Creating Your Own Green Schoolyard

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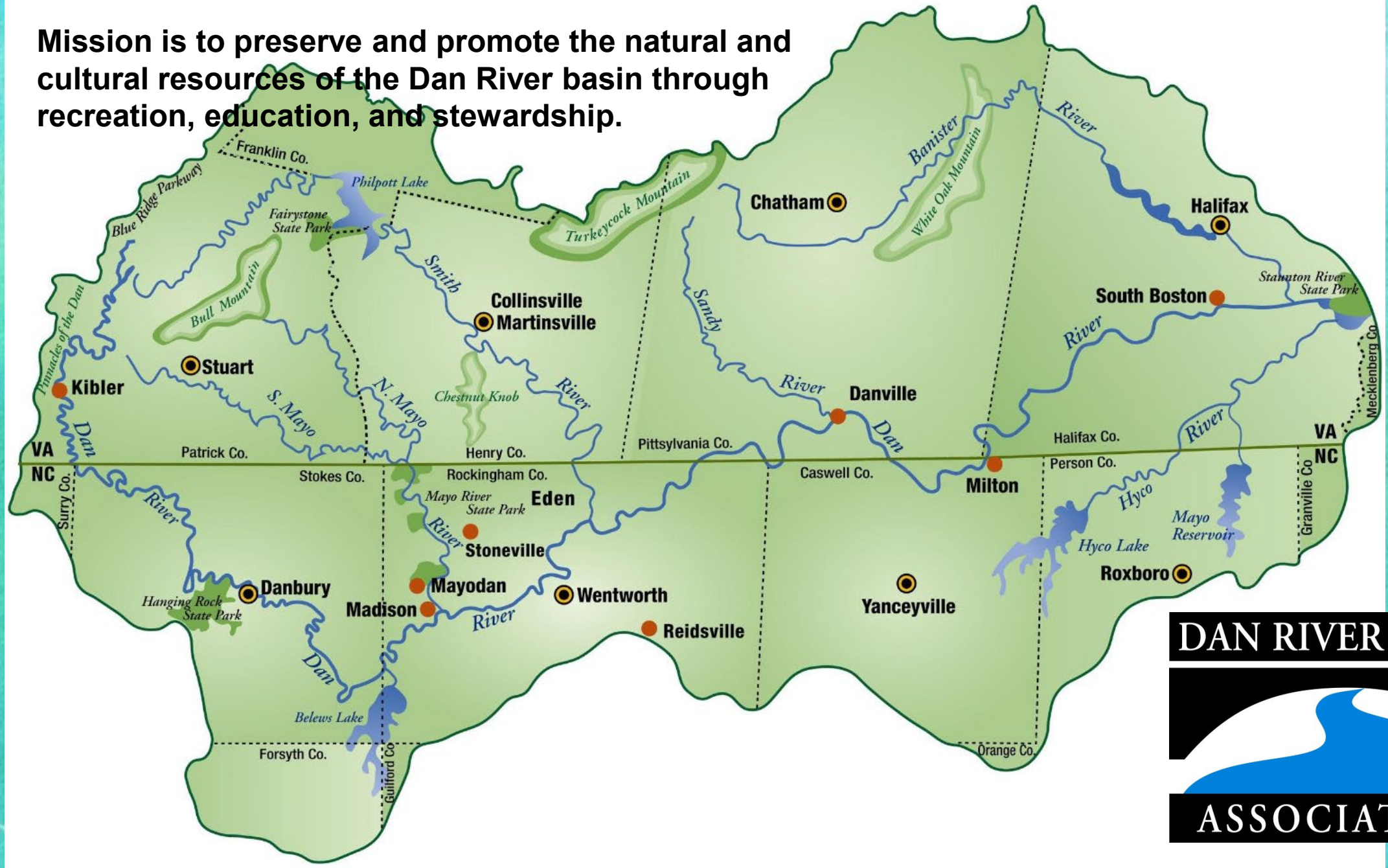
DAN RIVER BASIN ASSOCIATION

Mission is to preserve and promote the natural and cultural resources of the Dan River basin through recreation, education, and stewardship.



