

# The Blawnox Borough Stormwater Activity Book



An activity book for children to understand stormwater and the pollution it can carry to our rivers.

## What is Stormwater?

When rain falls or snow melts, where does the water go? Some is soaked into the ground, some sits in puddles, and some disappears. Water that flows over the land surface, downhill to the nearest stream or ditch; we call stormwater runoff.



Storm drains are designed to carry rain water and snow melt to the river. When they are maintained free of debris, water can easily drain from roadways. When storm drains are clogged, this causes the potential of flooding on roadway surfaces, which can also cause contamination. People sometimes use the storm drains to dump materials like motor oil, antifreeze, household chemicals and other substances

that can harm wildlife in our rivers and streams. Never put anything down a storm drain.

### Fun Water Facts

The longest river in the USA is the Missouri River. At around 2,340 miles in length it is slightly longer than the Mississippi River (2,320 miles). The two combine to form the longest river system in North America. In comparison our river, the Allegheny River is 325 miles in length.

In a 100-year period, a water molecule spends 98 years in the ocean, 20 months as ice, about 2 weeks in lakes and rivers, and less than a week in the atmosphere.

About 71% of the earth's surface is water.

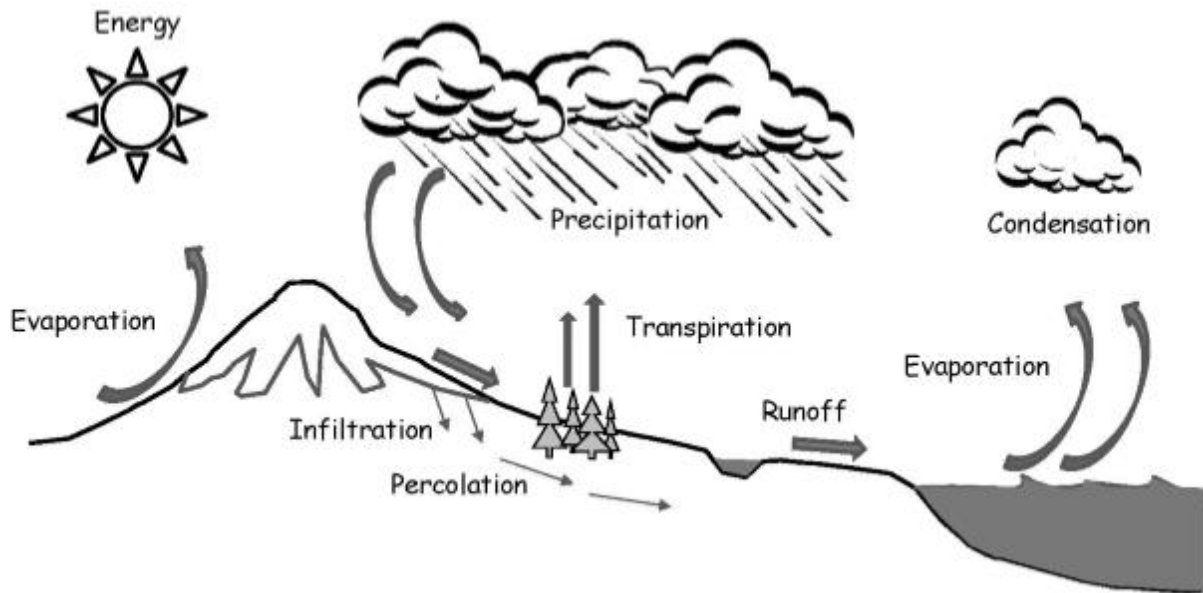
The oceans hold about 96.5% of the earth's water.

Approximately 66% of the human body is made up of water.

In the United States in 2010, people used about 275 billion gallons of surface water a day and an addition 79.3 billion gallons of groundwater.

Water weighs 8.33 pounds per gallon.

