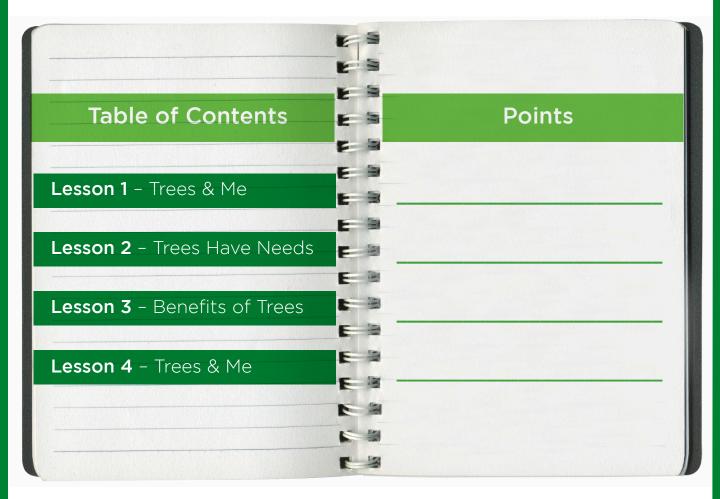


WORKBOOK

NAME:





Assembly Date:

Trees & Me



What is my role in MillionTreesNYC? What are the benefits of trees and the urban forest? Why should I get involved?

Summary

Students are introduced to MillionTreesNYC and engaged as key participants. Discuss the importance of New York City's urban forest and investigate the environmental and health benefits of trees.

Objectives*

At the conclusion of this program, students should be able to:

- 1. Demonstrate an understanding of MillionTreesNYC; discuss the students' role in achieving the MTNYC initiative's tree planting and stewardship goals. (Engagement)
- 2. Describe trees in the students' schoolyard and around their school; assess the degree of tree cover around their school. (Exploration)
- 3. Demonstrate an understanding of the urban forest and tree canopy; list places in NYC where trees are located, such as in parks, along streets, etc.; relate the degree of tree cover to the healthbenefits/well-being of trees. Complete "Tree Jobs" worksheet (Explanation)
- 4. Describe the health benefits and well-being that trees and NYC's urban forest provides us: Trees act as air filters (trap air pollution); begin to formulate a personal stance about the benefits of trees in relation to their schoolyard and neighborhood/family. (Elaboration)

Teacher Preparation

• Gather markers/chalk, pencils.

Materials

- Whiteboard/blackboard; markers/chalk.
- Chart paper/markers.
- "Air Out There" worksheet, clipboard, and pencil per student.
- Bonus Challenge worksheet: "Trudy Tree."
- Petroleum jelly
- Plastic wrap
- · Paper frames

^{*} NYRP's RespecTree Program Overview (09-01-09).

LESSON 1 Trees & Me



I. ENGAGEMENT (Time: 15 minutes)

Introductions to MTNYC, NYRP, etc. Play the "One Million Game" with dollar bills. Discuss planting one million trees, schoolyard planting and students roles. Play the "Telephone Game."

2. EXPLORATION (Time: 15 minutes)

Memory Game: Ask students to close their eyes & not look out of the windows, then ask them if there are any trees around their school or in their schoolyard. If students are unable to remember, have them go to a window and look out. Have the students describe any trees and where they are located. **Think, Pair, Share:** Where are trees found in the city? If necessary, prompt students to imagine walking in their neighborhood, down their street, etc. List students' answers on the board (e.g. trees are found in parks, along streets, in gardens, at the zoo, etc.).

3. EXPLANATION (Time: 20 minutes)

Stand-Up Voting: Have students stand-up beside their desks if they think that they live in a forest. Discussion: There may not be many trees around your school, but we do live in a forest; describe NYC's urban forest (give specific facts about numbers of trees, acreage...); describe "canopy;" relate to prior knowledge of canopy (e.g. rainforest canopy). Ask: Why should we be concerned about the number of trees in the city/in our neighborhood/the amount of tree cover/canopy? How does it impact us? Stand-up voting: Have students stand-up beside their desks (and then sit back down) if the question asked is true for them; questions: Stand-up if... you've ever noticed pollution/car fumes/smog in the air; you or someone in your family has asthma.... Brief discussion: the urban forest has many benefits; focus on the health/well-being benefit that tree trap air pollution. **Worksheet: Tree Jobs**

4. ELABORATION (Time: 30 minutes)

Transition: "Let's investigate the air quality around the school." Go outside; introduce the air pollution investigation; ask about prior knowledge or experiences where students have noticed/found evidence of air pollution. Give each student a worksheet, clipboard, and pencil; set boundaries and a time limit; students may work in pairs. After activity, share findings: Were students surprised by what they found? How might the urban forest/tree canopy help air quality? Air pollution on tree leaves: Have students predict which trees/leaves will have the most pollution (the ones near a street or bus area, etc.); give student a paper frame, a piece of plastic wrap, 2 clothespins and Petroleum jelly. How might the urban forest/canopy help air quality? **Worksheet: Pollution.**

Do a quick check for understanding: "Why is NYC's urban forest important? How does the forest/canopy (or lack thereof) affect you/your family/your neighbors/your school community? What is your opinion/how do you feel about this?"