DAN RIVER BASIN ASSOCIATION

Why should I create a green schoolyard?

When students participate in hands on learning activities, they gain a real world perspective on the standards they are learning in your class.

This results in higher confidence levels and improved test scores for your students.

Where do I begin with a Green Schoolyard?

Steps to Creating Your Own Schoolyard

1. Complete the schoolyard assessment.
2. Create your current inventory list, if anything.
3. Determine what solutions you want to add to your schoolyard & what your schoolyard can accommodate. (ex. Rain barrels, rain garden, vegetable garden, butterfly garden, etc.)
4. Create a wish/phase list. (Phase one/year one, phase two/year two, etc.)
5. Once you have a wish list, determine what your budget is. You may have some funding available, but if not, you can determine how much you may need to raise or request.
6. Establish a community partnership.
7. Complete grant proposals.
8. Begin with low-hanging fruit – do you have any current supplies that can make the process easier?
9. Receive grant and implement phase 1.
10. Complete phase 1 and continue with phase 2 – complete more grants.

Don't forget to celebrate your success and have others join you!

Some things to think about...

- A good first step is to have your students complete a School Campus Assessment.
- Where would be a good location for your green schoolyard? Does it allow easy access for students? Is it a safe place for students to work?
- Will you have access to water? Are there downspouts which could be fitted with rain barrels to make plant watering easier?
- Does this area receive adequate sunlight for things to grow?
- Will your plans impact how school grounds are maintained? Remember to include school custodians in the decision making process.

I know where I want my green courtyard to go, but I am not sure what I will need.

- Did you discover any assets which can be used in your green schoolyard? Repairing an item or replacing non-working parts can be a money saver.
- Remember to ask school custodians if there are any items in storage which could be used in your project. This is especially important if your school used to have an outside learning space.

Our School Campus Assessment revealed

- Rain barrels which needed minor repairs to be functional
- 2 composters which could be cleaned up and used
- 1 butterfly garden which needed attention
- Rocks which could be used around our butterfly garden
- 1 bird feeder students could use to feed visiting birds

The rain barrels and composters were in good shape.

The Dan River Basin Association holds rain barrel workshops each year for educators and members of the community at a low cost.

Send out a needs email to see if your coworkers have materials you need that they no longer are using.

Albert Harris Elementary students now have 2 working rain barrels which provide students water for their flowers.

The rain barrels not only collect rain water, but water from cooling units on top of the school.

As you begin thinking about implementing your plan, ask yourself …

- What grade level(s) do you want to reach?
- Which teachers in your building are interested in helping you?
- Can you get volunteers when extra help is needed?
- Are there any after school programs who would like to participate?

How can I break my plan down into phases? Start small.

How do I create a budget for my green schoolyard?

COMMUNITY FOUNDATION
SERVING WESTERN VIRGINIA

GATEWAY STREETSCAPE

- Determine what it is going to cost to implement your first phase.
- Some materials, like the pallets for our composter, were donated for our project.
- The mulch for our butterfly garden was also donated by a community organization.
- Grant from Community Foundation Serving Western Virginia in Martinsville for supplies & materials
- Grant from Kansas Biological Society for milkweed plants

Community partners like the Dan River Basin Association can bring expertise and experience to your project. Who are your school's community partners?

Trout in the Classroom

Streamside Trees in the Classroom

Green Schoolyard Initiative

How am I going to fund my green schoolyard?

- Determine if there are any local sources for grants.
- If you have never written a grant proposal before, ask if any of your co-workers have grant writing experience.
- Look online to find grants which align with your project.
- Are there after school programs who want to help fund your project?

Remember to start with low hanging fruit …
Plan Phase 1 and complete it before starting Phase 2

What did we include in Phase 1?