# The Water Cycle



**Evaporation:** When water is heated by the sun, it causes the water to turn into vapor and rise into the air.

**Transpiration:** Water that plants give off as vapor.

**Condensation:** When water vapor cools, it turns into tiny drops of water. These combine to make clouds.

**Precipitation:** The water in the clouds falls to the earth as rain or snow.

**Runoff:** The water falling to the ground through precipitation runs back into the lakes, rivers and oceans over the surface of the ground.

**Infiltration:** When water enters the soil surface.

**Percolation:** What water is called after it's infiltrated into the ground and then moves through the soils.

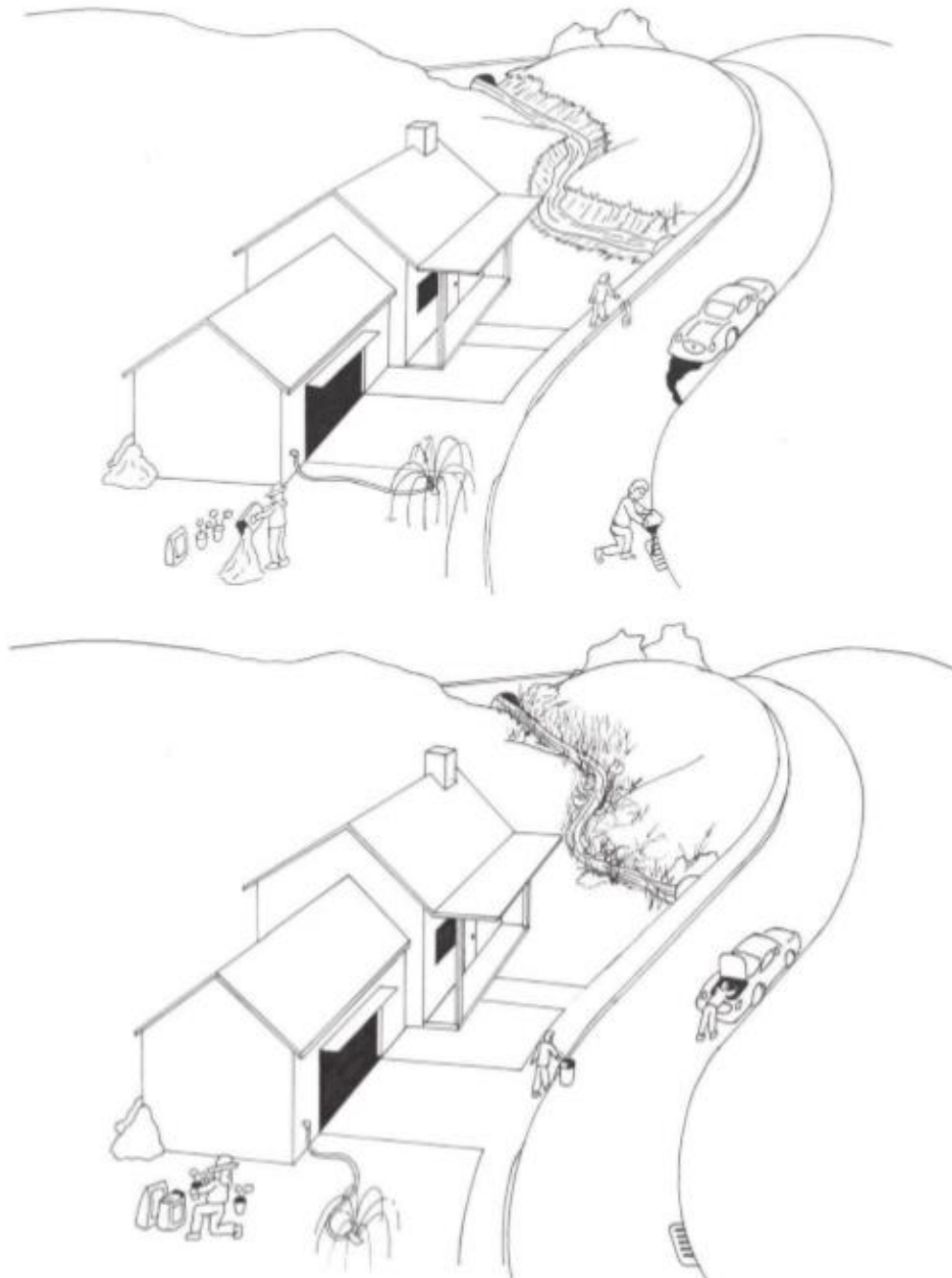
**Hydrology:** The study of how water moves through the environment.

