



# RainScapes for Schools

Environmentally Friendly Landscapes for Healthy Watersheds

## Environmental Stewardship Report Card

*Does your schoolyard demonstrate environmental stewardship? Is it helping to protect local water sources within our watershed, or could it be doing more? Follow this Report Card to find out. This page introduces some key vocabulary that will be used in the assessment. The next page provides instructions for how to start mapping your schoolyard and the third page starts the assessment for the report card!*

### DEFINITIONS

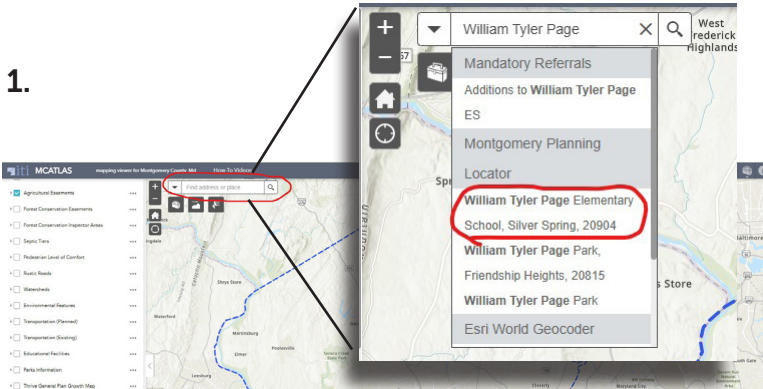
- 1. Bioretention:** A stormwater management practice that uses soil and plants to filter and treat stormwater runoff.
- 2. Canopy Tree:** A tall tree that has a thick, leafy top (the canopy) that provides shade and shelter for animals and plants underneath.
- 3. Conservation Landscape:** A garden or landscape area that is designed with native plants and designed to function like a natural ecosystem and protect nature. It often uses plants that require less water to survive and provides food or habitat for wildlife and pollinators.
- 4. Erosion:** The process where wind, water, or ice slowly wears away soil, rocks, or land over time.
- 5. Forested buffer zone:** A strip of trees or plants along rivers, lakes, or streams that helps keep the water clean by stopping pollution from urban or agricultural areas on one side of the buffer from flowing into the river on the other side of the buffer. It also provides shade, helping to keep water temperatures lower for organisms that live in or depend on the water during their life cycle.
- 6. Impervious:** A surface that doesn't allow water to pass through it, like concrete, asphalt, or roof shingles.
- 7. Invasive:** Plants, animals, or insects that are not native to an area and can harm the local environment.
- 8. RainScape:** A landscape or design technique that helps reduce stormwater runoff from individual properties. They allow stormwater and pollution to soak in and be cleaned by soil rather than flowing into storm drains which lead to streams.
- 9. Rain garden:** A special garden designed to store stormwater from downspouts or hard surfaces in a 6" deep puddle that drains quickly. They contain spongy soil and at least 75% native plants that clean and absorb the water- reducing flooding and erosion while also providing valuable habitat for pollinators.
- 10. Runoff:** Rainwater or melted snow that doesn't soak into the ground and instead flows over streets, sidewalks, or lawns, carrying dirt and pollution with it.
- 11. Storm Drain:** A system of pipes or tunnels that collects and carries stormwater away from streets or other areas; many drain directly into streams
- 12. Stormwater:** Rainwater or melted snow that flows over the ground, usually in streets or other areas where it can't soak quickly into the ground.

