

POLLUTION SOLUTIONS: PET WASTE

Someone didn't properly dispose of their pet's waste. After a heavy rain what might we expect to find in this nearby catch basin?

- Rain water
- Pet waste
- *E. coli*
- Parasites

What can we do?

Pick up and dispose of pet waste properly!



POLLUTION SOLUTIONS: SNOW & ICE

We had a lot of snow this year. After a heavy snow melt what might we expect to find in this nearby catch basin?

- Rain water
- Salt
- Sediment

What can we do?

Shovel first, salt second (or not at all!) and move large snow piles onto grass to melt.



POLLUTION SOLUTIONS: LAWN CARE

People care for lawns by mowing, watering, and fertilizing. After a heavy rain what might we expect to find in this nearby catch basin?

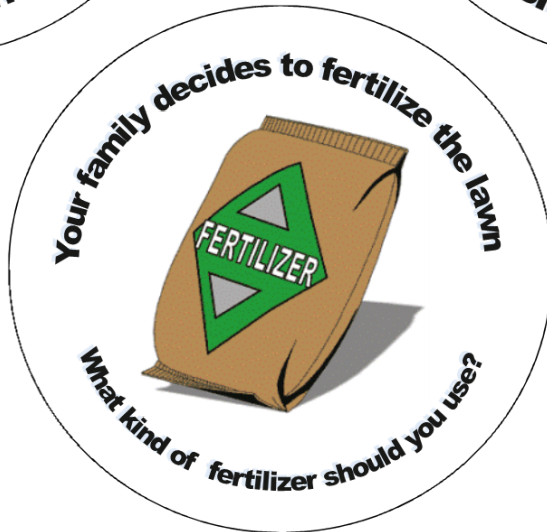
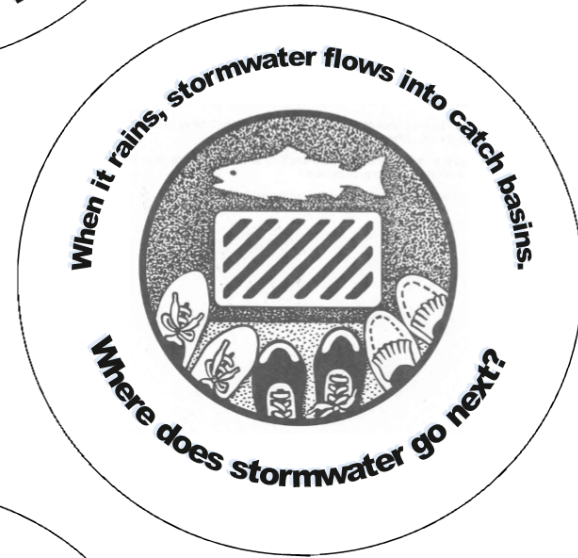
- Rain water
- Phosphorus
- Algae blooms

What can we do?

Keep grass 3" or taller and use phosphorus free fertilizer (or none at all!)



SOLUTION TO POLLUTION GAME



SOLUTION TO POLLUTION SCRIPT: PET WASTE

Just like us our pets produce waste.

Who has a dog? Who walks their dog?

Let's say this dog is on a walk with its owner and nature calls. (Show dog on the patch of grass) What do you think happens to that pet waste? (Add pet waste to grass) Does it just stay in that spot? What about if it rains?

A catch basin collects rain water along with anything that touches that rain water and transports it untreated through a system of pipes directly to the nearest stream, lake or river. (Point out the Grand if students can see it from the table.)

So back to our story, let's take a look in this catch basin, the one right next to where this dog did its business.

What do you think we might find in here?

Well, we'll almost definitely find some stormwater (pull out rain drop bean bag). But remember anything that rain water touches will also be transported into this catch basin including (pull out poop emoji pillow, students laugh and yell "ewwwwww").

Does anybody know what's in pet waste though? What makes it bad for our water, what's in it that can make us sick? (Students might answer: Parasites, Bacteria, or germs, all correct answers, if they don't know, tell them).

