



Bridging the Watershed
An Outreach Program of the Alice Ferguson Foundation
in Partnership with the National Park Service and Area Schools



URBAN POOLS

An Exploration of the Management of the Abiotic, Biotic, and Cultural Components of Urban Pools



Reflecting Pool



Constitution Gardens



Simon Bolivar Pool

Curriculum Module Written for the National Mall and Memorial Parks

Student Worksheets

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Name: _____





Introduction

1. What urban pools do you have in your neighborhood?
2. Why do you think the water quality in the Potomac watershed is so difficult to manage?
3. From what you already know, name/describe the inputs you contribute to your local watershed.

Lesson 1. Urban Pools in History

4. Complete the graphic organizer on the next page with information obtained from the four readings about urban pools in history.

Urban Pools Throughout History – Graphic Organizer

Urban Pool	Year Constructed	Location	Civilization	Reason for Construction	Aesthetic Value	Management Practice
 <p>Hanging Gardens of Babylon</p>						
 <p>Roman Baths</p>						
 <p>Pools of Taj Mahal</p>						
 <p>Reflecting Pool</p>						

5. Review and think about the information you gathered in the graphic organizer. In a short essay, compare and contrast the abiotic, biotic, and cultural components of urban pools humans have constructed throughout history. You may use urban pools that were not discussed in the readings. Think about and include any similarities and differences for their construction or intended use. The following rubric will be used to evaluate your response.

Criteria	4 (Expert)	3 (Proficient)	2 (Emergent)	1 (Novice)
Opening	Strong main idea/ topic sentence is clear, concise, and identifies theme.	Adequate main idea/ topic sentence identifies theme.	Main idea/ topic sentence is unclear and doesn't address theme.	Main idea/ Topic sentence is not evident.
Organization	Well-developed essay with a clear and logical format.	Generally well organized with a clear and logical format.	Some evidence of planning and organization.	Lacks planning and organization.
Support	Includes three or more well developed examples for each similarity or difference.	Includes at least two examples or reasons for each similarity or difference.	Includes at least one example or reason but some information maybe incorrect.	Provides little if any support for each similarity or difference.
Conclusion	States a thoughtful or logical conclusion based on similarities and differences.	States a conclusion based on similarities and differences.	Conclusion is evident but does not draw on any similarities or differences.	No evidence of any conclusion or summary.
Uses Basic Writing Conventions	Contains no spelling, punctuation or grammatical errors.	Contains few errors in punctuation, spelling or grammar that do not interfere with meaning.	Contains several errors in punctuation, spelling and/or grammar that interfere with meaning.	Contains many errors in punctuation, spelling and/or grammar that make the essay unclear.

Begin your essay here. 

Continue your essay here ↓

Lesson 2. Ponds as Places to Live

6. What are the four characteristics that make the start-up populations so important?

1. _____

2. _____

3. _____

4. _____

7. On Figure 8 (found on page 8), Cross-Section of a Pond in Balance, find the green algae and label them.

8. Describe the effects of algae on a pond.

9. On Figure 9 (found on page 9), Cross-Section of a Pond Out-of-Balance, find and label the blue-green or filamentous green algae.

10. List the three basic things SAVs need and the three things they do for a pond.

SAVs Need:

1. _____

2. _____

3. _____

SAVs Provide:

1. _____

2. _____

3. _____

11. Find the submerged plants on Figure 8 and label them.

12. On Figure 8, use a yellow marker to draw and label the sun's path to show it reaching the floating plants, the suspended green algae, and the submerged plants on the bottom.

13. On Figure 9, use a yellow marker to draw and label the sun's path as it overheats the water in the pond out-of-balance and reduces the amount of dissolved oxygen, encouraging algal blooms.
14. Find the plants and animals on Figure 8 that are cycling nitrogen and label them with a large N. Next, find a producer and a large consumer on Figure 8 and label them with a large C.
15. On Figure 8, use a red pencil or marker to show the flow of energy from the producers through the primary and secondary consumers up to the large consumer.
16. On Figure 9, label one potential cause of excess nutrient input.
17. On Figure 9, circle the species that are over-represented.
18. On Figure 9, draw one example of each method of re-establishing balance in a pond. For example, to demonstrate seeding, you could draw someone placing tadpoles into the pond.