- Rain Barrels – **2018-19**
- Monarch waystation certification **- 2018-19**
- Butterfly garden improvements – **2018-19**
- Monarch Interpretive signage – **2018-19**
- Composting program **- 2018-19**
- Grow lights in greenhouse **- 2018-19**

Here you can see our Green Schoolyard project mapped out.

We held a ribbon cutting with school board members, press, students, and principal in October 2019.

Second grade teachers and Special Education teachers are working to start composting outside.

We are planning our urban garden plot for winter vegetables.

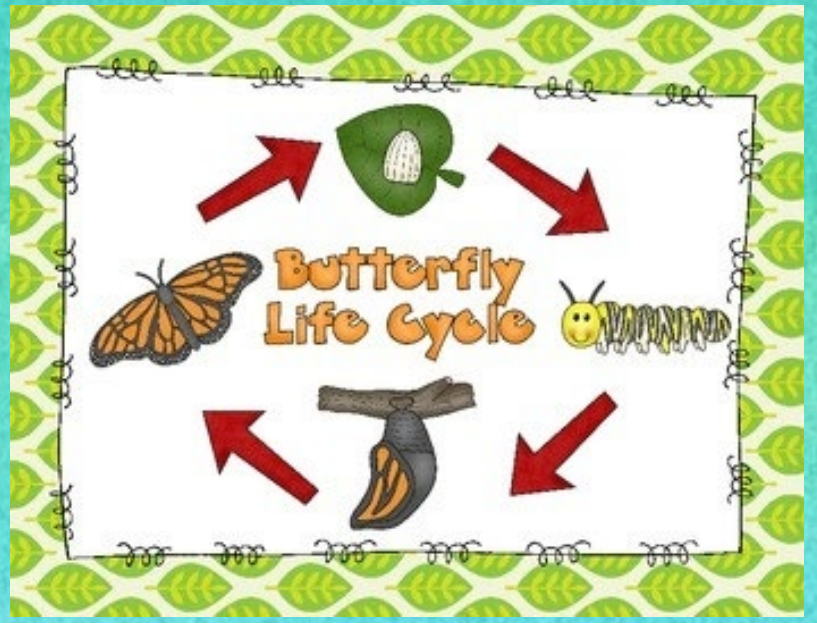
What's in Phase 2?

- Weather station
  - Rain gauge – **2019-20**
  - Thermometer – **2019-20**
  - Wind Sock – **2019-20**
  - Weather vane – **2019-20**
- Paint rain barrels – **2020-21**
- Storm drain marking - **2020-21**
- Outdoor white board – **2020-21**

Life Cycle of a Butterfly Manipulative

Materials:
chenille stem
plastic egg
coffee filter
magic markers
water spray bottle
toilet paper tube

Tools:
Scissors
Ruler (optional)



Directions

First, cut a ¼ section off of chenille stem and create your caterpillar.
Second, using magic markers color the coffee filter to create your butterfly. Remember to have a line of symmetry. Use lots of colors to create a colorful butterfly.
After you have finished coloring, spray the coffee filter with water. Set the coffee filter on the newspaper to dry.

Directions continued...

Third, once your butterfly is dry- you will use an accordion fold to shape your butterfly. Start at one end and fold until it is completely folded.

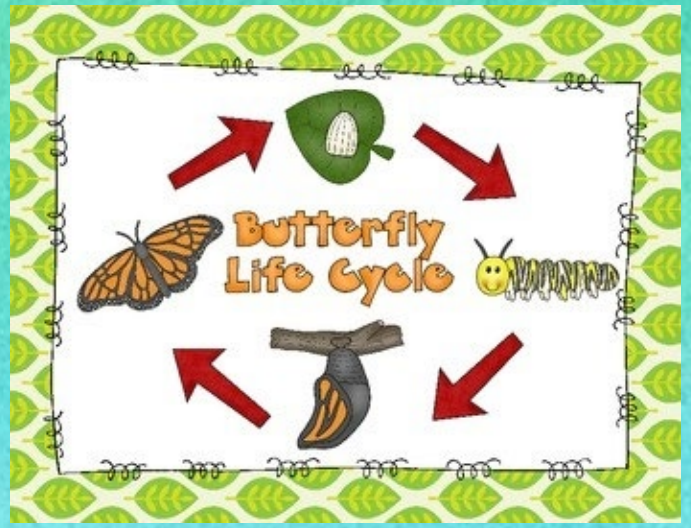
Fourth, use the remaining ¾ of your chenille stem to create the caterpillar's body. Fold the chenille stem in half and center the coffee filter. Twist the chenille stem to create the body. Shape the ends of the chenille stem to make antennae.