**Impervious Surfaces:** Are mainly artificial surfaces like roofs, roads, sidewalks, and parking lots that are impenetrable to water, which makes water runoff.

Did you know that the water you drink is as old as the earth itself? Dinosaurs may have swum in the water from your kitchen sink. The earth's water supply is about the same as it was millions of years ago. That's because every molecule of water is recycled over and over through the water cycle. More than 99% of the earth's water is salt water in the ocean or trapped in the ice caps or deep underground. That leaves only 1% of the earth's water available for us to use. Let's make sure we protect that water and keep it clean.

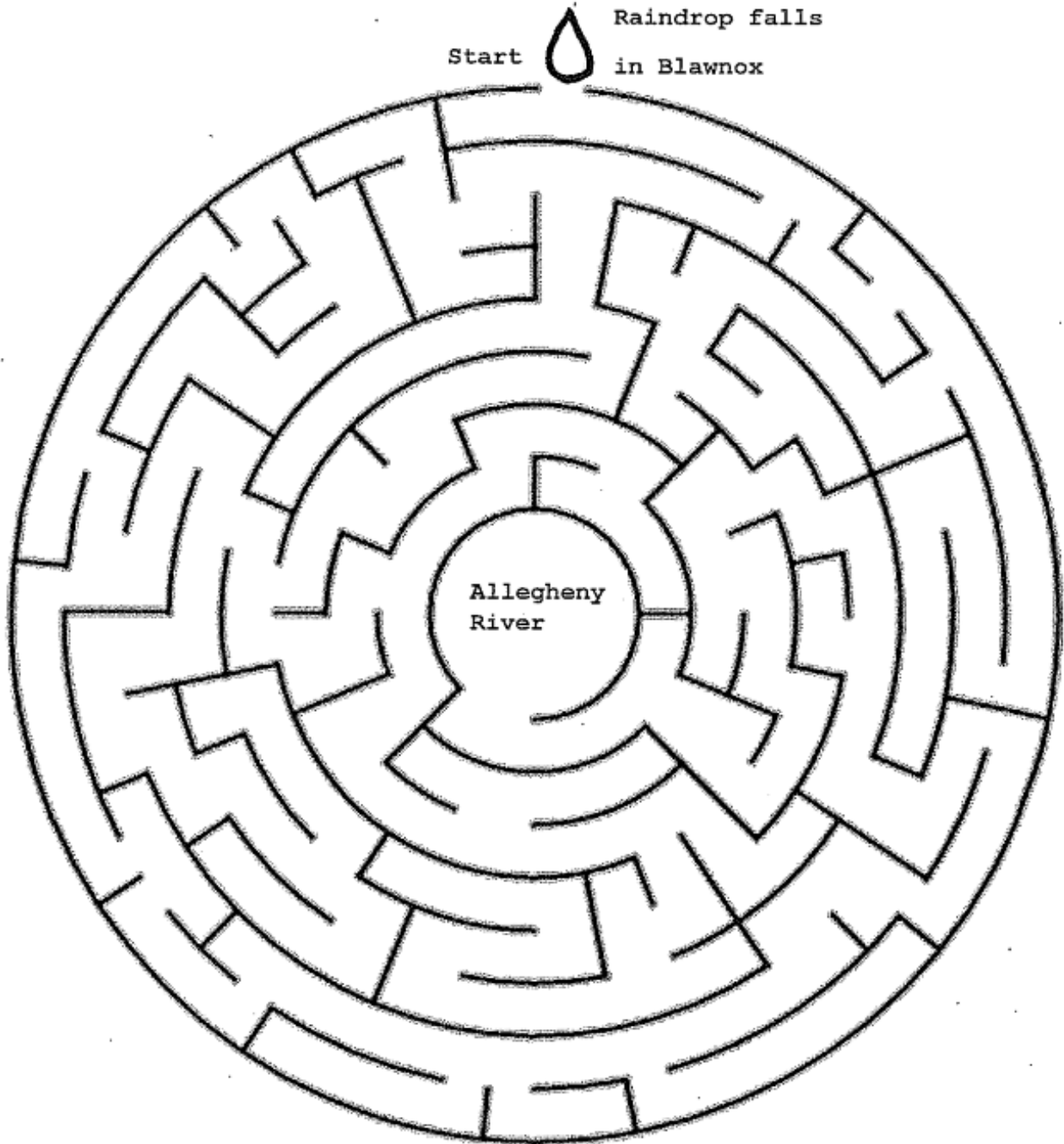
# Stormwater Pollution Picture Search

Towns like Blawnox have more stormwater runoff than areas in the country because they have more concrete so the water can't soak into the ground. Impervious surfaces like roads and parking lots can contribute lots of pollutants to our streams. Compare the two pictures below and circle all the differences between them that you can find that could result in polluted runoff. You should find 6 things.



