

Background

Two primary goals of the Score Four program are to involve students in the planning and implementation of a stormwater solution. In “Exploring Your Watershed,” students investigated the local watershed and various land-use effects on nearby streams. In this Campus Assessment, small teams of students assess the school campus for specific aspects of stormwater inputs, as well possible areas for corrective stormwater practices. They will tour the school campus to observe:

- The pattern of storm water on the campus – where it is generated, flows, ponds, and exits the school grounds.
- Problem areas, such as eroding hillsides, or wet areas.
- Options for stormwater-reduction projects, such as Bay-Wise gardens, conservation landscapes, rain gardens, tree plantings, meadows, or rain barrels (also known as Best Management Practices, BMPs, or Student Sustainability Projects.)

Materials for Each Team:

- Map of the school (from the computer or drawn)
- Paper to sketch on.
- Directions and the Map Key
- Pencils or colored pens
- Clip board or hard writing surface
- Container of water
- Camera (optional)

Teacher Instructions

The Campus Assessment involves three parts:

1. Preparation: prepare maps and go over instructions (student map preparation is optional).
2. Assessment: tour the school campus to record features listed on the key.
3. Follow-up class discussion.

Preparation

MAP: Each team needs a map of the school and a features key. Teachers can prepare the maps or direct their students to do so. Having students create the maps can add an art or technology element, and might improve their observations. Following are methods for creating maps.

- Hand draw.
- Use Microsoft Office (PowerPoint or Publisher) to draw lines and symbols.
- Download from Google Earth or Google Maps, or another source.

Standards: Next Generation Science Standards: 5-ESS3-1, MS-ESS3-3, HS-ESS3-3, HS-ESS3-4.

Skills Exercised: field observations, field data collection, analysis with maps, critical thinking, communication, sketching, or computer technology.

Grades: 6-12

Time: 60-90 minutes, depending upon whether the entire school campus is assessed and whether the students are involved in preparing the map and map key.

The adjacent map key can be used, or students can develop their own as a class. The adjacent key is also on the student handout.

Review the instructions on the Student Handout and assign students to teams. It is important that students understand their job within their team, what to observe, and how to record their observations. It can be helpful to practice with the class in one area of campus.

Assessment

During the assessment the students look for and record the elements on the key. The assessment works best when the class works in the same area of the school grounds. In this way the teacher and assistants can guide the students, and results can be compiled and discussed.

Observing stormwater flow is easiest during or after a rain event. Since this usually is not practical, students can observe patterns of stormwater flow, such as the following:

- Areas where the grass is flattened and may be leaning in the direction of flow
- Areas where dirt has collected from erosion.
- Areas that remain wet
- Eroded slopes
- The direction of water, when it is poured on a surface
- Stormwater drains
- Paths from downspouts.

Follow-up

After the assessment, each team answers the Discussion Questions (on Student Handout) and teams present their findings to the class.

The class discusses problems and solutions. At this point the class could agree upon 2-3 locations to investigate as sites for stormwater solutions.

If stormwater BMPs have been discussed, students also can agree upon possible solutions to further investigate. Such solutions include conservation or Bay-wise Gardens, tree plantings, food forests, rain gardens, meadows, and rain barrels. Not all BMPs are optimal for all situations, and will require some investigation of the sites, researching the solutions, and consideration of your resources. Of the ones mentioned here, conservation gardens and tree plantings require the least planning. If an area does not percolate, rain gardens might require expertise. See the Resources section for information on various BMPs and the Site Assessment for a Rain Garden.

MAP KEY	
G	Garden (outline the shape)
T	Tree (or draw a stick tree)
Woods	Woods (or draw multiple stick trees)
SD	Storm drains
Dwn	Downspouts on the school (Draw an arrow showing the direction of flow on the ground.)
→	Stormwater flow path
IM	Impervious surfaces on the ground. Draw an arrow for the direction of flow.
PND	Areas where stormwater ponds on the grounds. (Draw the area.)
ER	Areas of erosion (including bare patches on the lawn).
Dch	Stormwater ditches
Hill	Hills or steep slopes
SAP	Possible Stormwater Action Project locations
Ut	Any marked underground utilities, if known.
Tsh	Trash source