# RainScapes for Schools Environmental Stewardship Report Card

## SCHOOL MAPPING EXERCISE

Go to the following website: <https://mcatlas.org/viewer/>

Click OK on the Welcome Message

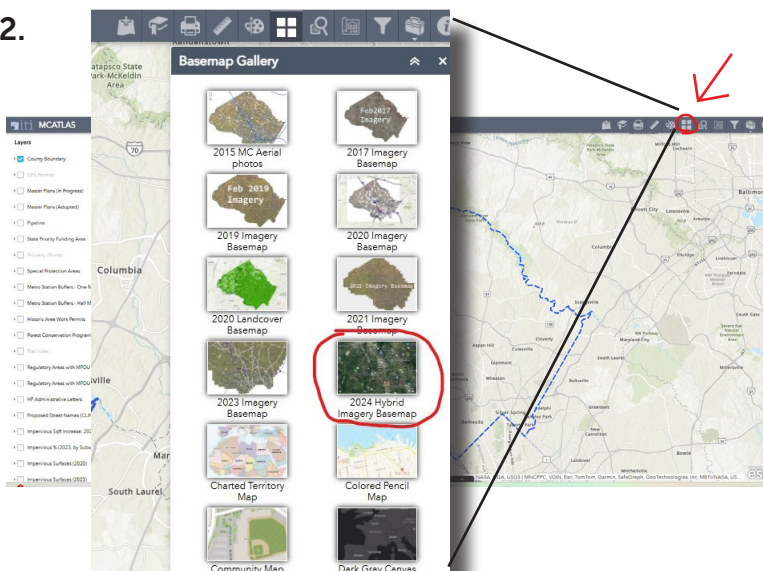


1.

1. Go to the location bar circled in red to the left. Type in the name of your school and select the location when it appears. If the name of your school does not show-up, use the address.

After selecting the school, the map should move to the school location. A property line will be drawn around the school building and surrounding space- this whole area is considered the "schoolyard" when filling out the Report Card.

2.

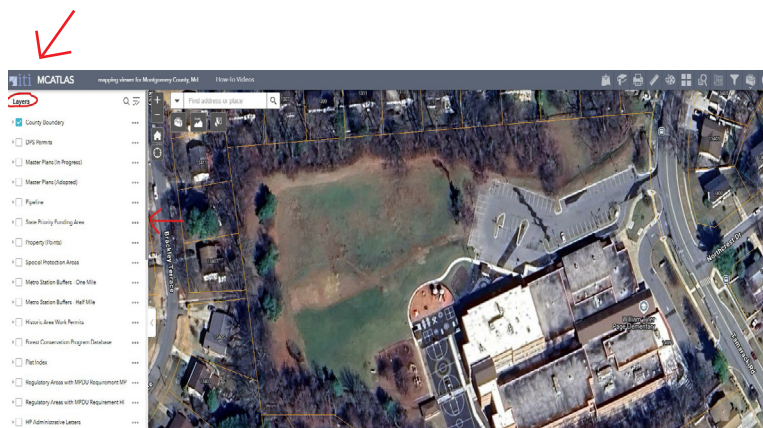


2. Now we are going to turn on a base map that will provide us better visual information. Select the base map icon in the upper right corner of the screen. It is circled in red on the map to the left. When the options appear, select **2024 Hybrid Imagery Basemap**.

3. Select the following 4 layers and sublayers by clicking the box to the left of their name:

- \* **Forest Conservation Easements**
- \* **Environmental Features-** use the drop down menu to select **Stormwater Facilities** (this will show major drains on the property, use the dropdown arrow for this layer to see the legend that explains the colors for the drains)
- \* **Contours**
- \* **Watersheds-** use the dropdown arrow to select **Biomonitoring Subwatersheds** (2016-2021; MCDEP). The color on the map tells you the watershed quality and will help you answer the first question on the next page.

3.



Now you can use your mouse or the plus and minus sign on the upper left of the map area to zoom in or out to have a closer look at your schoolyard and its features. Some map layers are only visible at certain zoom levels.

You may also want to try other layers under the **Environmental Features** option to see if your school has floodplains or wetlands nearby or to learn about soil types on the property.