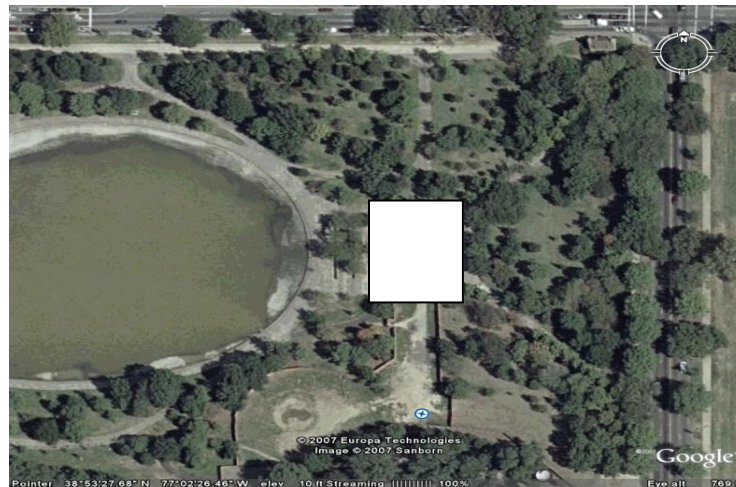
Figure 8: Cross section Pond in Balance



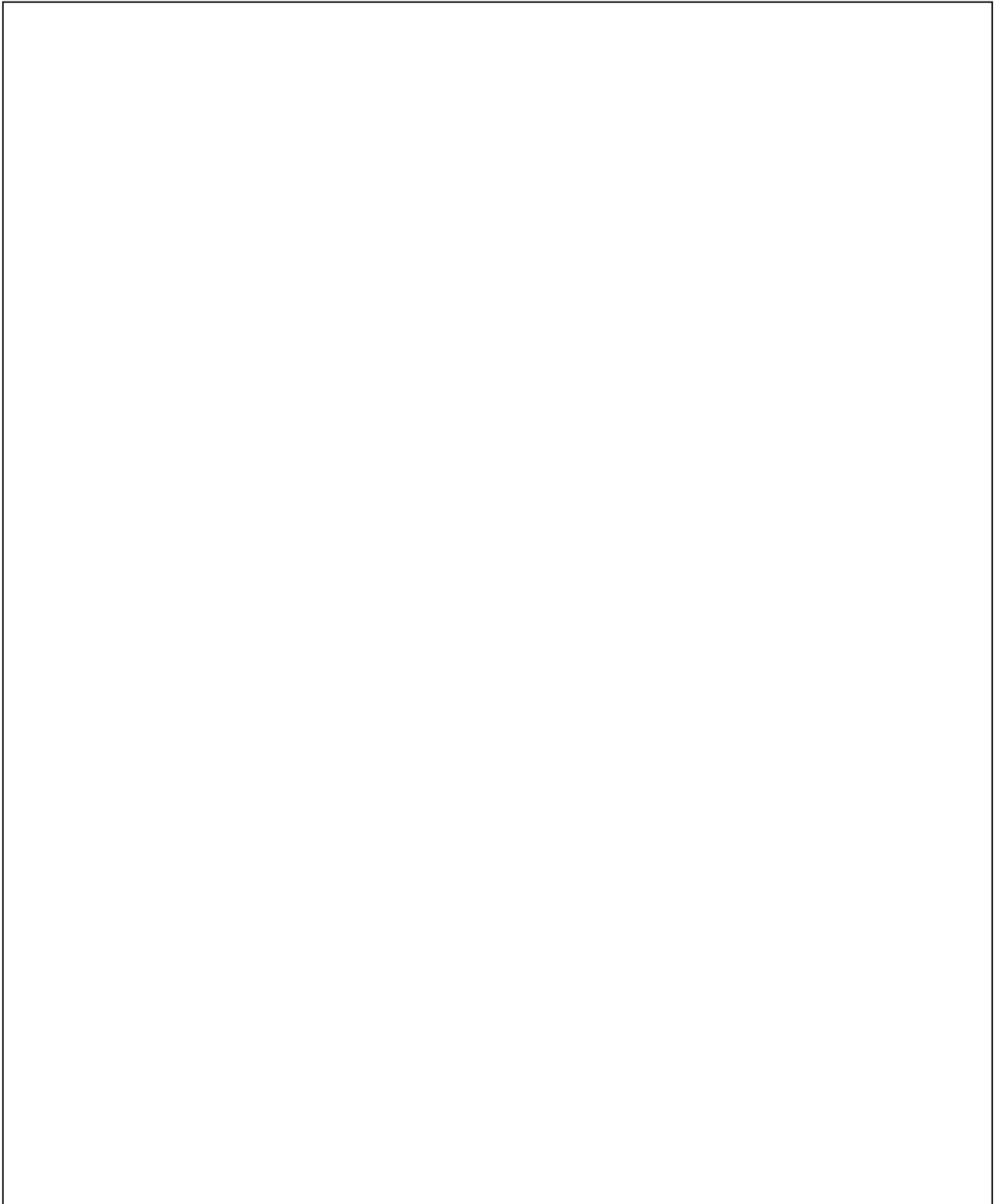
Figure 9: Cross section Pond Out-of-Balance

