

Green Girls Curriculum

Lesson 8: Design A Park Project

Lesson Duration: 3 hours

Can be implemented as a series of sessions or in one long session

Standards

Next Generation Science Standards: MS-LS 2-2, 2-4, 2-5; MS-ESS 3-3, 3-4, 3-5;
MS-ETS 1-1

New York State Science Learning Standards: MS-LS 2-2, 2-4, 2-5; MS-ESS 3-3, 3-4,
3-5; MS-ETS 1-1

Keywords: permeable, impermeable, erosion, runoff, habitat restoration, council members

Purpose of Lesson:

- In urban ecosystem knowledge, students will...
 - Differentiate between types of ground cover and determine sustainable ground cover for public green space
 - Understand how plants, trees and soil types affect erosion and runoff
 - Review the concept of biodiversity and examples of biodiverse man-made spaces
- In advocacy skills building, students will...
 - Increase knowledge of how to protect the environment: project for useful environmental space in their city
 - Increase confidence in engaging in conservationism: letters to public officials
- In socio-emotional skills building, students will...
 - Increase in Self-Awareness through reflection on teamwork and personal goal setting
 - Increase in Social Connectedness through creative collaboration

Essential Questions:

- What does our neighborhood and community need in a green space?
- What type of ground cover is best for a sustainable green space?
- How can we create green spaces that promote biodiversity?
- How is climate change going to impact our city and how can we make a green space that addresses those issues?
- How can we express our needs to our elected officials?

Session Routine:

Activity	Time	Description
Opening Circle	15 min.	Introduce the day + Journal Prompt
Activity 1	25 min.	Erosion Experiment and Data Collection
Activity 2	45 min.	Vacant lot field trip and note taking
Activity 3	45 min.	Park Design in Groups
Activity 4	45 min	Letter Writing to Council Members
Closing Circle	5 min.	Debrief Questions and Discussion

Materials:

3 Soda bottles cut half open, string, 3 clear plastic cups, 2 ziploc bags, scissors, garden shovel, soil, leaves, mulch, patch of grass with roots and soil intact to fit in soda bottle, clipboards, pencils, design a park project sheet, clipboards, pencils.

Some things to know/do before you start this lesson

- [NYC and Climate Change](#)
- [Green Infrastructure and Water Management](#)
- [Edible Urban Landscapes](#)
- [Erosion Experiment](#)
- Find out where there is a local vacant space in your neighborhood that is accessible to you and your students.
- Finding a local representative to directly write to for neighborhood green space

Background

For the final lesson, the students will be combining everything that they have learned about urban forests, biodiversity and climate change, how these directly impact them and their community, and will create an action plan to improve or create a community green space. Throughout this lesson, students will be able to see that they can make a change within their community through actively identifying a site to beautify, designing possible solutions to improve it and on to writing a letter to their local council representative to activate their projects.

In this lesson it will be key to take into account how climate change is affecting your city. In New York, climate change effects include increased rainfall and storm surges.

These changes point students to design greenspaces that will either strengthen the vulnerable coastline, capture increased rainfall before it reaches CSO outflow points to mitigate water pollution or many other options to deal with this primary issue of climate change. Students may want to create spaces that prioritize native plants and only have permeable surfaces or spaces that include educational spaces for children so the next generation can keep learning about climate change and nature.

Assessment:

Formative:

Participation and process of vacant lot survey and [worksheet](#)

Summative:

Creation and presentation of parks design project based on [rubric](#).

[Pre- and Post-Survey](#)

Opening Circle (15 minutes): Community Building Ice Breaker

Human Knot (Directions from [UNICEF](#))

The famous human knot game is often tried with adults in co-working environments, but it is actually quite a fun and useful kids team building game and activity. Basically, have a group of kids sit together in a circle, ideally a minimum of 5-6 kids. Have each kid randomly grab (lightly!) someone else's wrist and hold onto it. Once everyone's wrists are accounted for, instruct the kids to try and untangle themselves, but without letting go of anyone's wrists! This is a really fun game which borders on strategy and chaos. Obviously it is important to warn the kids to play this game slowly and gingerly, so that no one gets hurt. In some cases, it might be preferred to allow kids to release a wrist in order to properly untangle themselves. This is a great team building game for kids because it forces kids to work together toward a solution that everyone is aiming toward.

- To make this kids game even more of a team building activity, you can instruct the kids that they cannot speak – thereby forcing them to strategize with body language, which likely increases the team chemistry that the game sets out to teach.

Journal Prompt:

ASK students to record and answer the following in their journals:

If you were the mayor of this town and you could change anything about this neighborhood to make it a better place, what would you do?

Pair and Share

Activity 1 - Erosion Experiment:

Students **EXPLORE**: Allow students some time to discuss in small groups or do online research...

- What are some different types of ways that people cover the ground in parks and cities?
 - *Cement/Asphalt/Soil/Forest/Grass/Food Forest/etc*
- What are the benefits or disadvantages of these different types of ground cover for a park?
 - *Let students brainstorm*
- Based on what we have learned so far about green space, trees, and parks, and our city’s water systems, what kind of ground cover do you think would be best for a park in our city?
- How would the ground cover you choose help fight against climate change events in our city?

TELL students:

We are now going to experiment with 3 different types of ground cover to learn a little bit more about how they function and what we might want to put in our park:

When we are working towards designing our park, we want to be sure that we are maximizing the environmental benefits and minimizing the harm to the landscape. As your parks may be built next to the water, there are many things we have to consider.

ASK students:

- Who can tell me what runoff is?
- Who can tell me what erosion is?

EXPLAIN that erosion is the slow wearing away of the land by wind rain and glaciers. When the rain hits the ground and washes away materials like soil and rocks, it can end up in our waterways, like the East River.

