

The Watershed Game

A simulation exercise exploring the connection between land use and water quality and the impact of our choices.

About

The Watershed Game is an interactive tool that helps individuals understand the connection between land use and water quality. Participants learn how a variety of land uses impact water and natural resources, increase their knowledge of best management practices (BMPs), and learn how their choices can prevent adverse impacts. The Watershed Game is available in three versions. The STREAM version addresses an entire headwaters watershed and the land uses often found in it. The RIVER version addresses the land uses associated with large river systems and urban areas. The LAKE version focuses on the land uses surrounding a typical lake.

Goal of the Game: Meet the Clean Water Goal!

Reduce nonpoint sources of sediment or phosphorus in the watershed to levels that meet water quality goals in the receiving water. Participants achieve this by implementing a variety of plans, policies, and best management practices (BMPs) across a variety of land uses located adjacent to the water resource.

Players will:

- 1. Understand that all land uses within a watershed contribute pollutants and impact water quality.**
- 2. Identify specific sources of pollutants from each land use.**
- 3. Apply plans, practices, and policies to prevent or reduce impacts.**
- 4. Choose solutions based on available funds, benefits, and feasibility.**

Materials

- Game Board
- Best Management Practices (BMPs)
- Plan cards
- Unanticipated Events list
- Instructions
- Facilitator's Quick Reference Card
- Scorecard
- 5 **Black** dry erase markers & wipe cloth
- Candy pieces to act as "money" (min. 35-40 pieces) with a bank basket
- Large banquet style table (min of 6 feet)
- Clear packaging tape to hold the game board on the table.

Play the Game (45 minutes)

1. Set the Stage *(no more than 5 minutes)*

- Welcome and introductions, describe the goal and objectives of the WSG.
- Describe the game board, the land uses, discuss that is a fictional landscape and that the intent is not to point fingers at any one land use as the main culprit of sediment, phosphorus, and other pollutants. Spend a few minutes discussing the pollutant of concern and why it they need to address it.
- Divide and assign the participants as teams to each land use.
- Instruct each team to take 1-2 minutes to observe and discuss the sources of the pollutant of concern from their land use. Discuss as a large group.
- Assign existing pollutant points *(see also Facilitator Quick Reference Card)*:
 - 50 for each land use,
 - 5 for the undeveloped land,
 - and 50 for the upstream pollutant loading *(where applicable)*
- Total and write the current pollutant load in the space provided on the Board.
- Present the goal of the game and write it in the space provided in the point box (Goal =) The goal varies by pollutant of concern and the version of the game being played. *See also Facilitator Quick Reference Card*
- Describe the game pieces calling attention to the title, cost, and pollutant point reductions on the front side and the description and outcome on the reverse.
- Explain the rules of play:
 - Play will consist of three rounds.
 - Each team chooses one BMP per round.
 - Pay banker (assistant) for BMP selected.
 - Players can not swap BMPs between land use areas
 - After teams select a BMP they will describe it to the whole group, why they chose it, what it accomplishes, and the cost and point (pollution) reduction it provides.
 - Each team will subtract the BMP points from their total and write their remaining balance.
 - Team members will fit and place the BMP on the game board.
- Facilitator or Assistant then distributes the BMPs to each team instructing them to lay them out in front of their team. Provides a couple of minutes for teams to get familiar with their practices and policies.
- Assistant provides each land use a budget of five candies and one dry erase marker.

2. Sell and buy a plan

- Players have a chance to buy a plan at start of the game for 1 candy.
- Facilitator describes what the plan might be and contain using their expertise and creativity to state the best type of plan such as a lake management plan, a watershed plan, a county water plan, etc.
- Assistant distributes purchased plans and collects 1 candy from each.

<i>Example:</i>
Farmland
Total
Points =
50
40
35
25

3. Round 1

- Give teams 2-3 minutes to choose a BMP to implement.
- Ask teams to discuss the BMPs they chose, why they chose it, what it accomplishes, and the cost and point (pollution) reduction it provides.
- Assistant collects the money (candies) from each team.
- Instruct each team to subtract the points and write their new total.
Key Point: Have teams cross out their existing total, subtract the points played, and write in the new total. Do not erase totals from round to round.
- Assistant records new total points on scorecard, adds up new total pollutant points remaining, and provides that to the Facilitator when instructed.
- Facilitator leads discussion about the current status towards the goal.