# RainScapes for Schools Environmental Stewardship Report Card

## What is a Watershed?

A watershed is an area of land that drains to a common body of water, such as a river, lake, or bay. The boundaries of a watershed are defined by the highest elevation ridge that surrounds a waterway or network of waterways. Using the map viewer of your schoolyard fill in the information below. While the Biomonitoring Subwatersheds (2016-2021; MCDEP) is highlighted in the layers list, on the map, select the color where your school is located. An information box should appear that tells you which waterways that area drains to and the quality of the streamwater.

My Watershed is \_\_\_\_\_. Its condition is \_\_\_\_\_.

## Stormwater Runoff/Erosion:

1. Can you tell where the school building roofs drain? If yes, answer below. If no, leave blank. Downspouts drain rainwater directly into (choose one):
  - \_\_\_ A rain garden or conservation landscape (10 pts)
  - \_\_\_ Well-vegetated area with trees and shrubs or un-mowed grass (8 pts)
  - \_\_\_ Mowed grass (5 pts)
  - \_\_\_ Impervious surface, bare soil, or a mulched area with few to no plants (3 pts)
  - \_\_\_ An even mix of all of the above (6 pts)
  - \_\_\_ Directly into storm drains (0 pts)
2. Look for patches of bare soil and signs of erosion such as areas where rainwater has carved out ditches or washed out vegetation. The schoolyard has (choose one):
  - \_\_\_ Very little erosion and few patches of bare soil (10 pts)
  - \_\_\_ Several patches of bare soil or areas where soil is eroding (7 pts)
  - \_\_\_ Mostly bare, exposed soil or impervious surfaces (0 pts)
3. Impervious surfaces like sidewalks, roofs, or parking lots contribute to stormwater accumulation. Does your school have any of the below run-off control systems to help capture the stormwater?(choose all that apply):
  - \_\_\_ Rain Garden (3 pts)
  - \_\_\_ 10+ Canopy Trees providing cover to rooftops or roadways (2 pts)
  - \_\_\_ Conservation Landscape (2 pts)
  - \_\_\_ 50 feet or more of a forested buffer zone surrounding any streams or creeks running through or near the schoolyard (3 pts)
4. After looking at your schoolyard map, describe where in this range it falls. (The number you circle is the amount of points to count towards the total)

1      2      3      4      5      6      7      8      9      10

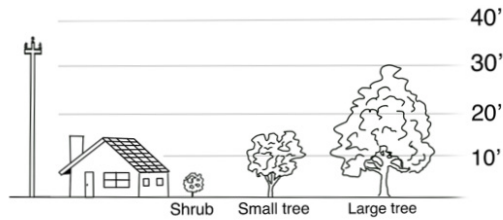
(1 = Entirely made of impervious surface)

(10 = Mostly forested)

Runoff/Erosion  
Total:

\_\_\_\_\_  
(out of 40)

# RainScapes for Schools Environmental Stewardship Report Card



## Vegetation:

1. Describe the vegetation at your school (choose one using the diagram above as a reference to estimate tree heights compared to utility poles and houses):

\_\_\_\_\_ Large trees (25' or higher) and bushes cover most of the schoolyard (10 pts)

\_\_\_\_\_ Small trees (<25') and bushes cover most of the school yard (8 pts)

\_\_\_\_\_ Large trees (25' or higher) and bushes dot the landscape of the schoolyard (5 pt)

\_\_\_\_\_ Small trees (<25') and bushes dot the landscape of the schoolyard (3 pts)

\_\_\_\_\_ There are few to no trees and bushes on the schoolyard (1 pt)

2. There are multiple resources for learning about invasive plant species of concern in the Mid-Atlantic region, where Maryland is located. The RainScapes website has a [photo ID guide](#) and more resources are listed in the info box to the right. After reviewing these resources- describe the invasive plant situation at your school:

\_\_\_\_\_ There are no invasive plants present on the schoolyard (10 pts)

\_\_\_\_\_ There are minimal invasive plants present on the schoolyard (8 pts)

