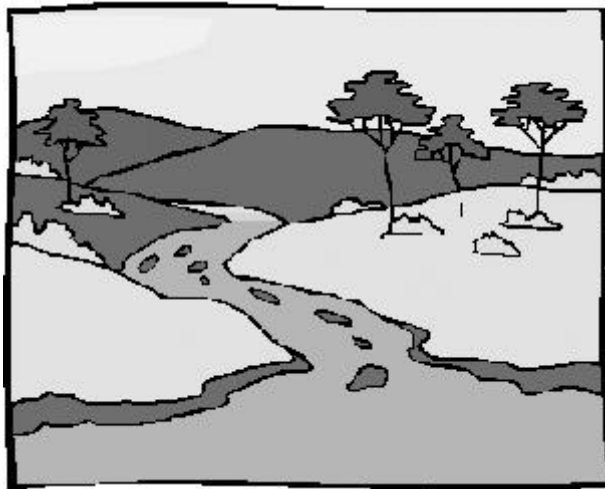


Stormwater Activity Book



Stormwater Activity Book

An activity guide for
stormwater pollution education.

By
Krista Kuester and Nancy Mesner

Illustrated by
Benjamin Kuhns

Aquatic, Watershed, and Earth Resources Department
Utah State University
March 2003

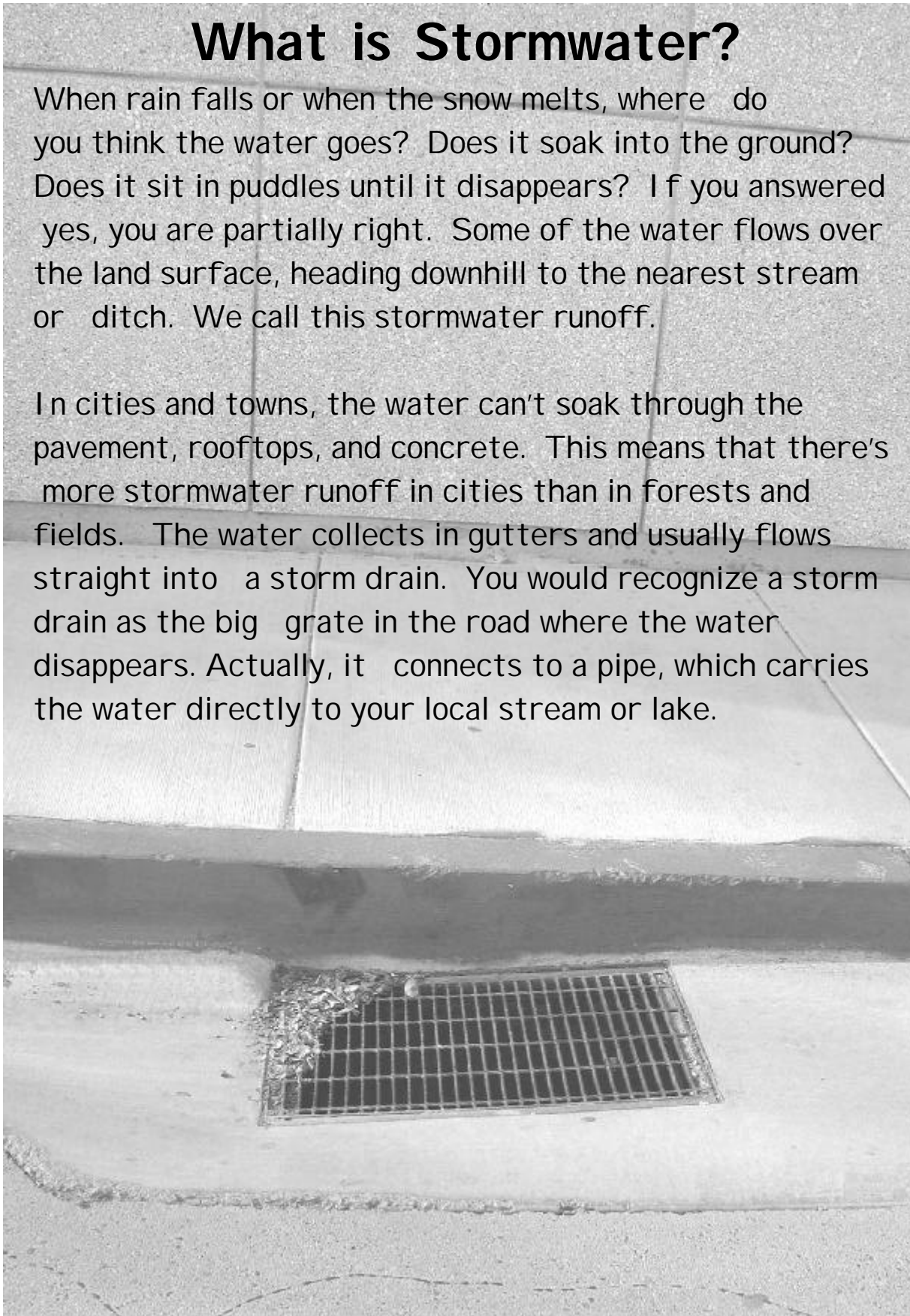
Utah State University is committed to providing an environment free from harassment and other forms of illegal discrimination based on race, color, religion, sex, national origin, age (40 and older), disability, and veteran's status. USU's policy also prohibits discrimination on the basis of sexual orientation in employment and academic related practices and decisions. Utah State University employees and students cannot, because of race, color, religion, sex, national origin, age, disability, or veteran's status, refuse to hire; discharge; promote; demote; terminate; discriminate in compensation; or discriminate regarding terms, privileges, or conditions of employment, against any person otherwise qualified. Employees and students also cannot discriminate in the classroom, residence halls, or in on/off campus, USU-sponsored events and activities.