Directions continued...

Fifth, color the toilet paper tube to create the chrysalis.
Sixth, lay out your finished materials.

To tell the life cycle of the butterfly, you will use everything you have created.

First the caterpillar hatches from the egg. The caterpillar eats and eats until it is ready to create its chrysalis. The butterfly emerges from the chrysalis.



We are going to make a classroom composter that you can use in your classroom.

- Fresh Fruit & Vegetable Program
- Problem Based Learning- What can I do with my leftovers so they do not go in the trash?
- Aligns with Virginia Standards of Learning for the unifying concept of Earth Resources.
- K.11, 1.8, 2.8, 3.8, 4.8 and 5.9
- Benefits other school initiatives

We are going to make a classroom composter that you can use in your classroom.

- Starting with classroom composters.
- Using the lid and extra soil reduces the chance of fruit flies.
- The compost they are making will comprise the first layer in our outside composter.
- The composter has three sections- one is for brown matter, one is for active composting, and one for finished compost.

We are going to make a classroom composter that you can use in your classroom.

Coffee Can Composters

- Empty coffee can
- Spoons
- Push pin drills
- Soil
- Cup
- Organic materials


MONARCH WAYSTATION
This site provides milkweeds, nectar sources, and shelter needed to sustain monarch butterflies as they migrate through North America.
Certified and registered by Monarch Watch as an official Monarch Waystation.
CREATE, CONSERVE, & PROTECT MONARCH HABITATS
WWW.MONARCHWATCH.ORG

2019

Questions?

Email:
khodges@danriver.org

Thanks for coming!

Questions and Answers following Webinar:

1. How large does the butterfly garden need to be to become a certified Monarch Waystation? **Answer:** The Monarch Waystation needs to be a minimum of 100 sq ft to be certified. Our garden at Albert Harris Elementary is 12x12. Visit Monarch Watch (**www.monarchwatch.org**) to learn more about the requirements to become certified. The application is also found here. A small fee is required to become certified. You will also need to do research to find out what plants work for your area and will bloom throughout all seasons. It may be beneficial to contact a local nursery to help you with this process as well. We used Raywood Landscape Nursery in the Danville area.
2. How long does it take to become a certified butterfly/Monarch Waystation garden? **Answer:** For us, it took about one school year from start of researching the plants to purchasing and planting them in the spring. Albert Harris already had an established butterfly garden area, so we just improved it to become certified. You may need to factor in tilling and other maintenance needs for prepping the area, so it may take longer.

Questions and Answers following Webinar:

3. Has anyone ever tried aquaponics with Trout in the Classroom?
   Answer: Yes, it has been done before, but on a small scale. However, there are enough nutrients to grow plants from the coldwater system and trout.

4. Feel free to contact Krista Hodges at khodges@danriver.org, if you have any additional questions! Also, visit our website at danriver.org on the For Educators page to find the schoolyard assessment and other resources.