\_\_\_\_\_ There is a significant amount of invasives present on the ground, but not climbing the trees. (3 pts)

\_\_\_\_\_ There is a significant amount of invasives present on the ground and climbing trees (1 pt)

3. How much of the grass and vegetated areas in your schoolyard are being mowed?

\_\_\_\_\_ Less than 50% (10 pts)

\_\_\_\_\_ Between 50% and 80% (6 pts)

\_\_\_\_\_ Over 80% (1 pt)

4. Describe the vegetation in the lowest lying part of your schoolyard (choose one) [Here is a photo reference for native plants:](#)

\_\_\_\_\_ Well vegetated with native trees and shrubs (10 pts)

\_\_\_\_\_ Well vegetated with un-mowed grass (6 pts)

\_\_\_\_\_ Well vegetated with plants (4 pts)

\_\_\_\_\_ Mowed Grass (3 pts)

\_\_\_\_\_ Bare soil, pavement, or concrete (1 pt)

## How do Invasive Plants Harm the Environment?

Invasive plants can spread quickly and crowd out native plants by outcompeting for resources like sunlight, water, and nutrients. This can cause a decline in native plants and the native animals or insects that depend on them for food, shelter, or nesting spots. Some invasive plants produce chemicals that are toxic to animals or prevent other plants from growing, making the environment less suitable for native species.

### Additional Resource Links:

[Common Invasive Plants Easy ID Cards](#)

[Plant Invaders of Mid-Atlantic Natural Areas](#)

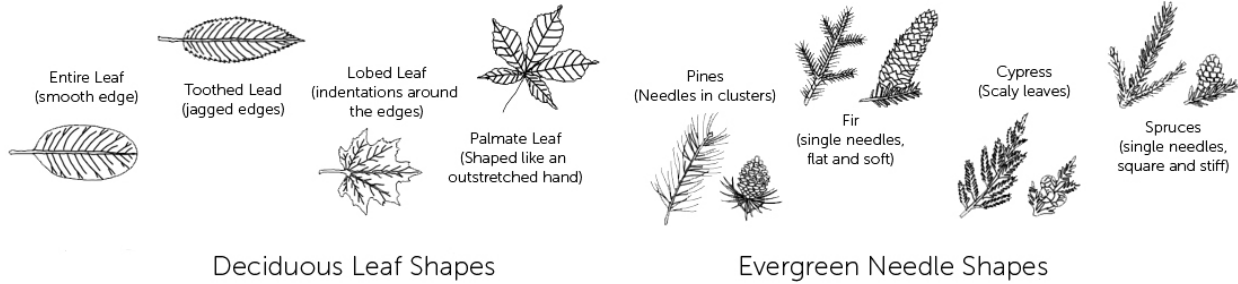
[Introduction to Invasive Plants in Maryland](#)

Vegetation  
Total:

\_\_\_\_\_

(out of 40)

# RainScapes for Schools Environmental Stewardship Report Card



## Biodiversity:

1. By counting the different types of leaves on canopy trees, how many different types of canopy trees are there on your schoolyard? *(The illustration above provides some different leaf or needle shapes and characteristics to note)*

10 or more (10 pts)  
 7-9 (8 pts)  
 4-6 (5 pts)  
 2-4 (3 pts)  
 1 (1 pt)

2. By counting the different types of leaves on shrubs, how many different types of shrubs are there on your schoolyard?

10 or more (10 pts)  
 7-9 (8 pts)  
 4-6 (5 pts)  
 2-4 (3 pts)  
 1 (1 pt)

3. By counting the different types of leaves on plants that are not trees or shrubs, how many different types of other plants and grasses are in the gardens on your schoolyard?