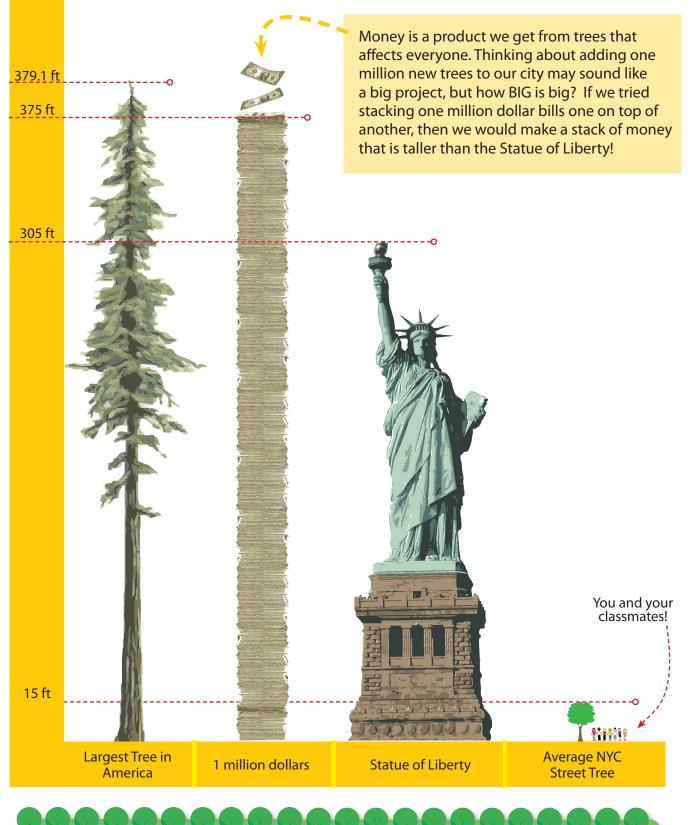
5. CLOSURE (*Time: 5 minutes*)

Thank Students and give them a challenge: "On your way home from school today, count the number of times that you can see, smell, or feel air pollution."

Give students a copy of the Bonus Challenge: Trudy Tree Worksheet



How BIG is One Million?





Trudy Tree's Resume 123 Urban Forest Lane, NY, NY 10001 212-333-2552 • milliontreesnyc.org

EXPERIENCE

- I have many years of experience cleaning up pollution from the Pollution Clean Up
- and other dangerous gasses from the atmosphere. atmosphere and replace it with oxygen (O_2) .
- I protect the harmful gases from destroying the ozone layer that protects the earth from the sun's harmful rays.

Oxygen Production Co.

- I make enough oxygen for 18 people every day. Trees lower the air temperature of the atmosphere by reducing pollution.

SKILLS

Photosynthesis

- Create my own _
- Take in carbon monoxide.

- Take up nutrients and water through my Produce oxygen
- Drop my leaves and hibernate during the winter.

Soil erosion reduces levels of nutrients needed for crops and other plants, and decreases the diversity and abundance of soil organisms.

- 1. Tree roots hold soil in place, and tree branches help lessen the impact Trees help prevent soil erosion in 2 ways:
- 2. Fallen leaves improve soil quality. Forests act as reservoirs, providing natural flood control.

Trees help improve water quality by filtering out pollutants that could be Water conservation harmful in streams or groundwater. As water is absorbed by tree roots and then released through leaves, pollutants (many of which are good for a tree) remain in the tree.



AIR POLLUTION EXPERIMENT

What is air pollution?

Contamination of air by smoke and harmful gases, mainly oxides of carbon, sulfur, and nitrogen.

(Definition source: dictionary.com; Image source: merriam-webster online dictionary)

Goal for experiment

Students will test different areas on the schoolyard to assess if there is any air pollution present.



Materials

- Petroleum jelly
- Index cards (paper frame)
- Marker
- Plastic Wrap
- Cloth's pins/zip ties

Discussion Prior to experiment

Revisit conversation from "Tree jobs worksheet" focusing on pollution. Talk to students about air pollution, and where it comes from in their community (local factories, car fumes, etc.) and the different ways you can tell it is present (see pollution coming out of vehicles, asthma, smell it).



Procedure

- Divide students into groups of 2 or 3 (depending on the class size)
- Provide each group with a piece of plastic wrap, and paper frame
- Write your name and your partners name on the paper frame
- Wrap plastic wrap around all four corners of the paper frame, until the frame is no longer exposed.
- Spread petroleum jelly on the center of your paper frame (on the smooth side)
- Get 2-4 cloth's pins to hang your test strip up on the fence (Remind students to find a spot they think will have pollution on their schoolyard to hang the test strip.)

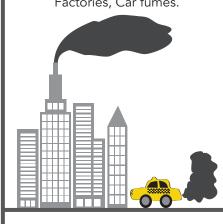




POLLUTION TYPES

AIR **POLLUTION**

Causes: City buildings, Factories, Car fumes.



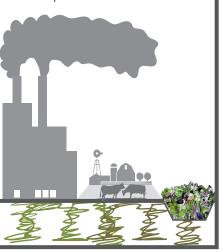
WATER POLLUTION

Causes: Contents of sewer pipes under the city getting dumped into the river/water.

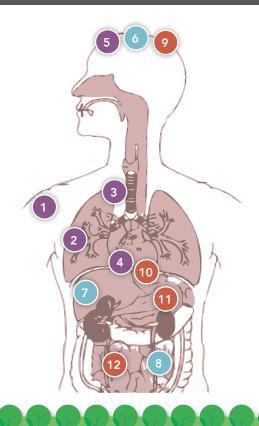


SOIL POLLUTION

Causes: Factories, Farming that uses pesticides and landfills.