This publication is issued in furtherance of Cooperative Extension work. Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Jack M. Payne, Vice President and Director, Cooperative Extension Service, Utah State University.

What is Stormwater?

When rain falls or when the snow melts, where do you think the water goes? Does it soak into the ground? Does it sit in puddles until it disappears? If you answered yes, you are partially right. Some of the water flows over the land surface, heading downhill to the nearest stream or ditch. We call this stormwater runoff.

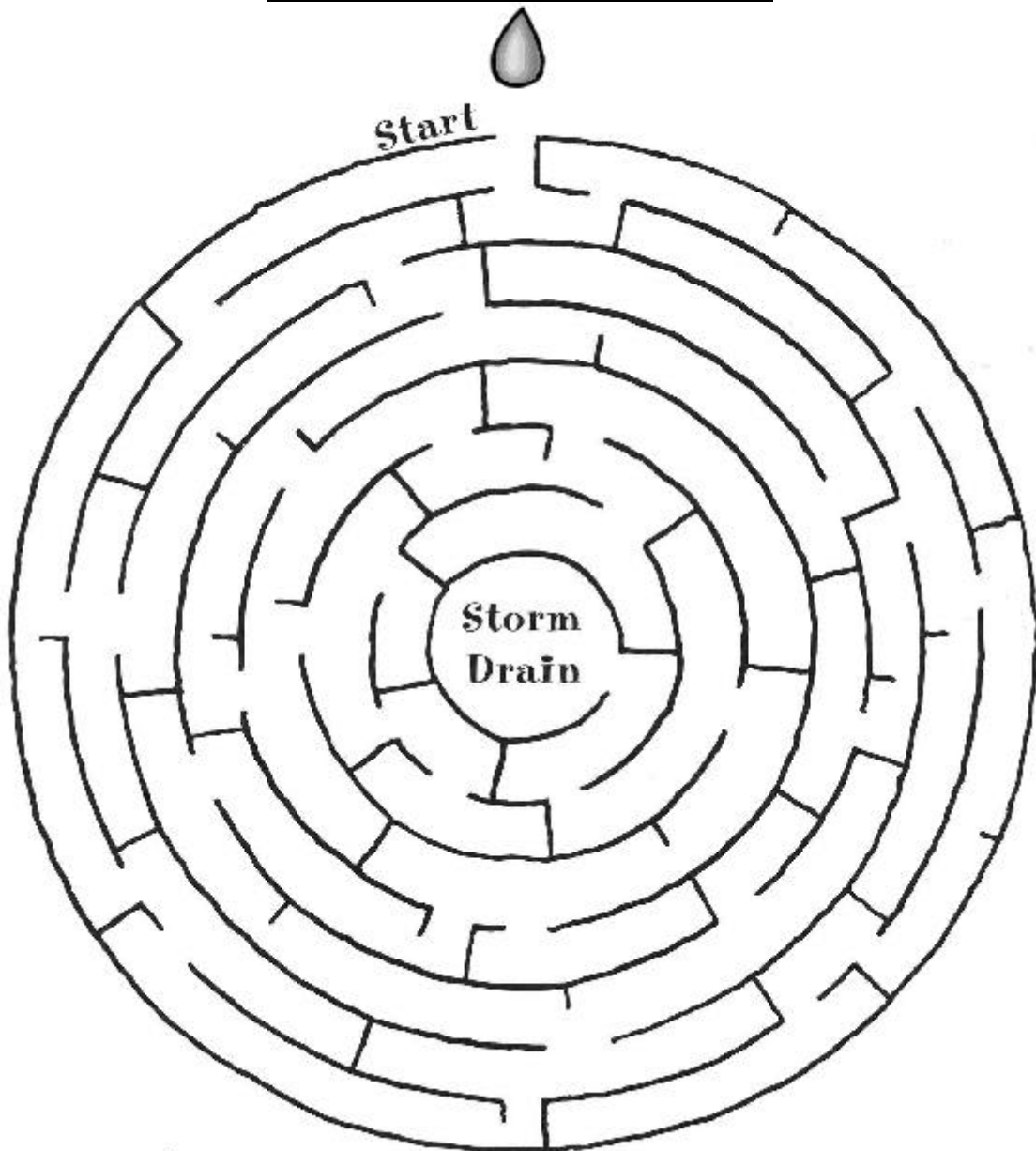
In cities and towns, the water can't soak through the pavement, rooftops, and concrete. This means that there's more stormwater runoff in cities than in forests and fields. The water collects in gutters and usually flows straight into a storm drain. You would recognize a storm drain as the big grate in the road where the water disappears. Actually, it connects to a pipe, which carries the water directly to your local stream or lake.