DAN RIVER BASIN ASSOCIATION

SCHOOLYARD ASSESSMENT

How is your schoolyard doing? Is it helping the Dan River basin or is it contributing to poor water quality? Follow this Assessment and find out…

Runoff/ Erosion:

Your Score

1. After looking at your overall school campus describe where in this range it falls.

1 2 3 4 5 6 7 8 9 10

(1=Entirely made of concrete) (10=Totally Forested)

1. _____

2. Your school roof drains rainwater into mostly:
   a) well vegetated trees and shrubs or un-mowed grass (10 pts)
   b) mowed grass (5 pts)
   c) bare soil or impervious surface (4 pts)
   d) directly into storm drain (0 pts)
   e) even mix of all (5pts)

2. _____

3. 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:
   a) very little erosion and few patches of bare soil (10 pts)
   b) several patches of bare soil or areas where soil is eroding (7 pts)
   c) mostly bare, exposed soil or impervious surfaces (0 pts)

3. _____

4. Does your school have any of these run-off control systems:

   Rain Garden……2 pts
   Rain Barrel…….... 2 pts
   Meadow……..2 pts
   Wetland……...2 pts
   Forested buffer zone (More than 50 feet wide)…..2 pts

4. _____

Runoff/ Erosion Total

Helpful and fun solutions:

- Install a **Rain Barrel**
- Plant your own **Rain Garden**
- **Stencil** your storm drains
- Plant a **Buffer** of trees next to your stream

Transportation:

1. Determine the number of people employed at your school (teachers, maintenance staff, food service staff, administrators, etc.) by asking office staff. Look at the school parking lot and determine the number of vehicles relative to the number of employees.
    a) there are 50% fewer cars in the parking lot than employees (10 pts)
    b) there are 25% fewer cars in the parking lot than employees (7 pts)
    c) there is about one car per employee in the parking lot (5 pts)

2. Are there bicycle racks at your school and do people use them?
    a) the bike rack is full of bikes (10 pts)
    b) the school has a bike rack but there are only a few bikes in it (7 pts)
    c) the school has no bike rack and no bikes on the property (0 pts)

3. Is there any reward or encouragement for teachers or students who walk to school, ride their bikes, carpool or take public transit?
    a) Yes (10 pts)
    b) No (2 pts)

4. Where does rain water drain after hitting the parking lot?
    a) highly vegetated area (10 pts)
    b) mowed or slightly vegetated drainage ditch (7 pts)
    c) unmarked storm drain (0 pts)

Your Score	
1.	
2.	
3.	
4.	
Trans. Total	

Low Score? Try these solutions:

- Incentives to **carpool**, use public transportation or ride a bicycle to school
- Install and use **Bike** racks
- **Letter writing** to county for bike lanes
- **Vegetated** run-off control for parking lot and roads

Vegetation:

1. Describe the vegetation on your schoolyard:
    a) Trees and bushes cover a significant part of the schoolyard (10 pts)
    b) Trees and bushes dot the landscape of the schoolyard (6 pts)
    c) There are few or no trees on the schoolyard (0 pts)

2. How much of the grass and vegetated areas in your school are being mowed?
    a) less than 50 % (10 pts)
    b) between 50% and 80% (6 pts)
    c) over 80% (4 pts)

3. Ask your school's lawn service or school maintenance staff how the mowed grass on the school grounds is fertilized.
    a) Grass clippings are left on the grounds as natural fertilizer (10 pts)
    b) Lawn fertilizer is used according to a formula after doing soil tests (8pts)
    c) Lawn fertilizer is used according to instructions (6 pts)
    d) Lawn fertilizer is applied randomly (5 pts)

4. Describe the vegetation in the lowest lying part of your schoolyard.
    a) well vegetated with trees and shrubs (10 pts)
    b) vegetated with unmowed grass (8 pts)
    c) mowed grass (7 pts)
    d) bare soil, pavement, or concrete (0 pts)

Your Score
1.
2.
3.
4.
Veg. Total

Any of these projects can add colorful habitat:

- Plant a wild **Meadow** with a native wildflower mix
- Build a **Rain Garden**
- Attract wild colorful butterflies and birds by planting a **Butterfly Garden**

Biodiversity:

1. By counting the different types of leaves or bark, how many different types of trees are there on your schoolyard?
   a) 10 or more (10 pts)
   b) 7-9 (8 pts)
   c) 4-6 (5 pts)
   d) less than 4 (4 pts)

