MVCC Tree Inventory Study

Problem:

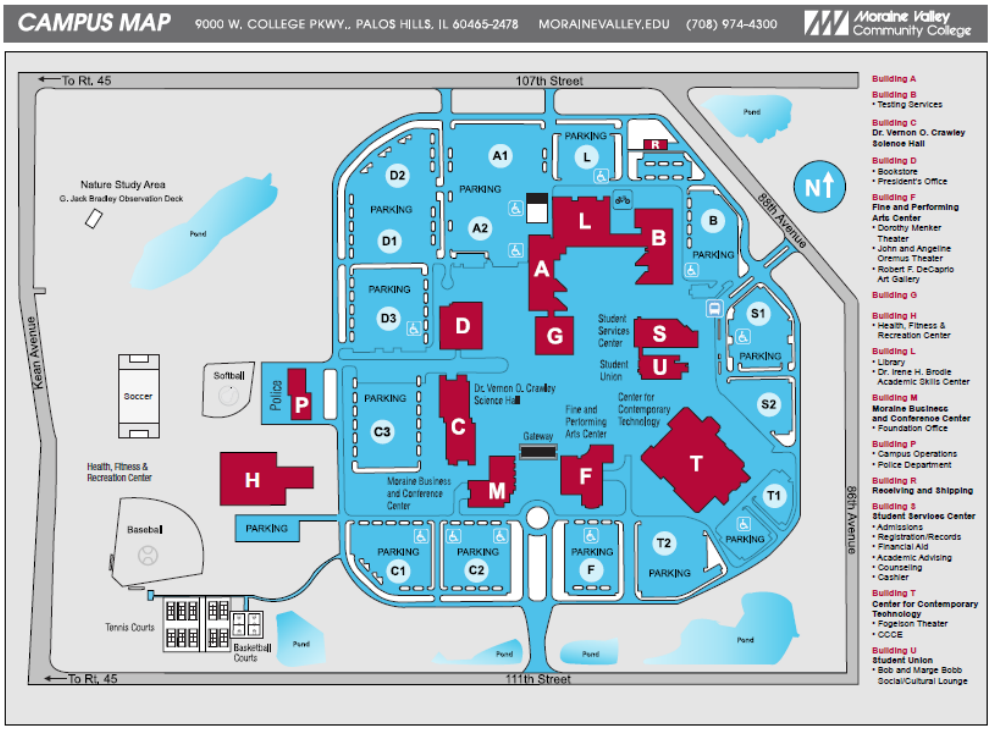
How can we reduce our carbon footprint?

Learning Objectives:

1. Formulate hypotheses as to how we can reduce our carbon footprint.
2. Identify different species of trees on campus.
3. Inventory the types of trees and how many trees we have on campus.
4. Calculate the replacement value for these trees.
5. Calculate how much carbon is sequestered each year from these trees.

Preliminary Information

Moraine Valley has the privilege of being designated as a tree campus in the state of Illinois. Trees provide many benefits to the overall health of an ecosystem. They provide a means of cleaning pollutants out of the air and sequestering large amount of carbon dioxide. In addition, trees can reduce heating and cooling costs by providing shade and protection from the outside elements. Lastly, trees are very aesthetically pleasing and provide many habitats for a variety of species. The overall goal of this project is to categorize and inventory these trees to learn about local ecosystems. Analyses of the data that you will collect will provide insight into the value of having a tree campus in the terms of monetary worth, carbon sequestration/storage, structure, and ecosystem function. This will help guide future management decisions with the goal of improving the quality of our surrounding environment. The study area will be on Moraine Valley Community College's main campus. Our main campus, founded in 1967, is situated on nearly 300 acres in Palos Hills. See the map below to give you an idea on what your study area will include:



Materials

-Tree identification field guides
(Here is handy app you can download http://www.arborday.org/trees/whattree/mobile.cfm)
-Data entry sheet
-Flags

Methods

1. You and your group will be given a specific study area (designated by your instructor) to study on campus. You will need to make a map of this study area and carefully take notes on exactly where you are taking your tree inventory.
2. Walk around and use your field guides to identify each species of tree you find in the study area.
3. Keep track of how many trees are in your study area and document common names and scientific names of these trees.
4. Place a flag next to each tree, so that, you do not count it/identify it twice.
5. Compile class data to tabulate the following results below.
6. Use the following link to help tabulate your results: http://www.itreetools.org/streets/index.php

Results and Conclusions

Use the chart below to record the types and number of trees you documented on campus

# of trees recorded	Common Name	Scientific Name

Number of Trees

Class Results Landscape Tree Census (# of trees on campus): _____

Density

Landscape Tree Census: _____trees/acre

Area studied

Landscape Tree Census: _____ acres

Most Numerous Species (top 5 numerous in descending order)

Landscape Tree Census:

_____

_____

Carbon Storage

Landscape Tree Census: _____ short tons (_____ metric tons)

Equal to the total carbon emissions of Moraine Valley Community College for _____ days.

Yearly Carbon Sequestration

Landscape Tree Census: _____ short tons (_____ metric tons)

Equal to the total carbon emissions of Moraine Valley Community College for _____ days.

Structural Replacement Value of Trees

Landscape Tree Census (in dollars): $_____

Yearly Air Pollutant Removal (CO, O3, NO2, PM10, SO2, PM2.5 combined)

Landscape Tree Census: _____ short tons (_____ metric tons)

Discussion Questions

1. Why are trees beneficial to an ecosystem?

2. How much pollution will be removed over the next 25 years (assuming our tree data remains constant)?

3. How much carbon will the trees on our campus sequester over the next 25 years (if our data remains constant)?

4. Besides planting more trees, what are some other ideas to help reduce our carbon footprint?