# Stormwater Maze

Can you lead the water drop from where it lands in Blawnox to the Allegheny River?



# Stormwater Pollutants

Pollution in our streams and rivers can come from many sources.  
See if you can find the pollutants listed below.

E I R M T X W M B K Q S E O S Y A U H M  
Y N U E I N M L Y C S E L I S M P L O U  
O D I A Z D N H W D D Y I L A Q U O R M  
C D P L C I S H N O W N B V R R Q B B P  
H H D J O C L R Q C H Z O S G J H D Q D  
C N H Z I S P I V J L T M E S L A T E M  
K V P T Y T A N T I R M O D W T B R Q V  
Y U D D Z A P G L R F I T I B J Y T D L  
Z Z S E D I C I T S E P U M R N F E Z G  
D E T E R G E N T J N F A E R A T F V Y  
Y A W E V I R D E G J U T N D M K I S A  
M R G K S F E G J A R A T T B S E L E T  
S A L T S B A T K S W E B R L F Q D W X  
P J X M R B Y E S E O A A T I F R L A L  
X Q S I R M I S T A C A R S S E F I G I  
O T S A M P T S N T W I P I E M N W E K  
Y E G U C N A Z E M D D I X Q D A T T K  
G X D V D W G R H W A N I M A L S B S T  
E E L X Z E I K M E A S G I R X M H Y V  
W W A C O A N H D L G A D V C W S D M C