Parasites, like this guy can be present in pet waste (pull out gray worm) and they can be transmitted to other animals or even people. We're also concerned about bacteria, does anybody know what kind of bacteria we are most concerned about? (Pull out E. coli) this E. coli. E.coli is a bacteria that lives in the lower intestines of warm blooded animals, mammals, like dogs and people. It's also present in waste. When E. coli gets into our water where we fish, and swim, it can pollute our water and make us sick. That's why the water from our toilets goes to the waste water treatment plant to be cleaned and sanitized, but stormwater doesn't. Where does it go? (Kids point to catch basin.) That's right, into the catch basin and right out to the river.

SOLUTION TO POLLUTION SCRIPT: PET WASTE

So, what can what can we do about pet waste to keep it out of our rivers and lakes? (See if any of the kids suggest picking it up. Then show them the pet waste bag dispenser.) All you have to do is pick up after your pet (see if you can get a volunteer to bag the waste for you) and then throw it in the trash. You can even get one of these bag dispensers to keep on your pet's leash so you always have a bag handy. That way the only thing going in our catch basins is stormwater. Does anybody know what's in pet waste though? What makes it bad for our water, what's in it that can make us sick? (Students might answer: Parasites, Bacteria, or germs, all correct answers, if they don't know, tell them). Parasites, like this guy can be present in pet waste (pull out gray worm) and they can be transmitted to other animals or even people. We're also concerned about bacteria, does anybody know what kind of bacteria we are most concerned about? (Pull out E. coli) this E. coli. E.coli is a bacteria that lives in the lower intestines of warm blooded animals, mammals, like dogs and people. It's also present in waste. When E. coli gets into our water where we fish, and swim, it can pollute our water and make us sick. That's why the water from our toilets goes to the waste water treatment plant to be cleaned and sanitized, but stormwater doesn't. Where does it go? (Kids point to catch basin.) That's right, into the catch basin and right out to the river.

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SOLUTION TO POLLUTION SCRIPT: SNOW & ICE

Who had a snow day this winter? Do any of you help your families clear the driveway or the sidewalk after a big snow storm? How do you do that? (Looking for answers of shoveling or salting.)

Let's imagine the very last big snow storm of the year. If it's been a cold winter there might be big piles of snow that have been building up all winter from each time you clear your driveway or sidewalk right? Are those piles just clean, white snow? (No)

What does it look like? (Get kids to describe the dirty snow banks) What else is mixed in with that snow to make it look like that? (Looking for dirt, sand and salt). It's kind of gross right? (Show snow pile on the blacktop square next to grass.)

Now if those piles are out in the street or on the sides of your driveway when that snow melts, does all that gross melted snow just stay put? (No) where does that mixture go next? (Kids point to catch basin.) Right! The catch basins will collect that melted snow and anything that has mixed into it. Next, it will flow untreated through a storm sewers directly to the nearest stream, lake or river.

(Point out the Grand if students can see it from the table.)

So let's take a look in this catch basin, the one right next to this pile of dirty, melting snow and see what we find. There'll definitely be stormwater in here right? (Pull out the water droplet) but what else? (Pull out salt shaker) Lots of salt in here, the salt we put on our sidewalks and driveways isn't really that different from the kind we put on our food. It helps to melt the snow even when it's below freezing out but once that snow melts it dissolves the salt and takes it along for the ride. So, what else?

(Pull out the sand jar). Many places put some sand on the roads so they aren't as slippery but that sand doesn't stay put either does it? (No) It mixes with the snow and salt and dirt to and goes wherever the water does when it melts.

SOLUTION TO POLLUTION SCRIPT: SNOW & ICE

What's so bad about salt in the water? Don't ocean fish live in salt water? Why is that bad for fish in rivers and lakes? (Looking for the answer that freshwater fish can't survive in salt water) Salt is also nearly impossible to get back out of water so whatever we add, is in there for good. What about dirt and sand? Aren't the bottoms of lots of rivers already covered in dirt or sand? Why is that bad? (Looking for answers about stream beds filling in, or making the water cloudy and dirty). When sand and dirt fill in the spaces on the bottom of a stream there are less places for the bugs that fish rely on for food. If the dirt says mixed into the water it can become so cloudy that fish can't see to find their food and it can even make them sick. So what can we do about that? How can we keep all these pollutants out of here?

