

List three examples of permeable and three examples of impermeable surfaces from your environment.

Examples of Permeable and Impermeable Surfaces

Permeable (soaks in)	Impermeable (runs off)
1.	1.
2.	2.
3.	3.

Record the amount of water that runs off at the beginning of the game when all sponges are in plastic bags (round one) and again at the end of the allotted time when all BMPs have been implemented (round 2). Record observations about what happens to the water as it is poured onto the sponges during each round.

To calculate the amount of water absorbed:

_____ minus _____ equals _____

Original amount of water – amount of runoff = amount of water absorbed

Run-off Measurement Data Collection Chart

Round	Original amount of water	Amount of runoff	Amount of water absorbed	Observations
1	1 cup (237 ml)			
2	1 cup (237 ml)			

List Best Management Practices (BMPs) used:



Porous concrete

is paving material that allows water to pass through it and be absorbed into the soil and ground underneath.

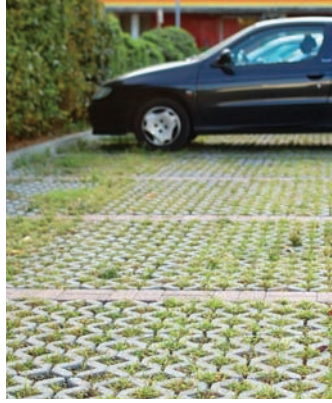


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Benefit:

- They reduce runoff by allowing water to soak directly through the concrete surface into the soil below.
- They help prevent the washing of oil and gasoline into nearby waterways.

Instructions: Remove one sponge. Put back into tray after having removed it from plastic bag.

Riparian buffer

is an area of trees and other vegetation on either side of a river or stream that reduces runoff and erosion caused by storm water.



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Benefit:

- They disperse and slow runoff from adjacent areas.
- They absorb water and filter dissolved contaminants that are captured in the buffer.
- They help prevent erosion of the streambank.

Instructions: Remove three sponges. Put back into tray after having removed them from plastic bag.

Naturescaping

uses native plants as in this storm water garden in Arizona. Native plants are wild plants adapted to the local geography and climate. They are considered better suited to withstand the regional climate and storm cycles.



PHOTO CREDIT: © iStockphoto—Thinkstock Photos

Benefit:

- They capture and release runoff water more slowly than impermeable surfaces.
- They absorb water and filter contaminants before they reach waterways.
- They provide habitat for native wildlife.

Instructions: Remove two sponges. Put back into tray after having removed them from plastic bag..

Planters and swales

are areas of built-up soil or other absorbant materials with grasses and other vegetation planted on top. This helps to keep storm water from running off the sidewalk and pouring into storm drains.



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Benefit:

- They slow and absorb runoff that would usually make its way to the storm drain.
- They help to beautify streets and neighborhoods.

Instructions: Remove one sponge. Put back into tray after having removed it from plastic bag.



Rain barrels and dry wells are a

method of capturing storm water runoff from rooftops. Water can be conveyed in gutters from buildings and diverted to rain barrels for storage. The stored water can be used for gardens and watering plants.



PHOTO CREDIT: © Hemera-Thinkstock Photos

Benefit:

- By capturing rainwater, you reduce the amount of water needed from your hose to water your garden. This helps conserve water and save money.
- You also reduce the amount of storm water that runs into nearby storm drains and streams from impermeable roofs.

Instructions: Remove two sponges. Put back into tray after having removed it from plastic bag.

Wet holding ponds are able to capture and store, filter water generated by storms.



PHOTO CREDIT: © Ryan McVay-Photodisc

Benefit:

- Wet holding ponds keep streams from being overwhelmed by more water than they can handle.
- They reduce polluted water from directly entering a stream, river or lake.
- They can become habitat for aquatic plants and animals.

Instructions: Remove three sponges. Put back into tray after having removed them from plastic bag.

Rain garden is a planted depression that allows storm water to be absorbed as it runs off of hard surfaces such as roofs, driveways, parking lots, walkways and roads. Rain Gardens are most successful when developed using native wetland plants.



PHOTO CREDIT: © iStockphoto-Thinkstock Photos

Benefit:

- Rain gardens reduce runoff into streams and lakes by slowing and capturing water from impermeable surfaces.
- They filter pollutants from water before it can reach other bodies of water.
- They provide a habitat for native plants and animals.

Instructions: Remove one sponge. Put back into tray after having removed it from plastic bag.

Eco or green roof is a roof on a building that is partially or completely covered with plants and soil. This absorbs storm water and also helps to cool cities.



PHOTO CREDIT: © iStockphoto-Thinkstock Photos

Benefit:

- They reduce the amount of water that runs off suddenly from an impermeable roof.
- They provide a cooling effect to the surrounding air.
- They insulate the building and reduce energy costs.

Instructions: Remove two sponges. Put back into tray after having removed them from plastic bag.





Community

action Water can be protected by actions people adopt. Cleaning up after pets, not littering and never throwing items down a storm drain all help protect water quality and the watershed.



PHOTO CREDIT: © iStockphoto—Thinkstock Photos

Benefit:

- Cleaning up after pets and not littering keeps animal waste and trash from washing into streams where it can harm aquatic life.

Instructions: Remove one sponge. Put back into tray after having removed it from plastic bag.

Trees take up water by their roots and through evapotranspiration, return water to the atmosphere and the water cycle. Trees also provide shade that can cool their surroundings like your home, yard or a nearby stream.



PHOTO CREDIT: © Liquidlibrary—Getty Images

Benefit:

- By planting trees, you will help to beautify your community.
- Trees reduce the reflected heat from the sun's rays hitting the ground or pavement.
- Trees provide habitat for wildlife.

Instructions: Remove two sponges. Put back into tray after having removed it from plastic bag.

Have you Seen Me? Where? Scavenger Hunt

BMP	Location
1. Community Education	
2. Trees	
3. Rain Barrels	
4. Wet holding ponds	
5. Eco or Green Roofs	
6. Porous Concrete	
7. Riparian Buffer	
8. Naturescaping	
9. Planters and Swales	
10. Rain Gardens	