POLLUTION HEALTH EFFECTS



AIR POLLUTION

Skin Irritation

Lung Cancer

Respiratory problems

Heart failure

Headaches & Fatigue

Headaches & Fatigue WATER POLLUTION

Stomach illnesses (caused by parasites, chemicals & bacteria)

Nausea

Headaches & Fatigue

SOIL POLLUTION Heart failure

Stomach illnesses (caused by parasites, chemicals & bacteria)

Nausea



Wants versus Needs

Tree Post Times

NEW YORK CITY, NEW YORK

Greetings Tree Keepers!
My name is Trudy Tree,
lead reporter for the
Tree Post Times.



There is news rustling the leaves and flowing through the roots in New York City's urban forest community! Word has gotten out that groups of students around the city are learning about the trees in their neighborhoods! For way too long, trees have felt unappreciated as people walk by without noticing them or the benefits they provide for the city. They've seen their branches break and dangerous chemicals poured around their roots. But all of that is changing!

Around our city, children, like you, are leading the way to appreciating trees. With all of the new trees that are being planted in our city, we need people to take care of them. Have you ever moved to a new place? If you have, then you know it can take some time to find all of the things you need to survive. New trees need your help to get established in their tree beds. (That's what we call the cozy tree pits that people make for us!)

By providing water, nutrients, and respect to the newly planted trees, you can assure they will be a part of the urban forest for a long time.

LESSON 1 TAKE HOME

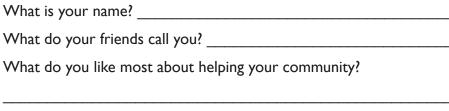


ree Post Times

NEW YORK CITY, NEW YORK

Tree Interview You are a part of a program that is helping to green your community. This means you will be helping improve air quality as well as providing shade to your school yard and a habitat for animals. This makes you a habitat hero.

Trudy Tree is a reporter with the *Tree Post Times* and wants to interview you. Help her write a story about you by answering the following the questions:



Planting trees is important but what else can you do to help your community?



What is your favorite thing about school?

What is your favorite movie?

What is your least favorite thing about school?

What do you want to be when you grow up?

What is your favorite animal? _____

What is your favorite food?

What do you like to do on a sunny day?

What do you do on rainy days?_____

What do you do well?_____

What would you like to learn more about?

τφτφτφτφτφτφτφτφτφτφτφτφτφτφτφτφτ



One last question!

LESSON 1 TAKE HOME



Answer the following questions:

Find a friend to fill in the sheet.

		sheet.
Name two things you need t	o live.	
Α	В	
Name something you need t	o stay healthy and alive.	
C		
Name one person you like to	be around	
D		
Name one person who treats	s you kind.	3
E		
Name something you DO NO	OT want in your neighborhood	
	I need WATER like you need	(A)
	I need SUN like you need	
	I need nutrients like you need	(C)
	I want to be around other trees like you	u want to be around _(D)
THE TREE SAYS	I want to be treated with care like treats you with care.	(E)
	I don't want pollution in my neighborh don't want	

neighborhood.

LESSON 2

TREES HAVE NEEDS



What do we need to live? What do trees need to live? What is it like to be a tree in New York City?

Summary

Students compare the needs of humans with the needs of trees and "become" city trees to learn first-hand about the challenges of meeting basic needs for life.

Objectives*

At the conclusion of this program, students should be able to:

- 1. Demonstrate an understanding of MillionTreesNYC and their roles within the program. (Engagement)
- 2. List three things that humans need in order to live; discuss the differences between needs and wants. (Exploration)
- 3. Demonstrate an understanding of trees as living things; understand the function of various tree parts, such as roots, bark, and leaves; list three things that trees need to live, such as water, sunlight, and nutrients. (Explanation)
- 4. Describe three challenges of trees that grow in the city for meeting basic needs (e.g. city trees are often planted near streets or other water-tight surfaces and may have difficulties finding water). (Elaboration)
- *Modified from NYRP's RespecTree Program Overview (09-01-09).

Teacher Preparation

• Gather markers/chalk and pencils.

Materials

- Whiteboard/blackboard; markers/chalk.
- Chart paper/markers.
- Box with items to illustrate needs/wants.
- · Wants vs. Needs worksheet; pencils.
- Street tree picture (optional).
- Small squares of construction paper.
- Bonus Challenge worksheet: "Check this out."

LESSON 2 TREES HAVE NEEDS



I. ENGAGEMENT (Time: 15 minutes)

Game: Hook. Greet the students and ask about Trudy Tree. Review "Trudy Tree." Is the urban forest important to students personally? Briefly review the benefits of trees/urban forest and connect with MillionTreesNYC. "Today we are going to think about needs versus wants and we are going to "be" city trees. Hook: "I've got some things in this box that I really need in order to live." Pull out a bottle of water and an item that is not necessary to live (make this humorous so that students will respond).

Discuss: What are the differences between needs and wants? What do we really need in order to live?

2. EXPLORATION (Time: 15 minutes)

Give each student a **Wants versus Needs** worksheet and a pencil. Have students list their wants in one column and their needs in the other; set a time limit. Have students Think, Pair, Share with a partner and then ask a few students to share their lists. For the second part of the worksheet, have students list the things that (they think) trees need to live. Have students Think, Pair, Share with a partner and then ask a few students to share their lists. Ask students to compare their needs with the needs of trees—are there any similarities? **Worksheet: Needs vs. Wants**

3. EXPLANATION (Time: 20 minutes)

Discuss human needs for food, water, etc. (and that food gives us energy...) and the needs of trees for water, sunlight, nutrients in the soil, and nutrients like carbon dioxide in the air ("How does a tree get the energy that it needs?). Ask students about the process of photosynthesis and explain as necessary; ask students about the functions of various tree parts (such as roots, bark, and leaves) and explain as necessary. Show students the picture of the street trees or if street trees are visible from the classroom window, have students look outside. Think, Pair, Share: Are the trees' basic needs being met? Why or why not? Discuss the challenges of city trees (to meet basic needs). What's it like for a city tree? How do sidewalks and streets (impervious surfaces) and polluted air affect trees?