20 or more (10 pts)  
 15-19 (8 pts)  
 10-14 (5 pts)  
 5-9 (3 pts)  
 1-4 (1 pt)

4. Below are examples of habitats for animals. Choose any of the following that apply to your schoolyard:

Woodlands with many different layers of plants and trees (2 pts)  
 Tall grassy fields and meadows (2 pts)  
 Thick brush, brambles (a prickly vine or shrub), or a brush pile (2 pts)  
 Dead standing trees or rotting logs on the ground (2 pts)  
 Gardens with native plants (2 pts)  
 None of these (-1 pt)

## Animal Habitats

A **habitat** is the natural environment where an animal or plant lives. It provides everything the organism needs to survive, such as food, water, shelter, and space. Animals use different habitats for food, shelter, and protection.

Humans are animals too, but unlike other animals, we build habitats that change the world around us in ways that cover large areas. When we build cities, roads, and farms, we take away land that other animals need to live in. This can make it harder for wildlife to find food, shelter, and space to survive, creating problems for both animals and people.

*Can you think of why it is important to provide animal habitats in urban areas?*

**Biodiversity  
Total:**

**(out of 40)**

# RainScapes for Schools Environmental Stewardship Report Card

## Montgomery County Public School System (MCPS)

Did you know that MCPS is Maryland's largest school district? It has over 200 schools, serves more than 160,000 students, and has over 24,500 employees! That means there is more than 26 million square feet of buildings that have stormwater run-off and A LOT of people that need transportation! There are over 1,300 buses that transport over 103,000 students to and from school traveling more than 112,000 miles! Those buses are stored at 5 bus depots across the county. In 2021, MCPS Board of Education approved the largest single procurement of electric school buses in North America to convert 326 school buses by 2025. Think about all of the pavement and parking lots needed to handle that amount of transportation of people!

### Transportation:

1. Does your school have any parking areas that use permeable asphalt, porous concrete, or permeable pavers? ([This document by the USA Environmental Protection Agency](#) provides more information on these materials)

Yes (10 pts)

No (0 pt)

2. Determine the number of students at your school by asking the office staff. Then determine the number of students who arrive at school in a bus and not a car. Compare the two numbers to determine the percentage of students arriving by car. If 50% or more of students arrive by car, the school may need to look at [safe routes to school](#) or the [available bus routes](#):

25% or less of the students arrive in a car (10 pts)

50% of the students arrive in a car (7 pts)

75% of the students arrive in a car (3 pts)

100% of the students arrive in a car (0 pt)

3. Are there bicycle racks at your school, and do people use them?

There are more than 4 bike racks, and they are full of bikes (10 pts)

There are between 2 and 4 bike racks, and they are full of bikes (8 pts)

There is one bike rack, and it is full of bikes (5 pts)

There is one bike rack, and it is not very full (3 pts)

There are no bike racks (0 pt)

4. Is there any reward or encouragement for teachers or students who walk to school, ride their bikes, carpool, or take public transit?

Yes (10 pts)

No (0 pt)

5. Look around the parking lot at the slope, low points, and if there are any signs of water movement- such as moved debris, sand, silt or mulch. Can you tell where most of the rainwater drains after hitting the parking lot? (choose one)

Bioretention (10 pts)

Mowed area or slightly vegetated drainage ditch (4 pts)

Storm drain marked "Chesapeake Bay Drainage" (2 pts)

Unmarked storm drain (1 pt)

Transportation  
Total:

\_\_\_\_\_  
(out of 50)

# RainScapes for Schools Environmental Stewardship Report Card

## \*\*\*\*\*Bonus Points\*\*\*\*\*

### Awareness:

1. Does your school have any of the following classes/clubs? (choose all that apply)

- An environmental or garden club (5 pts)
- An environmental science class (5 pts)
- A watershed or soils unit in science class (5 pts)

2. Does your school have any of the following energy saving techniques?

(choose all that apply)

- LED bulbs (5 pts)
- Sky lights (5 pts)
- Green roof (5 pts)
- Signs reminding you to turn off lights (5 pts)