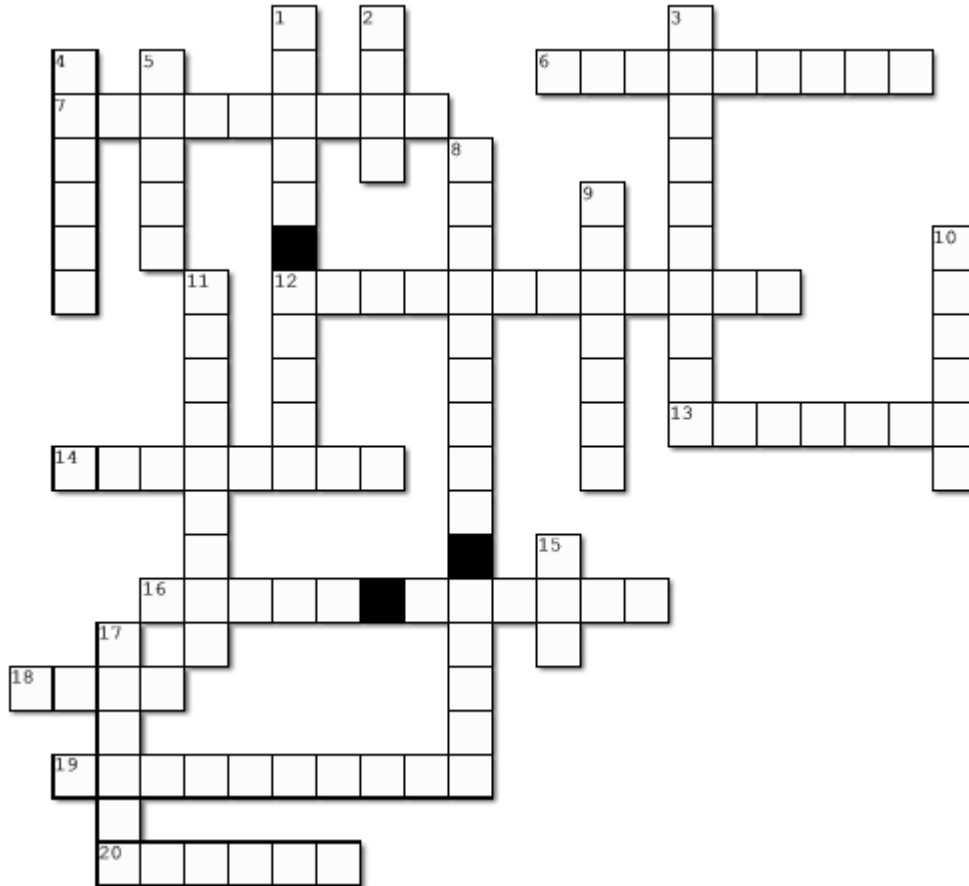
ANIMALS	DIRT	GRASS	OIL	SOAP
AUTOMOBILE	DRIVEWAY	GREASE	PESTICIDES	TAR
BACTERIA	FERTILIZER	METALS	SALT	WASTE
DEBRIS	GARBAGE	MUD	SEDIMENT	WASTEWATER
DETERGENT	GASOLINE	NUTRIENTS	SEWAGE	WILDLIFE

# Stormwater Scramble

Try to unscramble the following words. Use the hints if you get stuck.

1. TTAAILC \_\_\_\_\_ A Type of Wetland Plant
2. AIRN EGDNRA \_\_\_\_\_ Stormwater practice that is good for homes
3. EWTWTEAARS TNPAL \_\_\_\_\_ Where polluted water should go to be treated
4. NAPLTS \_\_\_\_\_ Things that help to clean the environment
5. SEHEDARWT \_\_\_\_\_ Where our fresh water is located
6. LENEAYLGH RIREV \_\_\_\_\_ Our local watershed
7. LATTSLONUP \_\_\_\_\_ Things that can be Carried with stormwater and be harmful to the river
8. MRSTO IDANR \_\_\_\_\_ The way stormwater is carried to the river
9. TRSMTOWERA \_\_\_\_\_ Surface runoff including precipitation and snow melt
10. EUBSATLNSIA \_\_\_\_\_ Things that help to clean the environment

# Stormwater Crossword Puzzle



## Across

6. This is the area of land that drains into an estuary, lake, stream or groundwater.
7. Excess sediment, nutrients, toxins, and pathogens are all types of this in runoff.
12. This is the practice of protecting and preserving natural resources.
13. A practice that helps the environment.
14. Too much of this in water can harm aquatic life.
16. This is where stormwater goes before being released untreated into our rivers.
18. This is the only thing that should go down the storm drain.
19. What this activity book is about.
20. Another word for the water that flows from rain storms and sprinklers into storm drains.