4. ELABORATION (Time: 30 minutes)

Game: Becoming a Street Tree. "Let's play a game to see if you can make it as city trees." Have students stand about three feet apart and imagine that they are trees in the city. Distribute the colored paper circles on the floor around the students so that the circles are one to two feet apart. Tell students that the circles represent the things that trees need to live, or requirements: The blue circles represent water; the yellow circles represent sunlight, and the green circles represent nutrients from the soil and air.

Round 1: The object is for the "trees" to gather as many requirements (circles) as possible, keeping one "root" (foot) planted at all times. Students may step out with one root and reach out with their "branches" (arms and hands). On "GO," have students collect the squares for 15-30 seconds then discuss: Did every tree get some water, sunlight, and nutrients? What could happen to real trees that don't get enough requirements? (Answer: They might not survive.) Ask any student that didn't get at least one of each colored circle to hand-in their colored circles and act as a teacher's aide. Gather all the circles off the floor: These will be used in the next round.

Redistribute the circles from the floor around the remaining students. Ask students to think about the fact that city trees are often bordered by sidewalks and streets (concrete and asphalt) and the soil around them is often compacted (or pressed down) from foot traffic and walking paths; rain that hits compacted soils runs off instead of soaking in. How do the roots of city trees find enough water?

Continued on the next page >

LESSON 2 TREES HAVE NEEDS



Round 2: The object is for the trees to gather as much water as possible, keeping both roots planted at all times because the roots have "no where to grow;" students may only reach out with their branches. On "go," have students collect the circles for 15-30 seconds then **discuss:** Did every tree get some water? What was the effect of having your roots stuck in one spot? What could happen to real trees that don't get enough water? (Answer: They might not survive—trees must have water. Additionally, when a tree's roots can't grow down and outward, they often grow near the soil's surface; trees with shallow root systems can fall over.) Ask any student that didn't get at least one blue circle to hand-in their circles and act as a teacher's aide. Gather all circles off the floor; these will be used in the next round.

Remove about half of the green nutrient circles, and then redistribute the circles around the remaining students. Ask students to think about the fact that city trees often grow in poor soils with few nutrients. How and where do city trees get enough nutrients to grow and survive?

Round 3: The object is for the trees to gather as many nutrients as possible, keeping both roots planted at all times because the roots have "no where to grow;" students may only reach out with their branches. On "GO," have students collect the circles for 15-30 seconds then **discuss:** Did every tree get some nutrients? What was the effect of having your roots stuck in one spot? What could happen to real trees that don't get enough nutrients? (Answer: They might not survive. Trees without proper nutrients get weak and are susceptible to disease and pest infestations. Weak trees also break easily from wind and from the weight of snow and ice.) Ask any student that didn't get at least one green circle to hand-in their circles and step to the side. Are there any trees left? Congratulate the trees!

Do a quick check for understanding:

"What's it like being a city tree? What are the challenges? How do city trees meet their basic needs?"

5. EVALUATION (Time: 5 minutes)

Webbing activity on chart paper; write "Tree Needs" in the center of the paper and have students tell/show what they've learned/connections between learned elements. Post the web in the classroom.

6. CLOSURE (Time: 5 minutes)

Thank students and give them a challenge: "Would you want to be a tree in NYC? Why or why not? What could you do to help trees?" Give students a copy of the Bonus Challenge: "Check this out."

Worksheet: Check This Out

Variations to the game:

- 1. Trees can have too much water; flooded roots can't breathe; too much water erodes (washes away) the top layers of soil and depletes the remaining soil of nutrients. Scenario: It's spring and has been raining "cats and dogs"! The storm sewers are backed-up and the streets are flooded! Ask any student that got four or more blue squares to hand-in their squares and step to the side.
- **2.** Scenario: There's a drought in the city and it hasn't rained for weeks! The top layer of soil is dry and dusty; tree roots are stuck with "no place to grow." Reduce the blue squares by half and play another round.
- **3.** Scenario: Someone backed their moving van down a long row of trees, breaking off limbs; other trees had broken limbs from vandalism and from winter's snow and ice. Play another round where students can only use one branch to get their requirements.

LESSON 2 TREES HAVE NEEDS Respective



Wants versus Needs

	Date
Think about the	things that you want and then think about the things
	ed. Give yourself 30 seconds to fill out the chart below
Things That I Want	Things That I Need
What are the differences between Write your opinion in the space be	

LESSON 2 TREES HAVE NEEDS Respective



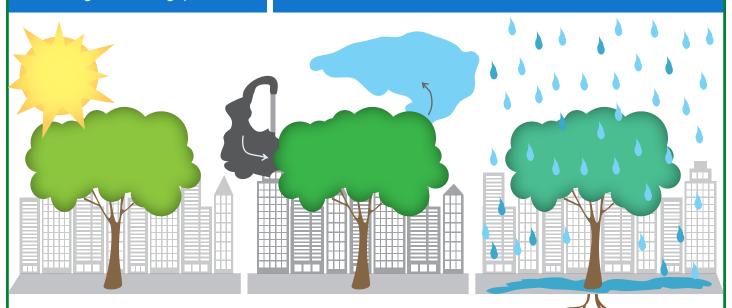
Wants versus Needs

ne	Date
	A Tree needs:
12/2	
•	
-	
	so what are there any similarities between your needs and the needs of
rees! IT	so, what are they? Write your answers in the space below.



