1 Storm Drain

2 Sloped Ground

3 Gutter / Downspout

4 Paved Surface

Sloped Ground

Stormwater that can't absorb into the ground runs off it. The slope of the ground affects where this water flows and how fast. Look toward the bottom of the slope: where will the water end up?

- What kind of ground surface is on the slope? (Is it grass, bushes, dirt, gravel, concrete?)
- What happens to water when it falls on this sloped surface?
- Does this surface speed up or slow down water that runs off it?

Investigation: Pour water on the slope and see what it does. Where does the water go? How quickly does it soak in or run off? Does the water carry anything with it?

Paved Surface

Asphalt and most other paved surfaces are impervious. This means that no water soaks into them. Instead, it flows off the pavement into drains and onto soil, carrying whatever substances are on the pavement. Some newer surfaces are designed to be pervious (let the water in).

- What happens when water hits this surface?
- Where will the water go from here?
- Why is this part of the ground paved? What would happen if it weren't?

Investigation: Pour water on the pavement. What happens to it? Would you say this surface is pervious or impervious?

Storm Drain

Storm Drains move water into underground pipes to take it somewhere else. Anything that gets carried into the drain may end up in a local stream, lake, or Puget Sound.

- Why do you think the drain was built in this location?
- Is there anything about the drain that isn't working?

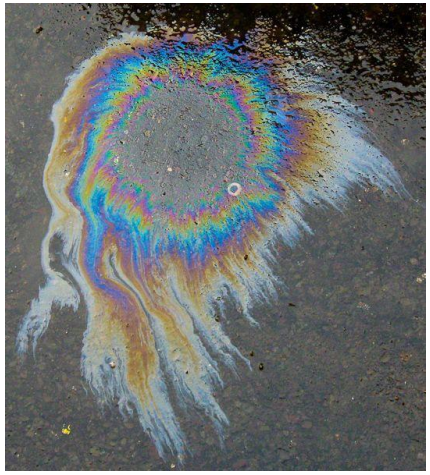
Investigation: Do you see anything IN the drain? Anything on top of it? What might end up flowing into the drain other than rainwater?

Gutter/Downspout

Some downspouts drain into the ground near the house, while others are attached directly to the building's sewer or stormwater pipes. Some go to locations where the water can soak in while others drain to the street or sewer systems.

- Where is the water coming from before it goes into the gutter?
- If a downspout that is connected to the storm or sewer system was disconnected where could the water go?

Investigation: Find the end of the downspout and discover where it directs the water. Is there something to catch it? Does the downspout empty into the yard or go into a pipe underground?



Oil on Ground

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Lawn

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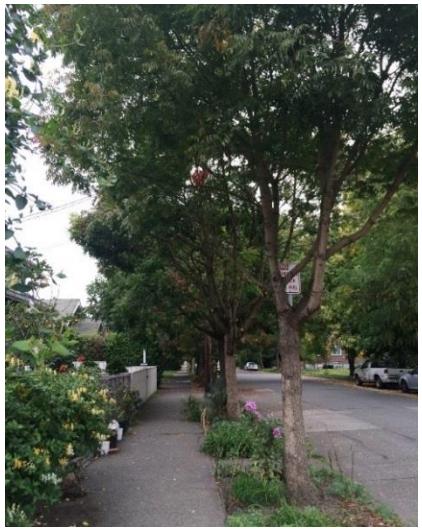

Trees

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Person in the Neighborhood

8

Lawn

Lawns capture more stormwater than pavement but less water than gardens or long grass.

- Where is the lawn located? Who uses it and what for?
- Do you like having lawns in your neighborhood? Why or why not?

Investigation: Pour water on to the lawn, does it soak in?

Look at the land around the lawn. Where would water flow onto it? Where would water flow off it, and where would it carry any chemicals?

Oil on Ground

A shiny, swirly rainbow effect in a puddle is the oil floating on top of the water. Oil leaking from cars is left behind as dark stains. When it rains, the runoff carries the oil with it. Oil washed into streams, lakes, and the Puget Sound is very harmful to plants and animals.

- If it rained right now, where do you think the oil would go?
- What kinds of animals (or people) might come in contact with this patch of oil?

Investigation: Pour a small amount of water into or next to the puddle. How does the oily water move?

Person in the Neighborhood

People who live in an area are often the experts about their neighborhood. We call them stakeholders.

Investigation: With your teacher or chaperone present, someone from your group could ask them about what they know or see when it rains a lot:

"**Hello, we are on a class field trip investigating stormwater in the neighborhood. We know that the water from a big storm can cause problems, and want to know more about what is happening here. Would you mind talking to our group for a few minutes?**"

Questions to ask:

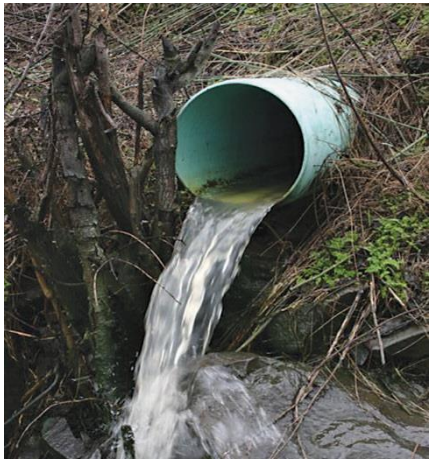
- Do you live near here? Do you know what happens to water here when it rains a lot?
- Have you heard of stormwater runoff? Where does the runoff go?
- Have you seen any problems caused by stormwater around here?