Runoff is the draining away of water and the substances carried in water from the surface of an area of land, a building or structure.

Public **parks**, which often contain large swaths of land, are great sites for [green infrastructure stormwater](#) management because they offer multiple opportunities for slowing and capturing the destructive force of stormwater **runoff** — cleansing it of pollutants with vegetation and infiltrating it back into the ground.

Implementation:

Set up the three model landscapes (bare soil, groundcover, growing plants) on the table. You can create these [models in soda bottles as is shown here](#) or you can use aluminum containers or anything else where you can poke a hole. Explain what each of the model landscapes contains. Have students volunteer for roles at each of the models.

1. Rainmaker
2. Collector
3. Timer

Before the rain, the collector should position themselves below the drainage hole with several empty cups to catch runoff. The timer begins timing when the rainmaker starts to pour water slowly over the model and will stop when the runoff stops flowing.

Give students 2 minutes to formulate questions about the experiment. Check student questions.

Give students 3 minutes to discuss answers in pairs and then share.

Some examples may be:

- Where did the water go?
- How much runoff did you see?
- How did the rain water move?
- What does the runoff water look like?
- Why did the different samples of groundcover act differently when rained on?
- What type of ground cover would you want to use for a park?

Discuss what happened when it rained. If you have to drink the water from any of these models which would you choose?

The teacher may need to **EXPLAIN:** The roots of the plants hold the soil in place so it does not wash away. Their above ground parts cover the top of the soil to protect it from getting loose by rain. Roots and soil absorb the rain and keep the rainwater from running off. In the ground cover model, the leaves and twigs help prevent the soil from getting hit directly but without roots, some soil washes away. The loose soil washes away with the rain. Plants are the best thing you can have in a landscape to help prevent erosion, runoff and protect water quality.

Activity 2 - Surveying Our Lot

Materials: Clipboards, Worksheets, writing utensils.

TELL students a little story: The first Green Girls program took place in a really beautiful park in Queens, NY. Before the park was created, the area where it would be was a really big garbage dump. People from the local factories would come and drop their old car parts, paint and chemicals in this dump and no one cared about the space at all. As time went on, a few friends who were also artists and part of the local community got together and thought that maybe, they could clean up the space. They spent months just looking at the space, dreaming about what it could be, what they wanted there. They asked people from around the neighborhood what they thought they needed most and they created what is known today as Socrates Sculpture Park. The park has grape vines, perennial flowers, many different types of trees and bushes, changing art installations, places for community members to take dance classes and meditate, people have meetings there and sometimes people have food drives and do mutual aid in the park.

TELL students: We're going to walk over to a vacant lot in the area now. I would like for you to walk around the area and see what there is and dream about what there could be.

Give students each clipboard with [park design worksheets](#).

Activity 3- Park Design Project in Groups

TELL students: Now that you have each surveyed the vacant lot and brainstormed some ideas you will have the chance to work in a group on creating a park or greenspace that combines some of your best ideas.

ASK students: Think back to the icebreaker at the beginning of the day. What is one lesson that we learned from playing the human knot? How can we use this lesson while doing our park design project in our groups?

Put students into groups of three and let them get to work drawing* their park, using the guidance from their worksheets if they get stuck.

After 30-40 minutes, ask students if groups would like to present.

Leadership Opportunity - Ask an intern or mentor to be the MC and facilitate the presentations.

*If there is time and resources, students may create models of their park visions.

Activity 4 - Writing Letters to our Elected Officials

Implementation

ASK students:

- What is the role of government?
- Who sits in the highest seat of government?
- Who sits in the most local seat of government?
- What are the responsibilities of the people who sit in the most local seats?
(represent the interests of their constituents...)

If you could ask the person on the most local level of government to do anything to improve the green spaces in your neighborhood, based on everything you have learned this year in Green Girls, what would you ask them to do?

Our goal is to write to the local council member to tell them about the vacant lot we saw.

Sentence starters:

1. Introduce yourself - what is your name, age, school, where are you from and state why you are writing to them. (Sentence 1)

2. Why are parks important for the city (environmental and social reasons)?
(Sentences 2-3)

- Include 1 way that Green Spaces help with stormwater problems in NYC
- Include 1 way that Green Spaces provide habitats for animals
- Include 1 way that Green Spaces help clean air pollution

3. Why do you care? Why is this important to you (Sentence 5)

Include one way that you have helped to take care of your local environment this year during Green Girls.

4. Tell the council member about the vacant lot we saw with Green Girls. What were your ideas to put in the vacant lot? How would this benefit the community and the environment?

Feel free to draw them a picture of your plans.

As a concerned citizen, I urge you to work with others in the City Council to find solutions that will help improve our community. As a group of young environmentalists, part of the Green Girls program, we think putting funding toward improving this vacant lot in (our town) would be a great step to improving the

neighborhood for both the residents and the ecosystem.
Sincerely,

Closing Circle:

Today is the final lesson of Green Girls. Here are some powerful group closing activities to try...

1. [Reach Out](#): In this game students get to anonymously give thanks and appreciation to other students that have impacted them in a positive way this semester.
2. Compliment Pages
 - a. Students are seated in a circle
 - b. Each student gets a page to write their name on (can decorate a little)
 - c. Students then pass around each student's page writing sweet notes and appreciations to the other students until the page comes all the way back to them.
3. Finish the semester off with a round of Rose, Bud and Thorn. This is a way for students to reflect on a highlight (rose) of their Green Girls experience, a challenge (thorn), and something they want to continue to develop (bud). A bud could be anything from more knowledge about climate change or activism to developing a friendship with another student to becoming an intern in the future.
4. Post Survey/Party!