

# City of Trees Curriculum

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### Lesson One: Introduction to Trees

**Lesson Objective:** To learn the history of trees; the different types of forests: boreal vs tropical forests, rainforests, cloud forests and our own urban forest. Students will become creative and environmental investigators. Researching and understanding a variety of definitions, learning which trees should be planted and where, defining the different parts of a tree, and how they change during the year.

#### At the end of lesson one, students will know:

- The history of trees
- The oldest tree
- How to define “forest” and “urban forest”
- The different types of forests
- The different parts of a forest: forest floor, understory & tree canopy
- The different parts of a tree
  - Parts and Function
    - Roots, trunk, buds and growth, leaves, reproduction, seeds, food

### Lesson Two: Tree Care and Maintenance

**Lesson objective:** To learn about tree health. What are the procedures for keeping trees healthy? What happens to a tree that has been damaged due to human error or a natural event, such as lightning? What happens when trees become infected, such as with insects? \*Students will visit a conservation center and/or park. They will discover whether the local wildlife and other plant life play a role in the care of trees.

#### At the end of this lesson, students will know:

- How we can keep trees healthy

- Watering the tree, mulching the tree, staking the tree, cleaning the root collar, inspecting tree health, pruning the tree,
- What can harm trees?
  - Environmental issues, harmful insects and disease, catastrophic events, old age, timber harvesting,
- Who takes care of the trees and forests and how often?
 

(learning about an arborist and a research project about noteworthy arborists)

## **Lesson Three: Jersey City, New Jersey Trees, Wildlife and Plant Life**

**Lesson objective:** To learn what types of trees are growing in Jersey City, New Jersey and where they come from. What types of birds, critters, insects and assorted wildlife inhabit the trees, land, reservoir (and other bodies of water) and surrounding areas in our Urban Forest. Students will visit our urban landscape and compare it to other natural forests they learned about previously.

### **At the end of this lesson, students will know:**

- Which trees are better for the streets in front of homes versus backyards, parks and reservoirs?
- The types of trees that are growing in Jersey City and where they come from.
- How do different natural areas (parks, reservoirs, rivers, etc) help the wildlife?
  - Wildlife you can find in Jersey City
- What in the natural environment is food for wildlife?
- Does the natural environment help animals through nasty or colder temperatures and how?
- Who maintains the trees in our parks?

## **Lesson Four: Mid-size City Comparison and the Tree Mapping App**

**Lesson objective:** As we look around Jersey City, we see the potential for a greener environment. With the tree canopy at just 17 percent, we will investigate other cities our size and compare those that have invested in a greener community and how it changed their landscape. We will discover the architectural, economic and social changes and build a case for our own city's push to do likewise.

(Sidebar): We will also learn about the Jersey City Tree mapping app.

**At the end of this lesson, students will know:**

- What the tree canopy study meant for Jersey City
- The decline of trees across the US
  - **(sidebar):** What is **iTree?** (a web-based tool) Have students research the tool and compare a few cities.
- The differences between green cities and those that have not taken any green initiatives and the issues including, architectural, economic, health, crime and social
- Case studies for comparison: Portland, Oregon and Brazil
  - What is Heritage Tree?
  - Portland's Grey to Green Initiative
  - What is green infrastructure?
  - Brazil and it's Atlantic Forest – the most biodiverse ecosystem
  - Rio de Janeiro – the forest and city
- The Jersey City Tree-Mapping app and how it works

## **Lesson Five: Trees and Climate Change**

**Lesson objective:** In this lesson students will discover how and why increasing the tree canopy in Jersey City can make a difference to the environment and the health and well-being of its citizens. Some of the benefits they will investigate are: stormwater runoff prevention, reducing climate change, improving air quality and public health, less pollution, reducing costs and adding property value lowering crime.

Topics:

- Why does tree canopy shade matter?
  - How does shade cool us?
- How will planting more trees affect the air quality?
- Tree-lined streets promote exercise
- Our local wildlife will benefit by increasing their habitat: both in the trees and the leaf litter on the ground (birds, squirrels, frogs, bugs).
- Why would planting more trees help curb the effects of severe storms, such as flooding and wind damage?
- What are the economic benefits to our city?
- Planting more trees will help our planet heal