Street trees don't just look good; they also save our city money! Find out how trees save us money by answering the following questions:

CHECK THIS OUT!



- Trees provide shade during hot months while their leaves absorb water in the air which lowers the temperature. Trees save NYC, on average, \$47 per tree. Guess how much money trees save the city in energy costs annually? (circle one)
 - a) \$500,000
 - b) \$1,000,000
 - c) \$28,000,000
- Every year, trees protect us from air pollution.
 Like a football player, our trees intercept pollutants before they enter the air. The less you have to use your A/C, the less pollutants we breathe. Guess how much pollution we avoid annually because of trees? (1 ton = your class) (circle one)
 - a) 5 tons
 - b) 50 tons
 - c) 500 tons

- NYC's street trees intercept 890 million gallons of stormwater each year (1,525 gallons per tree). Their leaves and branches catch water before it hits the ground.
- water before it hits the ground. Water that isn't caught by the tree is absorbed into the soil. How much money do trees save us annually by trapping stormwater? (circle one)
 - a) \$5,000,000
 - b) \$18,000,000
 - c) \$35,000,000

There are 10 times as many trees in NYC if you include trees in parks and our backyards. Imagine the savings when you count all the trees in our urban forest! By planting and caring for trees, you can help put money back in everyone's pocket.

Saving money in these ways allows our city to spend money on other services for the city.

Fill in the checks on the following pages with some ideas for how you want to spend the money your community saves because of trees.

Answers: The answers to all of the questions is C.

HOW TO FILL OUT A CHECK			
Name Your name here Address Your address here City Your city here Pay to the order of Who do you wan Spell out the amount here. For examp			Amount here Dollars
2008 Treelined Way New York, NY For Give the reason for the payment	there.	on't forget to sign	your name nere!
Name Trudy Tree Address 321 main Street City New York City Pay to the order of Inwood Com Sixty three Millian and BANK OF TREES 2008 Treelined Way New York, NY For Community Center		Date February \$	14,2012 0000 63,000,000 Dollars
NameAddressCity		Date\$	0000

LESSON 3 BENEFITS OF TREES



What are the benefits of the urban forest? How does the urban forest impact me, my community, my city, and the Earth? What is "restoration"? Why are stewardship and restoration important?

Summary

Students visit NYRP's Swindler Cove Park where they will be given time to "connect" to the urban forest. Students will look for evidence of the benefits of trees; articulate ways in which these benefits impact themselves, their communities, their city, and the Earth; and think critically about stewardship and restoration.

Objectives*

At the conclusion of this program, students should be able to:

- 1. Demonstrate an understanding of MillionTreesNYC and their roles within the program. (Engagement)
- 2. Define "restoration" and relate restoration to stewardship. (Exploration)
- 3. Describe/list five health, well-being, and environmental benefits of trees such as having oxygen to breathe, cleaner air, cooler summer air temperatures, increased shade, noise reduction, etc. in relation to New York City's urban forest. List three ways that Swindler Cove Park has benefited from stewardship/restoration or discuss three reasons why stewardship/restoration is important. List types of trees that occur in New York City's urban forest, such as oaks, maples, sycamores, and sweet gums; use a simple "key" to identify trees to species. (Explanation)
- 4. Discuss ways that the urban forest impacts themselves, communities, New York City, and the Earth; evaluate the concept that "connecting" to trees/greenspaces/Nature builds respect (or empathy/a caring attitude). (Elaboration)
- *Modified from NYRP's RespecTree Program Overview (09-01-09).

Teacher Preparation

· Ask students if they have ever been to Swindler Cove Park then locate the Park on a map and discuss its location. Ask students to imagine (and then describe) what the area may look like. Conclude by asking students about their expectations for the field trip.

Materials

NYRP will supply all necessary materials.

BENEFITS OF TREES



I. ENGAGEMENT (Time: 20 minutes)

Welcome/Meet students at Swindler Cove Park. Introduce educators and NYRP. Define/describe "restoration" while giving a brief description of Swindler Cove Park's history. "Today we are going to break into two groups and explore the park. We will focus on Swindler Cove Park restoration work and the many benefits the park has to offer. Before we break into groups, let's play a quick game – Observation Game. Exploring the park can be a very big job; we want to give you a quick challenge that will test your eye sight. Hook "when your class first joined the circle there were items on the ground before we placed the cover over them. Can anyone identify an item using very descriptive words?"

2. EXPLORATION (Time: 20 minutes)

Meet-A-Tree: Throughout the RespecTree program we have been discussing: tree's needs, benefits we receive from trees, and a couple of tree jobs. One thing we haven't discusses was "how to meet a tree". Find a space that is safe enough to allow students to roam blindfolded. Break students into groups of three; each group will receive a blindfold. One person is blindfolded and guided to a tree by their group members. Once the student is lead to a tree, they will use clues around them to familiarize themselves with the tree (sniff the bark, hug the tree, feel the bark, etc.). Once the student has met its tree, group members will guide that student back to the starting point where the blindfold will be removed. Try to use the clues to help determine which tree you met. Continue until each student has had a turn. Gather the entire group and start a conversation around these questions: How many people found there trees? Which clues did you use to help find your tree?

Trees look very similar to other trees, especially when they don't have any leaves. But how can you identify/ meet a tree without using a guide? You have to get close to the tree and observe the different characteristics before you can see how unique trees really are from one another.

3. EXPLANATION (Time: 20 minutes.)

Greenspace: Start a conversation about the benefits of schoolyard/neighborhood trees being in nature based on what they have learned from the tree jobs worksheet (adds beauty, gives us shade, homes for animals, etc). Have students compare Swindler Cove Park to their schoolyard, and ways they can have their schoolyard become a greenspace. Find out if there are projects the students would like to get involved in to help green their schoolyard, reduce the high asthma rate, or reduce pollution.

