though how long you spend in the different areas of the park is up to you.

1. **Start your tour at the Battery Urban Farm**, marked on your map with the number 1. *If the vegetable farm gate is locked, please refer to your materials email for the code to unlock it, and be sure to lock it again when you leave.*
 - a. Please remind students to step only on the gravel and mulch paths, and not on the soil. Remind them also to only pick from plants that have a green “Have a Taste!” sign next to them with tasting instructions; if they don’t see those signs, it means the plants aren’t ready to be picked. **Please make sure that all students have agreed** to this guideline before exploring the farm.
 - b. Note for students that The Battery Urban Farm is an educational farm and therefore doesn’t need to sell produce to make a profit. Instead, the Farm donates produce to organizations that provide food to those in need. The farm is run by only a few staff and all of the work to grow the crops is done by school groups and volunteers.
 - c. Explain to students that their challenge is to observe the signs of summer here in the park and do their best to complete their worksheets. They can work together as a team with their group, but everyone should complete their own worksheets. For students with difficulty reading, you may want to read out some of the instructions each time you visit a new area of the park. For all students, you should demonstrate how you’d like them to fill out the worksheet before passing out the materials.
 - d. The “Vegetable Farm Plant Guide” included in your materials email can help you locate where particular plants were growing during this past season, but it’s not required for completing the worksheet.
 - e. Pass out materials and guide students through the worksheet section “On the Farm”

Notes on Worksheet Section: “On The Farm”

Kindergarten: Encourage students to look closely at the shapes they’re seeing and the different colors they find. What color patterns do they notice? What needs to be added to the shapes on the paper to show all of the important details they can see?

1st – 5th grade: Our green “Have a Taste!” signs move around the farm depending on the crops in season. Work with students to find those signs and follow their instructions for tasting. Students can reference the other signs on the farm to help with spelling the names of what they tasted, and you can encourage conversations between students about the words they would use to describe each plant’s flavor.

2. When you finish on the farm, **take a walk to the Labyrinth**, marked on your map with a number 2. *If you unlocked the vegetable farm gate to enter the space, please be sure to lock it again as you leave. If the gate to the Labyrinth area is locked, please refer to your materials email for the code to unlock it, and be sure to lock it again when you leave.*
 - a. Remind students to stay on either the grass or the woodchip paths.
 - b. Have students share the differences they notice between this site and the vegetable farm. With larger plants in dense plantings, this space attracts more animals. This area is primarily planted with native plants, suggesting how Manhattan may have looked before all of these buildings and roads were built.
 - c. Guide students through the section “In the Labyrinth”

Notes on Worksheet Section: “In the Labyrinth”

For all grades: All of the creatures shown on your worksheet visit the Labyrinth on a regular basis. With older students, discuss how each of these animals may change the park environment: Ants dig tunnels that aerate the soil, birds spread seeds and build nests, butterflies and bees pollinate flowers, and squirrels bury nuts that may grow into trees.

3. When you’ve finished in the Labyrinth area, **lock the gate behind you** and follow the path on your map to move to the **Bosque Gardens**, marked on your map with the number 3. *If you unlocked the Labyrinth gate to enter that space, please be sure to lock it again as you leave.*
 - a. Please remind students to keep their feet on the paths in the Bosque.

Notes on Worksheet Section: “In the Bosque”

Kindergarten: The plants in the Bosque change seasonally so there are always new colors to be found. Encourage students to look closely – sometimes colors may appear in small and surprising places (on flower buds, leaf veins, the center of a flower, etc.).

1st and 2nd grades: Roots may be difficult to find since they are underground, but if you look closely around the bases of plants you will likely see the tops of the roots sticking out. In particular, some trees in the Bosque show parts of their roots.

3rd, 4th and 5th grades: This engineering challenge is left open-ended for students to be creative about how they would solve the problem of increased storm surge. They may decide to build a barrier wall, or improved drainage, or more plants to absorb future floods – the possibilities are endless!

4. When you finish in the Bosque, **take a walk to one of the areas for viewing the water**, marked on your map as “Water View” and with the number 4.
 - a. Due to construction along the waterfront, you won’t be able to get right up to the edge of the river. Instead, you can look through one of the windows in the construction fences that allows for a view of the water and the construction happening, or can move to the southern end of the Bosque where a chain-link fence will allow you a view of the water. This construction is all part of the city’s effort to prevent future flooding from rising sea levels caused by climate change.

Notes on Worksheet Section: “Water View”

Kindergarten: If students need additional support in describing the weather, have them choose words to use from the following scales:

(Cloudy, Partly Cloudy, Mostly Sunny, Sunny)

(Windy, Breezy, Calm)

(Raining, Sprinkling, Misting, Foggy, Clear)

(Cold, Warm, Hot)

1st grade: Some features that students may want to draw include: eyes, gills, fins, scales, teeth, and camouflage.

2nd-5th grade: You’re standing on the southwestern side of Manhattan, looking out on Ellis Island and the Statue of Liberty.

5. Having finished your worksheets, make your way to the entrance of the **Playscape**, marked on your map with the number 5.
 - a. Before you enter and let the students explore freely, take a moment to **reflect as a group on your explorations**. Options include:
 - i. Have students compare their own worksheet with that of a partner.
 - ii. Have each student share with the group something that they want to remember about the visit after they leave the park.
 - iii. Discuss the importance of caring for public park land and inviting students to share ideas about what kids can do to help take care of places like this.
 - b. Have students **turn in their worksheets** to you as their “ticket” to enter the Playscape. This will allow you to make sure students finish any worksheet sections they left blank.
 - c. Enjoy your exploration of the Playscape!
6. **Thanks for visiting! Have a great trip home.** Please remember to take all trash and materials with you when you leave.

AFTER YOUR VISIT

Once you've returned to the classroom, consider engaging in one of these activities to build on your experience at the park:

- Plant pea seeds in the classroom to observe their growth (and harvest the shoots to taste!)
- Organize a project in the classroom that involves students exploring other parks in the city or where they live. Students can interview park rangers and maintenance staff, or can survey visitors.
- Take a field trip to a GrowNYC Greenmarket for a tour to meet different types of farmers, or to purchase fresh produce to cook in the classroom.
- Take a field trip to Queen's County Farm Museum to visit a farm with livestock.
- Research and visit your local Community Garden.