

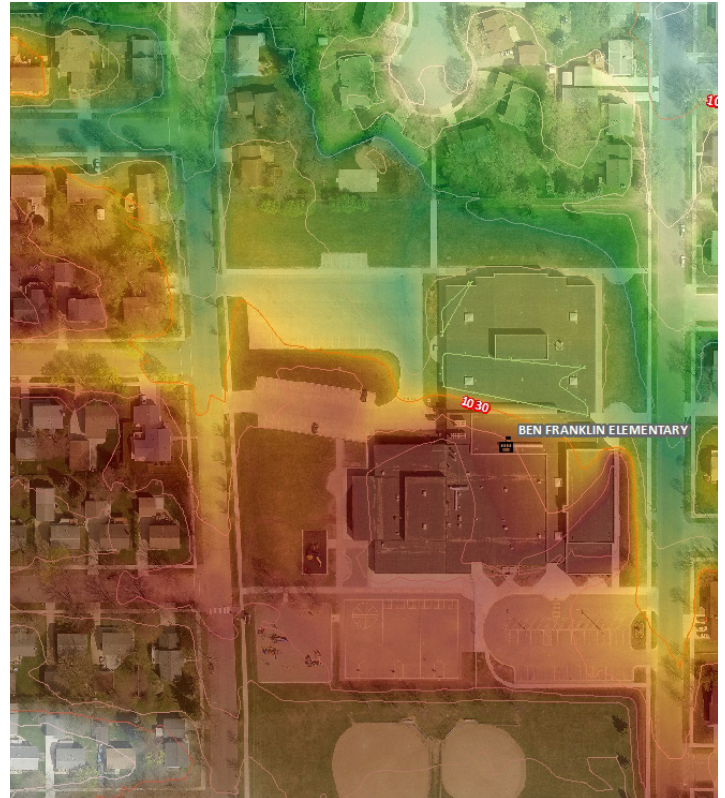
Raingarden Site Selection - Analyzing Maps

Overview:

Students in eighth grade will be collaborating with 5th grade students at an elementary school to help determine raingarden placement. It would be helpful if groups choose an elementary school that they went too and know the teacher to make communication easier. This project will require students to use computer software to analyze maps.

Benchmarks:

- 8.1.3.4.1** *Use maps, satellite images and other data sets to describe patterns and make predictions about local and global systems in Earth science contexts. For example: Use data or satellite images to identify locations of earthquakes and volcanoes, ocean surface temperatures, or weather patterns.*
- 8.3.4.1.2** *Recognize that land and water use practices affect natural processes and that natural processes interfere and interact with human systems. For example: Levees change the natural flooding process of a river. Another example: Agricultural runoff influences natural systems far from the source.*



Objectives:

1. Students will be able to analyze maps to determine slope with relation to water flow.
2. Students will be able to explain how human created systems can have a negative impact on natural systems.
Example- the use of impervious asphalt surfaces impacts the water cycle.
3. Students will be able to explain how a raingarden can minimize flooding, erosion, and water pollution.

Materials Needed:

- Computer for each team of 2 students
- 5th Grade Student Created Schoolyard Map
- Elementary Elevation Maps from Curriculum Website
- Elementary School Map
Stormdrain Map from Curriculum Website
- Google Earth
If it is not installed contact your tech support personal but please give them more than a week to install.

How to Start:

Teams of students will choose an elementary school to do a raingarden site analysis. The 5th grade raingarden curriculum has students mapping their schoolyard; if you contact 5th grade elementary teachers they can provide these maps. Elevation maps of each elementary school are available on the the K-8 Stormwater/Raingarden Website. You can download or print the elevation maps of elementary school that you are going to do raingarden site analysis and you can use Google Earth to explore the elementary school site. Also available on the K-8 Stormwater/



Raingarden Website are Storm Drain Maps from each elementary school site. These maps will show you flow of water through the stormdrain system.

Consider watching these helpful videos on and activities regarding storm water managment and raingardens prior to starting the raingarden site selection worksheet.

- This video from St. Louis County, MN highlights solutions to stormwater runoff:
<http://www.youtube.com/watch?v=ACP7DOdOEDE>
- These videos talk about the challenges facing Puget Sound and stormwater runoff:
<http://tox-ick.org/stormwater-videos/>
- This video explains the purpose and functions of raingardens:
<http://www.youtube.com/watch?v=V8xygw7gl00>
- Take students on a quick tour or your own school site raingarden.
Don't have one? How about building one? There is information on the K-8 Stormwater and Raingarden Curriculum website on how to go about the process of adding a raingarden to your campus.

Using the various resources, you will determine the following:

1. What impervious surfaces water runs off and what direction.
2. Downspout location and direction of water flow.
3. Pinch points in which water converges in a low spot or ditch. In other words, where does the water naturally want to run to?

With this information, your team can determine the best location to install a raingarden that will capture this water and slow it down, filter it and allow it to infiltrate the soil. Students will be guided through this process on the Raingarden Site Selection Worksheet.

Wrap-up:

Student teams will mark the proposed raingarden spot on the 5th grade elementary schoolyard map and send it back to the 5th graders.

Enrichment:

- 8th grade students could volunteer their help to the elementary school and help build the raingarden.
- 8th grade students can research other possible solutions for stormwater management and implement one or more at their own middle school or their own home.
- This PowerPoint highlights a variety of storm water best management practices that students might consider for use onsite or at home:
<http://www.johnadamsmms.new.rschoolday.com/sites/johnadamsmms.new.rschoolday.com/files/RAB%20Continuing%20ED%20Presentation%202.28.2013.pdf>