Worksheet (optional): Design your own Green Space

4. **ELABORATION** (Time: 40 minutes.)

Higbridge Hike: We get many benefits from trees, but one of my personal favorites is oxygen. Briefly discuss photosynthesis and how trees give us oxygen to breathe. Ask students to think about trees in the city and how they feel when they are in a greenspace. Discuss oxygen supplies: each person in the world needs the oxygen produced from (approximately) one tree in order to survive every day. "I was just wondering where is your oxygen coming from today?" Given the number of students in the class are there enough trees (around your school) to provide oxygen for the day?

We are going to go on a hike through Highbridge Park and observe the layers of the forest. Before we go on our hike, let's go over the different layers of the forest and the benefits of each layer (herb/fern layer, shrub layer, understory layer, canopy layer, and emergent layer.) Each layer of the forest plays a major role in the tree cycle; it maintains a natural balance in our ecosystem.

Continued on the next page >

LESSON 3 BENEFITS OF TREES



5. EVALUATION (Time: 5 minutes)

Worksheet: Bonus Challenge: Tree Song

Webbing activity on chart paper; write "Benefits of Trees" in the center of the paper and have students tell/show what they've learned/connections between learned elements. Post/leave the web in the classroom.

6. CLOSURE (Time: 5 minutes)

Play the "The Truth about Trees" Game in each group.

Tell students a series of true/false statements; have students discuss the statements/vote amongst themselves and then give a single reply; ask students to explain why the statement is true/false using evidence from their visit; have a clipboard and keep score.

True/false statements:

- 1. The only benefit that we get from trees is oxygen to breathe.
- 2. After being at Swindler Cove Park today, I have more/new respect for trees/greenspaces/Nature.
- 3. Stewardship and restoration are only for big companies and people with lots of resources/money/time....
- 4. The urban forest helps me, my neighborhood, NYC, and the Earth.

NOTES

Photosynthesis: The process in which trees and plants convert energy from the sun (sunlight) into sugars and food energy; chlorophyll and other green pigments in leaves capture sunlight, and then with water and carbon dioxide, produce sugars; oxygen is a by-product and is released into the atmosphere.

Research has found that spending time outside in nature/around trees and greenspaces helps us to...

- **1. Play:** increases imagination and creativity; exercise: activity is fun and reduces stress; be with our families and friends: increases feelings of belonging.
- 2. Explore: increases feelings of awe, wonder, freedom, and self-empowerment, fosters independence.
- 3. Relax, enjoy the aesthetics, beauty: increases feelings of "balance;" Connect with the world: increases feelings of wisdom, guidance, and empathy; Connect with oneself: increases feelings of inner peace and happiness; Contemplate.



GREEN YOUR SCHOOLYARD!

List 5 items that you would put in your green space.

Green Space:

Open, undeveloped land with natural vegetation. Land that mostly consists of unsealed, permeable, 'soft' surfaces, such as soil, grass, shrubs, and trees.

1.	
2.	
3.	
4.	
5.	

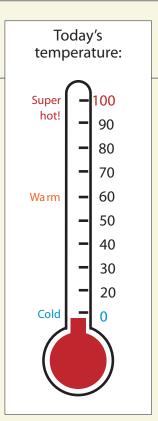
Draw a picture of your schoolyard and list any plants or trees that you can add to make it more attractive.

BONUS: JUST FOR FUN



SCHOOLYARD SURVEY

What is today's date: What side of the school is your section in? What section are you surveying? (Circle one) (Circle one) Todays weather is: (Check all that apply) □ Sunny □Hot □ Rainy □Warm □Windy □Cold Has anything been planted in Count the number of trees List the types of litter or trash



vour section?

in your section:



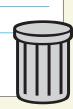
(Write the number in the circle)

List any sounds that you hear:



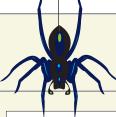
Are there any places for you to get water?

that are in your section:



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SCHOOLYARD SURVEY

Count the number of different insects and spiders seen (List names if you know them):

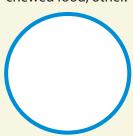
Describe any places that are homes for animals:

Can you find any evidence of life in your section:

- ☐ Spider webs
- □Nests
- ☐ Seeds
- □Scat
- □Tracks

Record the number

of different types of wildlife you see evidence of including tracks, fur, feathers, scat (droppings), nests, chewed food, other.



Count the number of different birds seen and heard. Write the number in the box. (List names if you know them)



- ☐ A stick that looks like the letter 'L'
- ☐ Two different leaf shapes
- ☐ A seed (acorn, nut, maple seed...)
- ☐ Shade
- ☐ Two animals (bird, squirrel, spider...)
- ☐ An animal home (bird's nest, squirrel's nest, spider's web, ant hill...)
- ☐ Something red or orange
- ☐ Two different sounds from Nature (a bird call, leaves blowing, crickets...)
- ☐ A white rock
- ☐ Something that is interesting

LESSON 3 BENEFITS OF TREES RESOURCE



BONUS CHALLENGE: Tree Song

Tell us how you're "supposed to breath with no air."

Chris Brown and Jordin Sparks may not have been singing about trees, but what if they were? Turn one of your favorite songs, poems, or raps into a love song about trees. On the next page use as many words from the word bank as you can to write lyrics about the importance of trees in your neighborhoods. In case you need an example, we have created a version of "No air" called "No trees."

Pon't forget to hummm!