Lesson 3. Design a New Urban Pool

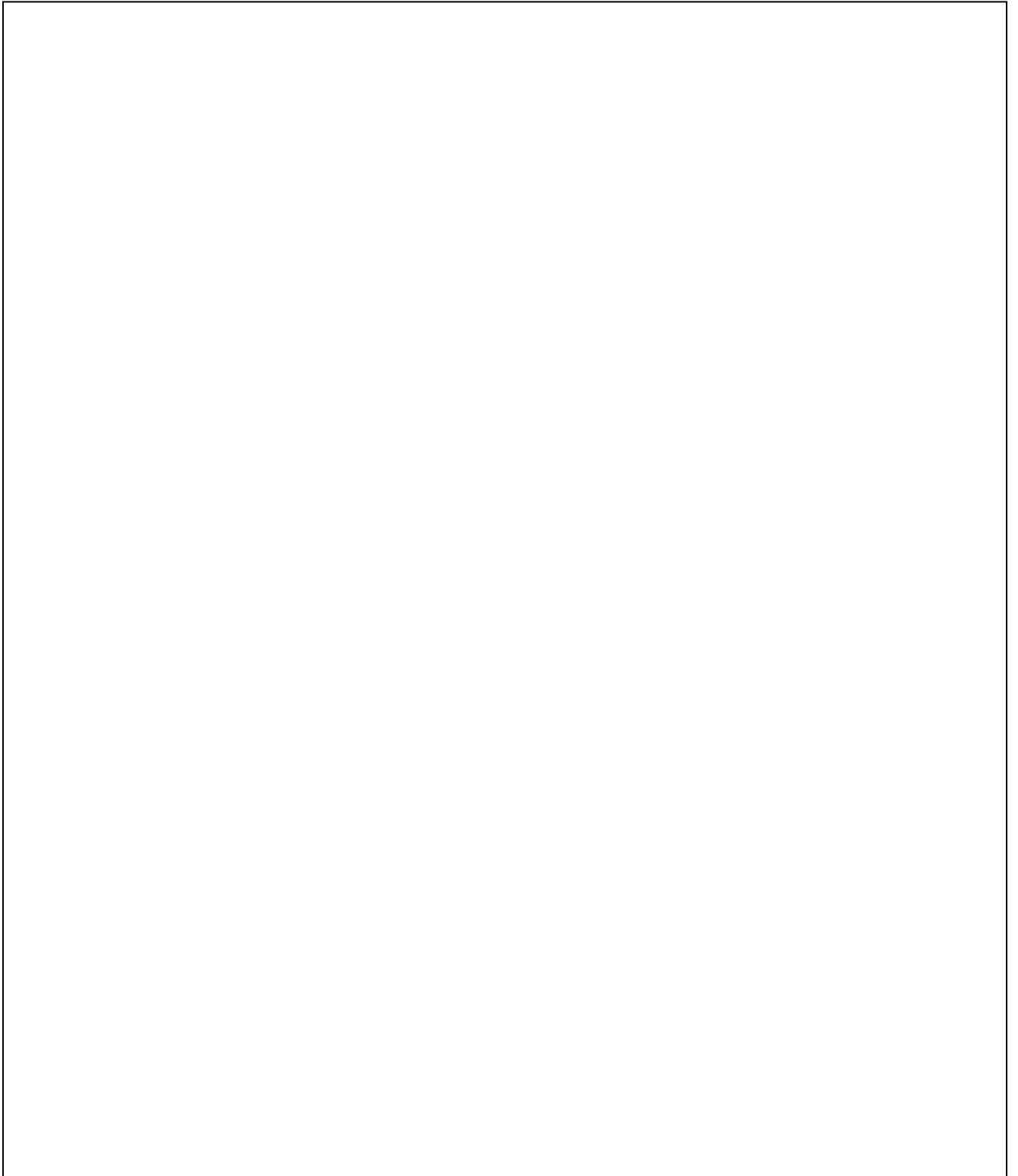
Criteria	4 (Expert)	3 (Proficient)	2 (Emergent)	1 (Novice)
Urban Pool Drawn on Both Scale Maps	Drawing accurate, neat, attractive, and has a professional appearance	Drawing is accurate, however it is unattractive	Drawing is inaccurate and work appears hurried or unprofessional	Drawing is not done, or is incomplete
Details of Depth, Materials, Color, and Composition Included in Drawing	All details are included on drawing	Most details are included on drawing	Many, but not all, details are included	Few or no details are included
Aesthetic Features Illustrated on Map	Fountains, waterfalls, bubblers, and other features are illustrated	Most aesthetic features are "placed," but not fully illustrated	Aesthetic features are "placed," but not illustrated	Aesthetic features are neither placed nor illustrated
Written Description of Design	Written description is exceptional and could be imagined by the reader without the aid of the drawing	Written description moderately describes the drawing	Design is described, but not well enough that it could be imagined without the picture	Design is not described or described inaccurately
Written description of A, B, Cs of Urban Pool	The A, B, Cs are complete and accurately described	The A, B, Cs are mostly described and accurate	The A, B, Cs are vague and somewhat inaccurate	The A, B, Cs are not described or inaccurate
Written Description of Maintenance of Pool	Management practices are complete and clearly described	Management practices are mostly complete and mostly clearly described	Management practices are incomplete and poorly described	Management practices are not described, or have substantial errors
Uses Basic Writing Conventions	Contains no spelling, punctuation or grammatical errors	Contains few, if any spelling, punctuation or grammatical errors.	Contains several errors in punctuation, spelling or grammar that do not interfere with meaning.	Contains many errors in punctuation, spelling and/or grammar that interfere with meaning.



Overhead Design for New Monument: Draw the shape from overhead, show the color and composition of the bottom. Don't forget to include dimensions and depth of water in pool.



Side View of New Monument: Include the important details of your memorial and pool. Don't forget to include dimensions.



Description of the urban pool's design: Include the aesthetic, biotic, and abiotic qualities of design and water in pool. Include how you would manage the biotic and abiotic qualities of the water to maintain desired attributes.