



Watershed Education Teacher Training Workshop
Pre-Workshop Assignments

State Park/Center: Watershed Education Sites

Date: 9/2015

Self-led lesson

Program Length: 30 minutes

I. Title: WATERSHED TOUR

II. Program Theme: Taking a watershed tour allows teachers the opportunity to observe characteristics of their watershed and the impacts on it prior to attending the Watershed Education workshop.

III. Target Audience: Teachers (formal and non-formal)

IV. Type of Program:
(Check most appropriate)

<input type="checkbox"/>	Env. Education	<input type="checkbox"/>	Interpretation
<input type="checkbox"/>	Information	X	Training

V. Behavioral Objectives: At the conclusion of the session, teachers will be able to:

1. list seven land use activities and their impacts within the watershed
2. list two natural names used for places within the watershed and determine their significance
3. describe two cultural or ethnic names used in the communities within the watershed
4. determine one influence the watershed has on the stream to be investigated
5. review the development and maintenance of a watershed portfolio

VI. Evaluation Procedure Used: Teacher completion of Watershed Exploration worksheet; review of objectives

VII. Equipment & Materials: Computer or Tablet with internet access, Watershed Exploration worksheet, pencil, journals



Title: Watershed Portfolio – Watershed Tour

Note to Teachers: Please go to <http://www.dcnr.state.pa.us/stateparks/watersheded/maps/index.htm> to find the “Pennsylvania’s Major Water Basins” map to determine your water basin (*where you teach*). Once you have determined your basin, click on the breakout map for your basin. Use that map to try to determine your watershed within that basin.

Pennsylvania contains five major water basins:

1. Ohio Water Basin
2. Susquehanna Water Basin (contains the Chesapeake Bay Watershed)
3. Delaware Water Basin
4. Great Lakes Water Basin which contains the Lake Erie and Genesee Watersheds.
5. Potomac Water Basin
6. *There are two other watersheds in PA that are not a part of these basins. They are the Gunpowder River Watershed and the Elk & Northeast Rivers Watershed, both of which drain directly into the Chesapeake without joining any of the other major basin systems.*

Once you know your water basin or watershed, click on the link for the watershed tour for your basin/watershed. Print the worksheets that are found at the end of this lesson to complete while you view the PowerPoint. Either pre-print the notes with the Basin PowerPoint or screen the PowerPoint in *normal or notes page view*.

*Feel free to use these PowerPoints as templates for creating a watershed tour of your area (*please give credit to DCNR- PA State Parks*)

Content

Introduction (methods/times)

I. Introduction

The Watershed Tour is typically the final lesson within the Watershed Portfolio (you’ll learn more about this during the workshop). It involves touring the watershed while recording your observations of the characteristics and impacts on your watershed.

A. Purpose of watershed tour.

1. An opportunity for the teachers to learn firsthand about the characteristics and impacts within their watershed
2. Prepare for WE workshop.

B. Review Watershed Exploration worksheet.

1. Record type of activity and the impact and if the impact is positive or negative
2. Record natural names used in identification of streets, businesses, or public facilities, and the significance of the name
3. Record cultural or ethnic names used and what it may indicate about the community, past or present.
4. Record your answers as you view the PowerPoint.

Presentation (methods/times)

II. Presentation

A. View Watershed Tour slides

You will be taking a simulated watershed tour. As you view the PowerPoint, please look for these focus points along the way and record your observations on the Watershed Exploration worksheet. Each PowerPoint may not show an example for each focus point. If none are found, leave that section of the worksheet blank.

1. Focus: Natural Geological Features
 - a. Influences of mineral make-up of water
 - b. Direction of flow and slope
 - c. Topography
 - d. Formation of major rock types
2. Focus: Use of Geologic Resources
 - a. Recreational
 - b. Mining
 - c. Agricultural
3. Focus: Pre-European Human Influence
 - a. Remnants of American Indian habitation
 - b. Famous American Indians
4. Focus: Rural Communities
 - a. Agriculture
 - b. Green space
 - c. Non-municipal utilities
 - d. Lower population density

5. Focus: Suburban
 - a. Transportation routes
 - b. Strip malls
 - c. Non-municipal and municipal utilities
 - d. Increased population density
 - e. Housing developments (single and multi-family)
 - f. Landscaping
 - g. Wildlife control problems

6. Focus: Urban
 - a. High population density
 - b. Less green space and green ways
 - c. Municipal utilities
 - d. Public transportation
 - e. Concentrated pollutants
 - f. More impervious surfaces
 - g. Higher concentration of multi-family dwellings

7. Focus: Natural Features
 - a. Parks
 - b. Forests
 - c. Wetlands
 - d. Rivers and lakes
 - e. Mountains
 - f. Rock outcrops

8. Focus: Industry
 - a. Manufacturing facilities
 - b. Petro-chemical facilities
 - c. Processing facilities
 - d. Power generation

9. Focus: Built Environment
 - a. Dams, canals, locks
 - b. Bridges/highway overpasses
 - c. Pier, marinas

10. Focus: Ethnic Influences

- a. Municipal and governmental names
- b. Street names
- c. Geological feature names
- d. Buildings
- e. Local traditions

B. Observations from Watershed Exploration worksheet

1. *What land use activities did you identify that affects water quality or quantity? Do these activities have a positive or negative affect?*
2. *How many natural names did you find that are used to identify streets, businesses, or public facilities?*
3. *Which cultural or ethnic names tell us something about the historic or present composition of the community? What might these names indicate?*

Conclusion (methods/times)

III. Conclusion (lecture/2 minutes)

A. Summarize session

What you just participated in is a simulated watershed tour. We suggest that you take you students on an actual watershed tour. In this tour, you would visit the sites that were highlighted today through slides. Your students will complete the Watershed Exploration worksheet during the tour.

B. Review objectives

1. *What are some of the positive and negative activities in the watershed? What are geologic or natural? What are artificial?*
2. *How would you investigate some of these activities?*
3. *What natural names or cultural or ethnic names were used for places, buildings, etc? What has this helped us learn about our watershed?*
4. *How is the information discovered on the watershed tour important to the stream that we will be investigating?*

- C. The inclusion of the watershed tour is important to the *Watershed Education* program. If an actual tour is not feasible for your school, you should develop your own simulated watershed specific tour (PowerPoint, online tour, photos, video, etc.).



Watershed Exploration Worksheet

Based on observations, as you travel what land-use activities can you identify that affect water quality and/or water quantity? Name as many as you see in the PowerPoint tour.

	<u>Type of Activity</u>	<u>Impact</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____
16.	_____	_____
17.	_____	_____
18.	_____	_____



What is in a name?

How many natural names can you find that are used to identify streets, businesses, public facilities. Why are certain names used? Name as many as you see in the PowerPoint tour.

	Name	Significance
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____

Names of cultural or ethnic origin tell us something about the composition of the community. Find names of streets, businesses, places, restaurants that may be easily identified and indicate cultural origins. Name as many as you see in the PowerPoint tour.

	Name	Place	Country of Origin	Community
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____