2. By counting the different types of leaves and berries, how many different types of shrubs are there on your schoolyard?
   a) 7 or more (10 Pts)
   b) 4-6 (7 pts)
   c) less than 4 (4 pts)

3. Below are examples of habitats for animals. Which of the following apply to your schoolyard? (4 pts. for each)
   a) woodlands with many layers of plants and trees
   b) tall grassy fields/meadow
   c) thick brush and brambles or a brush pile
   d) dead standing trees or rotting logs on the ground
   e) streams with forested buffers

Your Score
1. _____
2. _____
3. _____
Biodiv. Total

To bring more **LIFE** to your schoolyard:

- **Plant native** shrubs and flowers that attract wildlife
- Install **bird feeders** and **bird houses** around campus
- Plant **trees**

******BONUS******

Awareness:

1. Does your school have an environmental club, offer environmental science classes or a bay unit in science class? (1 point for each yes)
2. Is there a stream on your schoolyard? Is there access? (1 point for each yes)
3. Are there energy saving devices? (1 point for each yes)
   - -compact fluorescent
   - -skylights
   - -signs reminding you to turn off lights
4. Test your principal/administrator/science teacher: (2 points for each correct answer)
   a. Is there a body of water or stream attached to your schoolyard?
   b. What is the closest sewage treatment plant?
   c. Where is the closest landfill?
   d. Is there incentive for the staff to use public transit? (2 pt. for yes)
   e. Does your school recycle? (2 pt. for yes)
   f. Do you want to improve your schoolyard? (2 pt. for yes)
5. How many storm drains are on your school campus? Take a walk and count them if you don't know. (2pts)

Your Score	
1.	
2.	
3.	
4.	
5.	
Bonus Points	

How to find out more:

- Go on a Dan River Basin Association **field trip experience**
- **Get trained** on water quality monitoring methods to test your stream on school campus

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Now it's time to add your scores together to find out the health of your schoolyard…

Runoff/Erosion	_____
Transportation	_____
Vegetation	_____
Biodiversity	_____
Total	_____
Total + bonus points	_____

If you scored:

100-80 A-B: Your school is **excellent** habitat for many plants and animals and is a very healthy part of the watershed!
79-60 C-D: You are on the right track but there is more work to do if we want to save the rivers!
59 or less: Poor habitat. Many schools fall in this category so please help us in making your schoolyard a better place by partnering with DRBA and seeing what can be done to improve your school campus.

Contact Krista Hodges, Education Manager, at khodges@danriver.org for questions about improving your schoolyard. Visit our website at danriver.org to learn more about our environmental education programs.

Schoolyard Assessment is designed based on the Chesapeake Bay Foundation Schoolyard Report Card.

Name_____

Classroom Composter Blueprint

Materials Needed:

Newspaper

Wipes

Empty plastic coffee can

Soil

Tools Needed:

Push pin drills

Spoons

Water bottle with water

Read the directions before you begin. Ask your teacher if you have a question.

1. Put newspaper on your desk or table.

2. Remove the lid from the empty coffee can.
3. If your coffee can is sticky, you may need to use a wipe to clean it.
4. Put one cup of soil into your coffee can composter.
5. Put small pieces of fruit and vegetables into your composter and stir. Cover with one cup of dirt but do not stir this time.
6. Spritz 10 times with water. You want the soil damp but not wet.
7. Put the lid back on your coffee can composter.
8. Being really careful, use your pushpin drill to make 12 small holes in your coffee can composter lid so your compost can breathe.
9. Set your composter in a sunny window.
10. You can add more fruit and vegetable scraps to your composter. Make sure to stir the compost. Cover the compost with more soil. Spray with 10 spritzes of water and then put

the lid back on. You want the compost to be damp but not wet.

11.When your composter is full, put the compost in your school's compost pile and start again.

Following this blueprint, what materials did you

Reuse_____

Recycle_____

Reduce_____

Rot_____

What materials can you compost in your coffee can composter?

What can you do with the compost you make?