If I get hot and start to bake, its cuz our school has no shade

too hot to play cuz were in a place with no trees

no squirrels, no birds

no dirt, no worms

no leaves in wind to be heard

i wish there was a way i could make a difference in my world

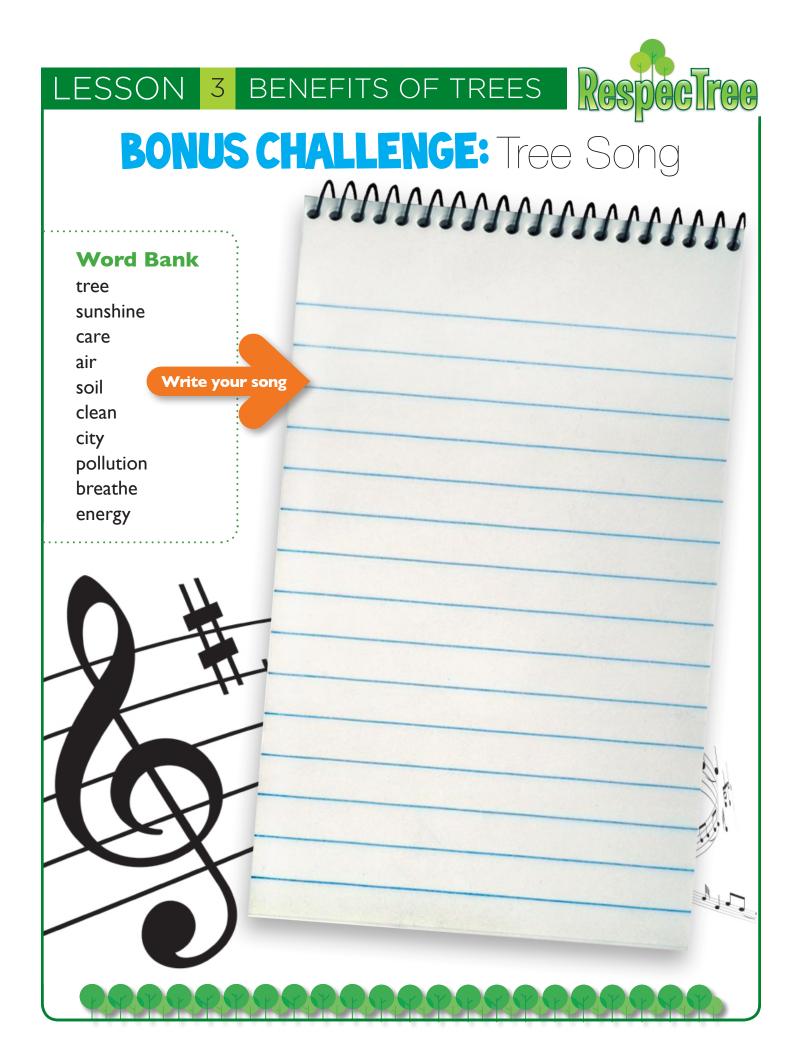
cuz how, do you expect me, to live in a world without trees cuz my

world revolves around them so its hard for me to breathe

tell me how im supposed to breathe with no trees, no plants not

flowers no bees, no clean air, shade, or a cool, breeze with

no trees, no trees





What is "respect"? Why should I respect trees? What can I do to show respect to trees and the Earth? What is a "steward" and "stewardship"?

Summary

Students play a game to think about the meaning of "respect" as it relates to trees, and think critically about real-life situations involving respect of trees and the Earth.

Objectives*

At the conclusion of this program, students should be able to:

- **1.** Discuss/debate reasons why people should care about or respect trees. **(Explanation)**
- 2. Demonstrate an understanding of the function of various tree parts, such as roots, bark, and leaves; list three things that trees need to live, such as water, sunlight, and nutrients; describe three specific challenges of trees that grow in the city for meeting basic needs (e.g. city trees are often planted near streets or other impervious surfaces and may have difficulties finding water); describe three benefits of trees, such as having oxygen to breathe, cleaner air, cooler summer air temperatures, increased shade, noise reduction, and increased wildlife habitats.

(Exploration)

- **3.** Discuss/debate reasons why people should care about/respect trees; describe/define "steward" and "stewardship." (Explanation)
- **4.** Describe three behaviors that are respectful towards trees/greenspaces/the earth. **(Elaboration)**

Teacher Preparation

• Gather markers/chalk and pencils.

Materials

- Whiteboard/blackboard; markers/chalk.
- Chart paper/markers.
- A copy of the MillionTreesNYC Pledge.
- "Respectree Jeopardy" questions.
- "What Would You Do?" skits

^{*}Modified from NYRP's RespecTree Program Overview (09-01-09).



I. ENGAGEMENT (Time: 5 minutes)

Greet the students and review "A little Respect" worksheet. Discuss how students can be similar or different from Trees.

2. EXPLORATION (Time: 30 minutes)

Play "RespecTree Jeopardy." Teams: Girls vs. Boys. Two categories, each with five questions, worth 200, 400, 600, 800, and 1,000 points, respectively; each team gets to pick a category and a point value; teams should huddle together before answering; teams should pick a spokesperson(s). When a team answers incorrectly, the other team may "steal" the points by answering the question correctly; when a team answers a question correctly, they receive a Bonus Question, each worth 50 additional points (no Bonus Question is given when a team "steals" points).

Worksheet: Jeopardy sheet

3. EXPLANATION (Time: 15 minutes)

Congratulate the winning team(s), and then tell students that they will have a chance to increase their score. "I can see that you know quite a lot about trees. Hook: "Who can tell me the name of this program?" Listen to students' answers and assist as necessary. Think, Pair, Share: "Why did we name it Respectree?" Ask a few student pairs to share their answers. Ask: "What are some things that you care about and respect? Who are some people that you care for and respect?"