Trees

Trees catch some rainwater in their leaves, releasing it more slowly to the ground. Tree roots hold soil in place so that it doesn't get washed away by runoff.

- What is around the tree(s)? How might big trees deal with stormwater differently than small trees? How about deciduous versus coniferous?
- Are there people or animals that would appreciate this tree being here?
- Do you like having trees in your neighborhood or your schoolyard? Why or why not?

Investigation: Count the trees you see and notice their surroundings. Where else might you like to plant some trees in the area, if at all?



Stormwater or Sewer Outfall

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Animals Interacting with Water

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Animals Interacting with Water

Some animals may be happy when there is a lot of stormwater in a certain place, and others may be unhappy.

- What kind of animals do you see?
- Do you think this animal needs this water here? What would it do if it wasn't there?

Investigation: Observe the animal for a minute. What is it doing? Why do you think it chose to be there?

Stormwater or Sewer Outfall

An outfall is a place where stormwater pipes drain into a water body. They are located at streams, lakes, rivers, ponds, and on the edges of Puget Sound.

- Where do you think the water comes from?
- If there is water leaving the pipe: What do you observe about the water coming out of the pipe? About the water it is flowing into?

Investigation: If you were a drop of water, where would you go after leaving this outfall? Can you follow the path water would take once it leaves the pipe?

11 Stormwater Pond

12 Stream, Creek, or River

13 Lake or Pond

14 Rain Garden

Stream, Creek, or River

Streams and ponds are habitat for many organisms that share our ecosystem. They will look different at different times of year and during different amounts of rainfall. Many urban streams and ponds have been engineered to control erosion and water flow.

- What does the water in the stream look like?
- Who would be affected here if the stream flooded?
- Do you see any evidence of humans having altered this stream?

Investigation: Count the number of living things you see in and around the stream or pond. Throw a leaf or small stick into the stream or pond. Where does it go? How fast is it moving? Where do you think it will end up?

Stormwater Pond

Stormwater ponds are built to collect large amounts of stormwater in a safe place. When there is a lot of rainfall at once, the pond fills with water far beyond its normal amount. You might see signs of engineering, such as a pipe that pours water into the pond, a drain where water leaves the pond, or a wall that helps keep the water from spreading too far.

- Does this pond look like a natural pond or one that was built to hold stormwater?
- What do you notice about the water? Would animals like to live in it?
- Where does the water leave the pond and where does it go?

Investigation: Look around the pond. Can you find where water comes into the pond and where it goes out? What happens to the water as the pond fills up?

Rain Garden

Rain gardens have a shallow depression to hold water while it soaks in and provides water to the plants in the garden. Rain gardens can slow, filter, and absorb runoff.

- What do you notice about the garden?
- What happens to water when it goes into the garden?

Investigation: If you can access it, pour water into different parts of the garden. Where does it go? Count how many kinds of plants you see. Do you recognize any of them?

Lake or Pond

Lakes are important for many creatures and great for people too. Because both we and many other organisms use the lake, it is important to notice how we affect the quality of the lake habitat.

- What kinds of animals (or signs of animals) do you see in or near the lake?
- Are there people in or near the lake? What are they doing? How does this lake benefit people?
- Have you been here before? Why did you come here?

Investigation: Look around the lake and at the water, if you can get close enough. Is it clean or clear? Would you want to swim in it?

Bioswale

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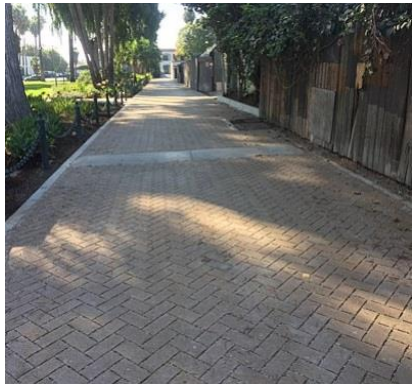

Permeable Pavers

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Rain Barrel or Cistern

17

Green Roof

18

Permeable Pavers

Pavers are tiles made from brick, stone, or concrete, which are arranged with spaces in between that allow water to soak through.

- What happens when water hits the surface of the pavers?
- Where will the water go from here?
- Why are these pavers here? What would happen if they weren't?

Investigation: Pour water on the pavers. What happens to it? Would you say this surface is pervious or impervious?

Bioswale

A bioswale catches and slows stormwater. They are usually built in areas of sloped ground, and contain a bed of gravel, rocks, or other material in the middle that holds water temporarily. Plants are planted along the sides of the swale to help absorb and filter water.

- What do you notice about the bioswale?
- What happens to water when it goes into the bioswale?

Investigation: Pour water into different parts of the bioswale. Try pouring it on the ground right next to the bioswale too. What differences do you notice? Count how many kinds of plants you see. Do you recognize any of them?

Green Roof

A green roof has plants growing on its surface, which help catch, slow, and store water. The roots of the plants help hold the soil together, and absorb some of the water to help the plants survive.

- What do you notice about the roof? What kind of building is it on?
- Who do you think takes care of the plants, if anyone?
- Do you like the way it looks?

Investigation: With an adult, walk as far as you can around the building and see how many plants you can count.

Do you see any animals (or signs of animals) using the roof?

Rain Barrel or Cistern

Rain barrels collect water that flows off the roof of a building. A cistern is a larger version of a rain barrel, and can hold hundreds or even thousands of gallons of water.

- What kind of building is it attached to? Who might have put it there?
- What could you do with the water in the barrel?

Investigation: Examine the barrel closely to figure out how water gets in and where it goes if the barrel overfills. What is the water used for?

Is there a cover on the barrel? Why do you think it might be covered?