3. Does your school have any of the following water saving techniques? (choose all that apply)

- Auto shut-off faucets (5 pts)
- Low flow faucets or water fountains (5 pts)
- Dual flush toilets (5 pts)
- Rain water harvesting (5 pts)

4. Does your school have any installed habitats for animals? (choose all that apply)

- Bluebird boxes (5 pts)
- Bat boxes (5 pts)
- Butterfly gardens (5 pts)
- Ponds (5 pts)
- Rain garden (5 pts)
- Conservation Landscape (5 pts)

5. Does your school have an outdoor garden classroom (no= 0 pts)? If so, how often is it used and what features does it have (choose all that apply)?

0    1    2    3    4    5    6    7    8    9    10

(0 = Not used)

(10 = Used frequently)

- Vegetable Garden (1 pt)     Pollinator Garden (1 pt)
- Pond (1 pt)     Walking Trail (1 pt)
- Benches/Seating or Tables (1 pt)

### Outdoor Classrooms

Outdoor classrooms are environmental spaces that combine academic lessons with hands on experiences in nature. They can take many forms: some are well-developed spaces with a lot of structure while others may be a few stumps in a garden or an area with a raised bed. Outdoor classrooms provide safe spaces to engage with the natural world and research has proven they have many benefits for students and staff.

If you are interested in creating an outdoor classroom at your school or adding installed habitats, remember to contact the Montgomery County Public Schools (MCPS) **Live Infrastructure Manager in the [Division of Sustainability and Compliance](#)** to discuss any plans before installations.

Awareness  
Total:

\_\_\_\_\_  
(out of 100)

# RainScapes for Schools Environmental Stewardship Report Card

## Score Total:

Runoff/Erosion	_____
Vegetation	_____
Biodiversity	_____
Transportation	_____
Subtotal:	_____
Awareness bonus points	+ _____
Final Score:	_____

(Maximum total: 270 pts.)

**200-270 (A+):** Your school is leading the way in providing healthy habitats for learning!

**150-199 (A-B):** Your school is an excellent habitat for many plants and animals and is a very healthy part of the watershed!

**110-149 (C-D):** You are on the right track but there is more work to do if we want to save the Bay!

**109 or less (F):** Poor habitat. Many schools fall into this category, so please help us in making your schoolyard a better place by installing a RainScape!

## Want to improve your stewardship? Try these solutions!

### Runoff/erosion:

- ◆ Convert underutilized grassy areas into gardens with layered vegetation and native plants.
- ◆ Install RainScapes stormwater gardens for run-off control next to parking lots and roads
- ◆ [Contact Tree Montgomery](#) to plant a Canopy Tree near pavement or a playground
- ◆ [Volunteer with the county](#) for a storm drain art or storm drain marking project

### Vegetation:

- ◆ Plant a pollinator-friendly RainScapes stormwater garden with educational signage
- ◆ Begin your own micro-nursery for tree plantings
- ◆ Allow an area to become a no-mow zone
- ◆ Remove invasive plants and replace with natives
- ◆ Contact [Tree Montgomery](#) or [Reforest Montgomery](#) to plant free native Canopy Trees in the schoolyard and at home

### Biodiversity:

- ◆ Plant native plants that benefit the environment and restore habitat
- ◆ Select plants and schoolyard maintenance plans that provide year-round food and shelter for birds and insects (in areas safe from being disturbed)

### Transportation:

- ◆ Encourage your school to incentivize carpooling and use of public transportation
- ◆ Install bike racks and get involved with [advocating for safe routes to schools](#)

### Awareness:

- ◆ Create a school resource to educate others
- ◆ Do this activity at home
- ◆ [Organize a community clean-up](#)
- ◆ Learn more about how native or invasive plants benefit or harm local ecosystems
- ◆ Get involved with your local watershed group

For more information, visit [RainScapes.org](#) and click on [RainScapes for Schools](#) under *Related Links*.