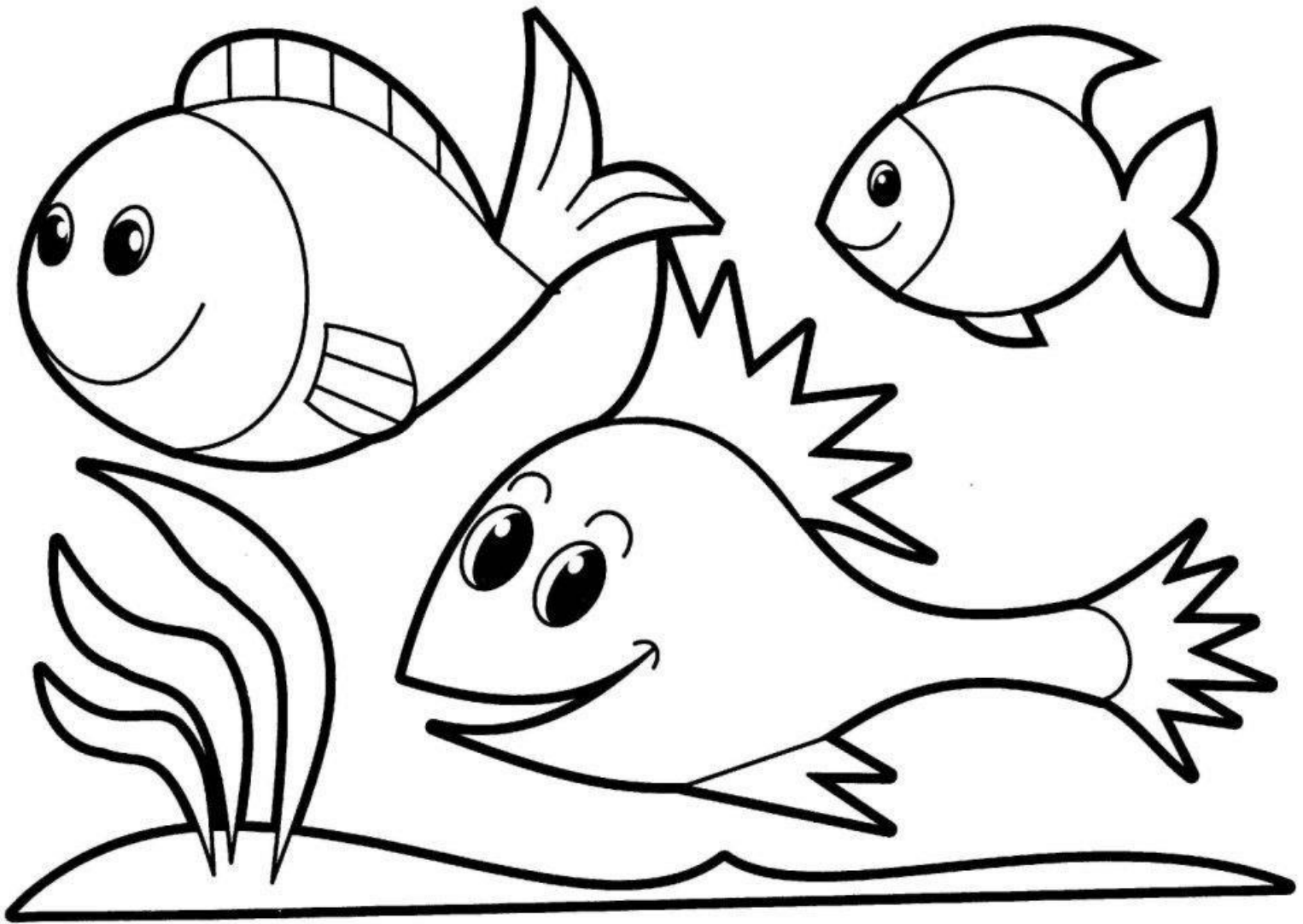
## Down

1. Precipitation is one small part of this.
2. A form of precipitation.
3. Avoid using too much of this on your lawn to prevent polluting streams.
4. Where water comes out of the ground.
5. The cattail is a wetland one of these that helps purify polluted runoff.
8. Our local watershed.
9. The town where we live.
10. This device is used for storing rain water.
11. Fertilizer and animal waste contain these that are harmful to water quality.
15. One quart of this can pollute 250,000 gallons of water.
17. Some examples of this include snack wrappers, plastic bags, and cigarette butts.



