STORMWATER POLLUTION:
DID YOU KNOW?

1. The drains you see along the curbs of roads, in parking lots, or in other built-up areas are called storm drains and usually lead to surface water and **not** to sanitary sewer.
2. Stormwater drains are designed to prevent flooding - taking rainwater from roads, parking lots, construction sites and urban areas and allowing it to flow quickly back into lakes, streams, ponds and rivers.
3. The vast majority of storm drains are not linked to any kind of treatment – what goes down the drain leads straight to a body of surface water.
4. Stormwater pollution can include chemicals, fast food wrappers, cigarette butts, Styrofoam cups, sewage overflow, cooking oil, bacteria from pet waste, used motor oil, fertilizers, paint and construction debris.
5. Stormwater pollution isn't always chemical in nature – construction debris such as sand, soil and gravel, and regular trash, can cause harm to the water ecosystem.
6. Sand, cement and soil from construction sites can enter waterbodies, disrupting light penetration, smothering breeding beds, and blocking fauna feeding mechanisms
7.
8. Despite great improvements in pollution prevention and control on land, sea and air, stormwater pollution is actually getting worse in some areas of the country
9. The Chesapeake Bay is one area where nutrient runoff from agriculture is causing tremendous problems. The problem is not as extreme here in Oklahoma, but it is still a very real issue.
10. Agriculture is a major source of water pollution – run off from manure, fertilizer, pesticides, especially if applied too close to water bodies, causes chemical and nutrient levels to rise.
11. Nutrient runoff pollutes in different way to toxic chemicals – they cause excessive plant growth which can lead to many problems.
12. Algal blooms are caused by excessive nutrient in a water system, and poor land management is often the cause. Blue-green algae in lakes is toxic to humans and can even kill dogs that jump in to swim.
13. Applying too much lawn fertilizer or weed killer in your yard increases risk of runoff after a rain event.
14. Grass clippings, leaves, mulch, pulled out weeds can all wash away to storm drains if not properly contained
15. Biological contamination is often overlooked. Bacteria enters waterways from pet waste, roadkill, and broken or historically mis-aligned sanitary sewer lines.
16. One ounce of household bleach requires 312,000 ounces of water to be safe for fish (almost 2,500 gallons of water) [Source – EPA]

17. A gallon of used from a vehicle oil change, poured down a drain, can pollute up to one million gallons of freshwater.
18. Small droplets of oil and antifreeze from the millions of cars on the US roadways add to the stormwater pollutant load.
19. As brake pads wear down from vehicle use, small fibers of asbestos find their way into the stormwater system.
20. The EPA estimates that American households improperly dump about 193 million gallons of used oil every year, or roughly the equivalent of 17 Exxon Valdez oil spills [Source EPA]
21. Pouring oil down a drain or along a fence line to kill weeds is illegal and in both cases leads to pollution of waterways.
22. Cigarette butts, the most littered item in the world, have been found in the stomachs of birds, fish and other marine life that mistake them for food.
23. Styrofoam is commonly used for takeout drink cups which often reach storm drains the granules for food.
24. Rainwater accumulating in open dumpsters can absorb contaminants before leaking out onto the ground.
25. Chemicals poured or spilled on unpaved ground can migrate into groundwater sources.
26. 50% of the population of western Oklahoma take their drinking water from groundwater sources.
27. The looped plastic carriers that hold cans of beer or soda together can strangle marine life like birds and turtles.
28. Illnesses generally associated with swimming in water contaminated with urban runoff include earaches, sinus problems, diarrhea, fever and rashes.
29. In the past, EPA studies have found water running into storm drains in some urban areas is more heavily polluted than treated sanitary sewer discharge.
30. Pouring milk down a storm drain has pollution consequences – it has a higher nutrient concentration than manure, and it can rapidly deoxygenate water as it biochemically decomposes.
31. In Minnesota in 2004, a dairy truck spill caused 6,000 gallons of milk to enter a lake and killed thousands of fish.
32. Around 80% of marine pollutants by volume come from land-based sources.
33. Stormwater pollutants reach coastal waters from landlocked states via rivers, bioaccumulate in marine life, and are consumed by the same human populations as seafood.
34. Air pollutants can settle out of the atmosphere and deposit directly into surface water, or wash into storm drains after settling on land.
35. Air pollutants aren't an obvious source of stormwater pollution, but paint droplets from aerosols and sprayers, dusts from sanding and grinding operations, and particulates from diesel engines can all settle on to the ground and wash away with rainwater.

STORMWATER POLLUTION PREVENTION: BEST PRACTICES

1. Never pour or dump anything into storm drains - chemical or otherwise.
2. When working outside with chemicals, always leave the lid securely on the container except when actively using the product.
3. Store all workplace chemicals in dedicated lockers or storage buildings.
4. Don’t litter – pick up someone else’s trash if you see it on the street.
5. Never hose down spills.
6. Avoid “topping off” when filling your vehicle.
7. Fuel vehicles in bermed areas like fuel pads are other improved areas where runoff to environment is prevented.
8. Avoid use of styrofoam products as far as possible.
9. Always follow the label when applying any type of pesticide, fertilizer or compost – applying extra product does not improve effectiveness, it just creates pollution.
10. Keep vehicles maintained and repair leaks even if they seem very small.
11. When using aerosols and paints sprayers outside do so on days with low wind and protect the immediate area with tarps or other coverings.
12. Keep yard clippings out of the street.
13. Pick up after your pets and dispose of waste properly.
14. Dispose of household chemicals properly by following the directions on the package or by calling the Department of Public Works for proper disposal guidelines.
15. Clean up oil spills and fix leaking vehicles.
16. Use drip pans to catch engine oil and other pollutants while repairing vehicles.
17. Recycle used motor oil.
18. Sweep driveways clean instead of hosing them down.
19. Stabilize parking areas and driveways and avoid parking on grass and other unpaved areas.
20. Water your lawn by hand, or adjusted sprinklers to avoid over-watering. If any water flows off your lawn, you're using too much water.

21. Wash your car at a commercial car wash, or at least wash your car on an unpaved surface so the excess water can be absorbed by the ground.
22. Drain swimming pools and spas into a sanitary sewer outlet, never into a street. Check first with your local wastewater treatment plant before disposing of anything in the sewer.
23. Keep dumpster and garbage can lids closed particularly when rain is forecast
24. Tie trash bags tight and place in garbage can immediately – avoid leaving them exposed to the elements.

STORMWATER POLLUTION: COMMON POLLUTANTS

- Nutrients (ammonia, nitrogen, phosphorus, potassium)
- Chemicals (pesticides – weedkiller, insecticide)
- Hydrocarbons such as oils, fuels and antifreeze
- Bacteria (fecal coliform, escherichia coli)
- Metals (lead, copper, zinc)
- Hydrocarbons (fuels, oils, solvents and greases)
- Soils, sand and gravel
- Garden and yard wastes
- Garbage (Styrofoam cups, plastic straws,, cigarette butts)