The most important thing you can do starts with a shovel. (Use shovel and salt shaker props) If you shovel the driveway or sidewalk first, you might not need salt at all or if you do, you'll use less. That means less salt down the catch basin and less into our rivers. Remember, shovel first, salt second or, not at all. The other important thing to remember is where you pile the snow. If you pile it in a grassy area, (move snow pile from the black top side to the grass side) when the snow melts (pull out the white felt) the water will be absorbed into the grass and the soil will help filter out the pollutants instead of running into the storm drains, rivers and lakes.

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SOLUTION TO POLLUTION SCRIPT: LAWN CARE

Who likes to play in their back yard or at a nearby park? Maybe on a soccer or football field? Who likes picnics?

What do all of these places have? (Grass) If you live somewhere with a grassy yard that your family takes care of, you probably know that lawns can be a lot of work. What are some of the things your families do to keep your yards looking nice? (Looking for answers like: mowing, watering, weeding and fertilizing.) Did you know the way we take care of our lawns can also affect nearby streams lakes and rivers? It's true. The grass in our yards will naturally soak up a lot of the rain that falls on it. Grass that's a little longer, about 3 inches (show with ruler prop) will soak up a lot more water than grass that's been cut super short. That extra water it soaks up will help keep it nice and green too. That means you don't have to put anything extra on it. What kind of extras do you guys think I'm talking about? (Looking for answers like sprinkler water, pesticides, herbicides, weed killer and fertilizer.)

Let's focus on fertilizer for a minute. Who knows what fertilizer actually is? (Looking for answers like plant food) Fertilizer is really just a vitamin for plants. There are three main ingredients in most fertilizers (show fertilizer box prop) nitrogen (N), phosphorous (P) and potassium (K). The next time you see a container of fertilizer look for the three boxes or circles on there. The label will tell you how much of each is in that bag. Does anyone know which one of these three causes the most problems in streams, lakes and rivers? (Looking for phosphorous)

Phosphorous! Here's the weird part, most lawns don't even need phosphorous to grow nice and green. So, you can help by making sure if your family does fertilize, choose a bag where this number (point to P) is a zero. It's also really important that you use only what you need and you keep the fertilizer on the grass (sprinkle the fertilizer on the edge of the grass so some goes on the pavement too). Know why?

SOLUTION TO POLLUTION SCRIPT: LAWN CARE

When it rains, where does the extra water that the grass can't soak up go? (Looking for answers like "it runs off"). Any water that doesn't soak in flows into the nearest catch basin. And it takes that extra fertilizer, or anything else you put on your lawn with it (point to the green pellets on the table). Where does that water go next? It moves through the storm sewer system directly to the nearest stream, lake or river with no treatment. (Point out the Grand if students can see it from the table.)

So back to our story, let's take a look in this catch basin, the one right next to this fertilized lawn. What do you think we might find in here? Well, we'll almost definitely find any stormwater that didn't soak in (pull out rain drop bean bag). But remember anything that rain water touches will also be transported into this catch basin including any fertilizer (pull out phosphorous molecule). This is what the phosphorous in fertilizer actually looks like. This phosphorous molecule is too small to see with your eye but it's the perfect size to dissolve in water. Remember how we said phosphorous doesn't really help make grass green? (Yes) Do you know what kinds of plants LOOOOOOOVE phosphorous? (Looking for answers like algae or plants that live in water). Aquatic plants do! Aquatic plants are plants that live in water. They grow like crazy when they get extra phosphorous. And when one kind of plant, called algae, grows like crazy it makes huge green slimy blobs that can make fish, people, and event pets sick if they swim in or touch the water. Does anybody know what those green slimy blobs are called? (Looking for Algae blooms). So if we find lot of phosphorous there's a good chance we might find an algae bloom (pull out green blob) nearby.

So what can we do to keep that fertilize out of our water? • leave the grass longer • use phosphorus free fertilizer (show box prop) • don't use too much • and keep it on the grass • if extra spills over onto the driveway or sidewalk, sweep it up! (see if you can get a volunteer to help sweep the extra back onto the grass)