## Stormwater Coloring Page

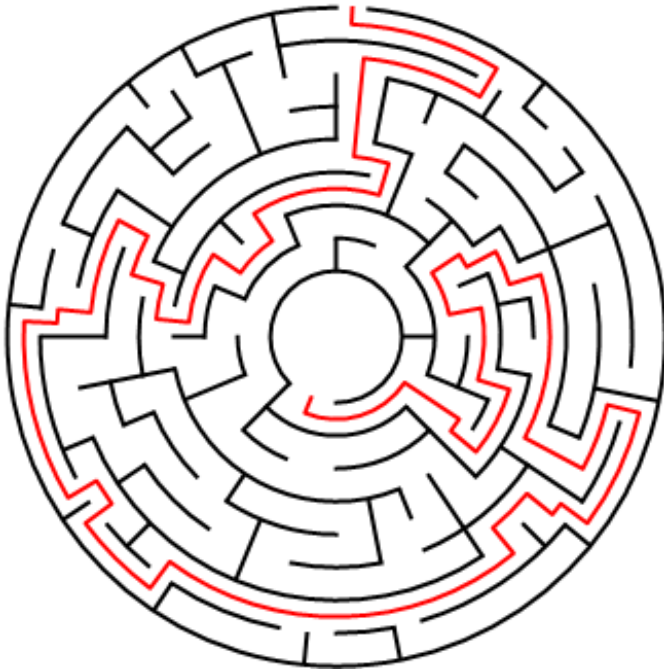
Did you know that the pollutants that are carried in stormwater can be harmful to all different types of aquatic animals, including fish? Fish are an important part of the river ecosystem.



# Answer Key

Pollution Picture Search: 1) creek without vegetation, 2) car leaking fluid, 3) man dumping down a drain, 4) woman uses excess nutrients, 5) watering impervious areas like sidewalks, and 6) throwing trash on the street.

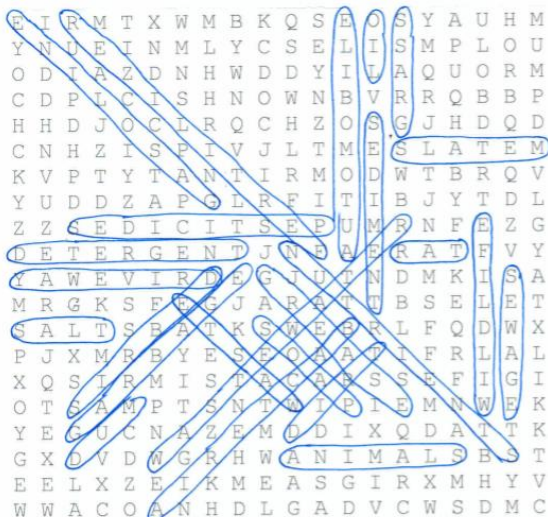
Maze:



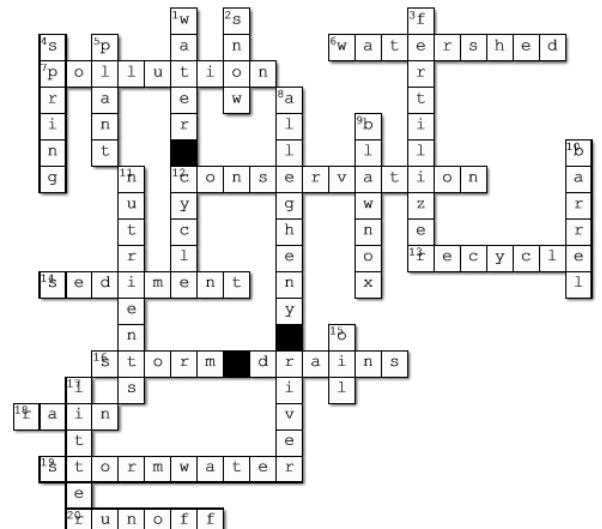
Word Scramble:

1. Cattail
2. Rain Garden
3. Wastewater Plant
4. Plants
5. Watershed
6. Allegheny River
7. Pollutants
8. Storm Drain
9. Stormwater
10. Sustainable

Word Search:



Crossword Puzzle:





## **STORMY**

The raincloud  
doesn't like  
getting blamed  
for polluted  
runoff, do your  
part to keep  
Stormy happy.

**For any questions about municipal stormwater please contact:**

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