STORMWATER

Cities and towns have more stormwater runoff than areas in the country because they have more concrete so the water can't soak into the ground.

Lead the water droplet through the maze and into the storm drain.

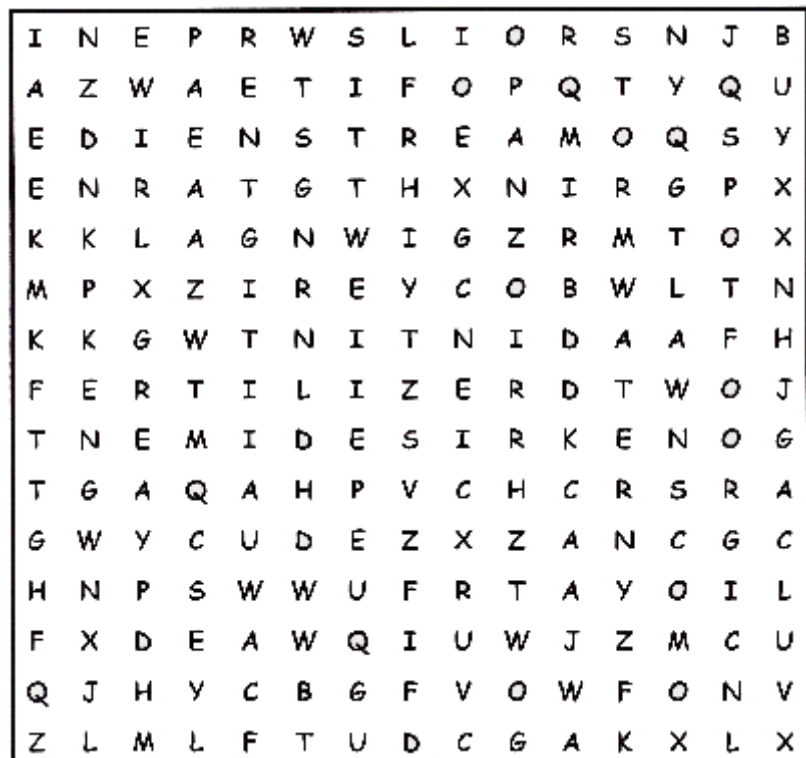


POLLUTION

Often we think that water pollution only comes from big oil spills or huge factories. We forget that there are lots of little sources of pollution all around us. Stormwater from cities can become very polluted. Oil drips on driveways, fertilizers on lawns, loose dirt in areas with no plants, or dog poop can all be carried by stormwater to a drain and on to a lake or stream.