4. Unanticipated Events and Planning Pays Off

Land use teams that bought a 'plan' are rewarded by receiving funding (1 candy back.)

Key Point: The objectives of Plan cards and Unanticipated Events. See also....

5. Round 2

- Give players 2-3 minutes to choose a second BMP to implement.
- Ask teams to discuss the BMPs they chose, why they chose it, what it accomplishes, and the cost and point (pollution) reduction it provides.
- Assistant collects the money (candies) from each team.
- Instruct each team subtract the points and write their new total.
- Assistant adds up total pollutant points remaining.
- Facilitator leads discussion about the current status towards the goal.

6. Unanticipated Events

Facilitator introduces Unanticipated Events that cost or reward teams funding (candy).

7. Planning Pays Off #2

Land use teams that bought a 'plan' are rewarded by receiving funding (1 candy back.)

8. Round 3

- Change the game rules. Introduce the concept of working together, combining resources, and target implementation. Encourage
- Give teams 2-3 minutes to choose BMPs to implement as a group.
- Ask teams to discuss the BMPs they chose, why they chose it, what it accomplishes, and the cost and point (pollution) reduction it provides.
- Assistant collects the money (candies) from each team.
- Instruct each team subtract the points and write their new total.
- Assistant adds up total pollutant points remaining.

9. Wrap up (5 minutes)

- Facilitator leads discussion about completion towards the goal.
- Discuss the variety of BMPs implemented and what it took to accomplish the goal.

10. Land sold and developed (if time permits)

Facilitator can play the “Land sold and developed” card over the Undeveloped Land use area. This changes the current pollutant load and can impact the achievement of the teams towards a set goal.

11. Erase the Game Board (Facilitator and Assistant only)

Key Point: Storing the Game Board. Erase the points and any writing as soon as play finishes, otherwise the ink impregnates into the lamination. Hand sanitizer can be used to erase stubborn markings.

Acknowledgement & Credits

The Game Facilitator needs to verbally offer acknowledgment about the program, the development and origin of the Watershed Game tool. *Acknowledgement will also be in writing where appropriate in the program materials.*

Instructions Appendix 1 *New version under development July 2012*

About Plan Cards

The Plan card is offered immediately before Round 1 of the Game. The Plan card is generic, but the Facilitator can refer to it as a *watershed plan*, a *city comprehensive plan*, or a *TMDL*, as examples. Plans cost 1 candy for each team that decides to purchase it. It is not suggested you describe it in detail. It creates conversation about the cost-benefit of investing in planning. Do not disclose this to the participants during the Game, but at the Facilitators discretion, teams that invest (purchase) a plan may be rewarded (+1 candy) in subsequent rounds.

***For example:** Teams that invest in a plan prior to the start of the Game will be eligible for and receive grant dollars, such as EPA 319 or Minnesota Clean Water Legacy funds. This would be awarded as +1 candy.*

About Unanticipated Events

The injection of **Unanticipated Events** into the Watershed Game provides additional learning opportunities beyond BMPs. It also provides some dilemmas and unforeseen circumstances. Unanticipated Events may either benefit or cost a team money (candy) OR may also add/subtract from point totals. Unanticipated Events were also developed to ensure that the simulation or learning experience does not end too quickly nor is it always so easy just to buy and implement BMPs to prevent or cleanup pollution. Chance Cards may be introduced at the facilitator's discretion at random. The Unanticipated Events are listed on the orange laminated sheet and are meant to be held by the Game Facilitator. They are a guide, not a rule and you may have the need to create your own as appropriate. The Unanticipated Events are a separate document.

***For example:** A severe shoreline erosion problem on the lake as the result of poor residential shoreline use. Take 1-2 candies away from the Residential land use team.*

Role of Assistant and Banker

The role of the Assistant and Banker include handing out BMPs, money (candy), markers and erasers **when instructed to do so by the Facilitator**. It also includes keeping track of progress towards the Game goal by using the WSG Scorecard. The Assistant and Banker needs to be able to keep score, subtract the numbers, and add up the score after each round and provide that to the Facilitator at any moment's notice.

Sometimes, those roles are split between two; one serving as Assistant and one serving as Banker.

***Key Point:** Assistant and Banker roles can be filled by other trained WSG Facilitators. However, these can be unique roles for staff members who may have already played the WSG. Others have used Board Members or others who they want to give a unique and important role in implementing this program.*