4. ELABORATION (Time: 30 minutes)

Have students get back into their RespecTree Jeopardy teams; announce that each team will have the chance to increase their score by playing "What Would You Do?" Play as before, except an appropriate response is worth 200 points; 50 bonus points will be rewarded if the team can say why the original scenario was not respectful or how the response is more respectful/state the reasons for the response; teams may "steal" points, but no bonus points will be given. Educators should act-out each scenario; student teams should respond/act-out their responses; tell students that the scenarios are about respect and stewardship of trees, greenspaces, and the Earth.

Possible scenarios:

- 1. Someone throws down a candy wrapper while walking outside:
 - A person who is not showing respect for the Earth.
- 2. Someone breaks a branch off a tree to give their dog a stick for "fetch":
 - A person who is not showing respect for trees.
- 3. Someone who writes their initials on a sign at a park:
 - A person who is not showing respect for greenspaces.
- 4. Someone notices some recyclable materials, but decides to throw them away because it is easier:

/

- A person who is not showing respect for the Earth.
- 5. Someone lets their dog use a tree for a toilet:
 - A person who is not showing respect for trees.
- 6. Someone decides to take a short-cut on a nature trail (through the grass) instead of walking on the sidewalk: A person who is not showing respect for greenspaces.

Continued on the next page >

RESPECT AND STEWARDSHIP



Tally the teams' points and congratulate the winner. Do a quick check for understanding: "How can we show respect to trees/greenspaces/the Earth? Also, think about the things that trees need to live and grow: sunlight, water, and nutrients. How else can you help/show respect to trees? Is it always the easy/popular thing to do? Why should we do it anyway?"

5. EVALUATION (Time: 5 minutes)

Webbing activity on chart paper; write "Respectree" in the center of the paper and have students tell/show what they've learned/connections between learned elements. Post the web in the classroom.

6. CLOSURE (Time: 5 minutes)

Thank students and give them a challenge: I want you to think about the "what would you do" game. What if a similar situation came up for you? Would your action be "respectful" or disrespectful"? What pledge can you make to help change some of your "disrespectful" behavior toward trees and the earth to "respectful" behavior?





To be read out-loud by the educator.

Me, Like Trees:

- 1. Like your lungs, this part of a tree acts as an air filter by trapping/catching dust, debris, and dirt. (Answer: leaves)
- 2. Like your skin, the **BLANK** on a tree protects it. (Answer: bark)
- 3. Like your feet, the **BLANK** on a tree act as a support system. A tree's **BLANK** also absorb water and nutrients from the ground.

 (Answer: roots)
- 4. Just like you need food energy to live and grow, a tree also needs energy to live and grow. The process in which trees use the green pigment in their leaves to turn sunlight into sugars is called **BLANK**. (Answer: photosynthesis).
- 5. Just like your needs for food, water, and shelter, trees need the following three things to live. (Answers: sunlight, water, and nutrients)

More Trees Please:

- 1. Trees help us by trapping this dirt and debris in the air: **BLANK** (Answer: pollution)
- 2. Trees provide us with air, or **BLANK** to breathe. (Answer: oxygen)
- 3. Trees cool the air temperatures in the summer and give us shady places to play and relax. (Students act this out.)
- 4. Trees add beauty to our community—they make it look better. (Students act this out.)
- 5. Trees provide animals with **BLANK** (Answer: habitats): places to live, things to eat, and places to hide and take cover. (I'm not sure that we have "covered" habitat.)



THE END!



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Portions of this Project were funded by the New York State Department of Environmental Conservation, Environmental Protection Fund.

PRE-SURVEY Respectree



NAME:	_ DATE: /	/TEACHER:
1 Define "Urban Forest" in your o	wn words:	7 What are the basic parts of a tree?
		8 What is photosynthesis?
Do you live in a (circle all a. City b. Urban forest	that apply):	
c. Jungle d. Suburb		9 Explain why the leaves on a tree change color in the fall:
Name 3 things that you can do to NYC. Why do those things help		
		How many gallons of water does a newly planted tree need in a week? a. 5-10 gallons b. 10-15 gallons
List at least 3 things trees do to New York City.	help people in	c. 15-20 gallons d. 20-25 gallons
		11 What do you like to do when you're outside?
Have you ever planted a tree?		
Have you ever planted a tree? Circle one: Yes No		If you could do one thing to change your community, what would it be?
List different types of pollution neighborhood?		community, what would it be?

POST-SURVEY Respectree

	DATE:/ TEACHER:
What is the goal	of MillionTreesNYC?
What does NYRP	stand for?
What does restor	ration mean?
	nthesis?
	a tree that lives in NYC. Name one challenge of being a city tree.
1	can do to help trees in NYC.
1	
1 2 3	rts of a tree?

POST-SURVEY Respectree

Н	low man	y gallons of	f water do newly plant	ed trees need in a week	?
А	() 5-10 g	gallons	B) 10-15 gallons	C) 15-20 gallons	D) 20-25 gallons
In	n which t	wo months	do newly planted tree	es require the most wate	er?
Α) April-I	May	B) May-June	C) July-August	D) November-December
1.	·				
3.	•				
V	Vhy are s	some leaves	s green in the summer	and red yellow, and ora	nge in the fall?
V	Vhat are	the layers (of the forest?		
If	you cou	ıld change (one thing in your comr	munity, what would it be	?
:		Name 5 fr	uit trees that can grow	in NYC:	
Во	nus:		is released when human dioxide B) Oxygen		