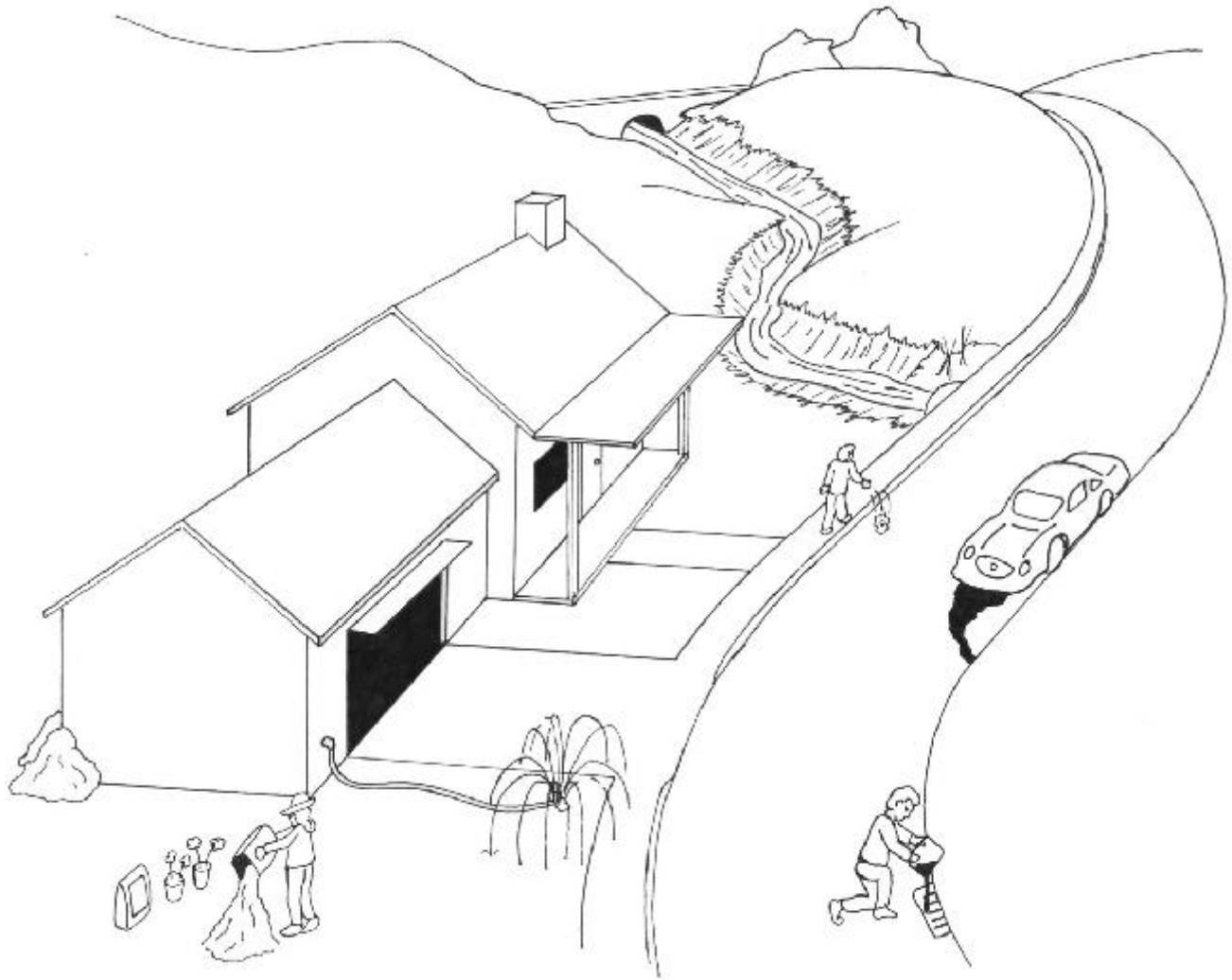
Find these stormwater and pollution words in the word search:

Concrete
Drain
Driveway
Fertilizers
Lawn
Oil
Pesticides
Plants
Rain
Rooftops
Sediment
Stormwater
Stream

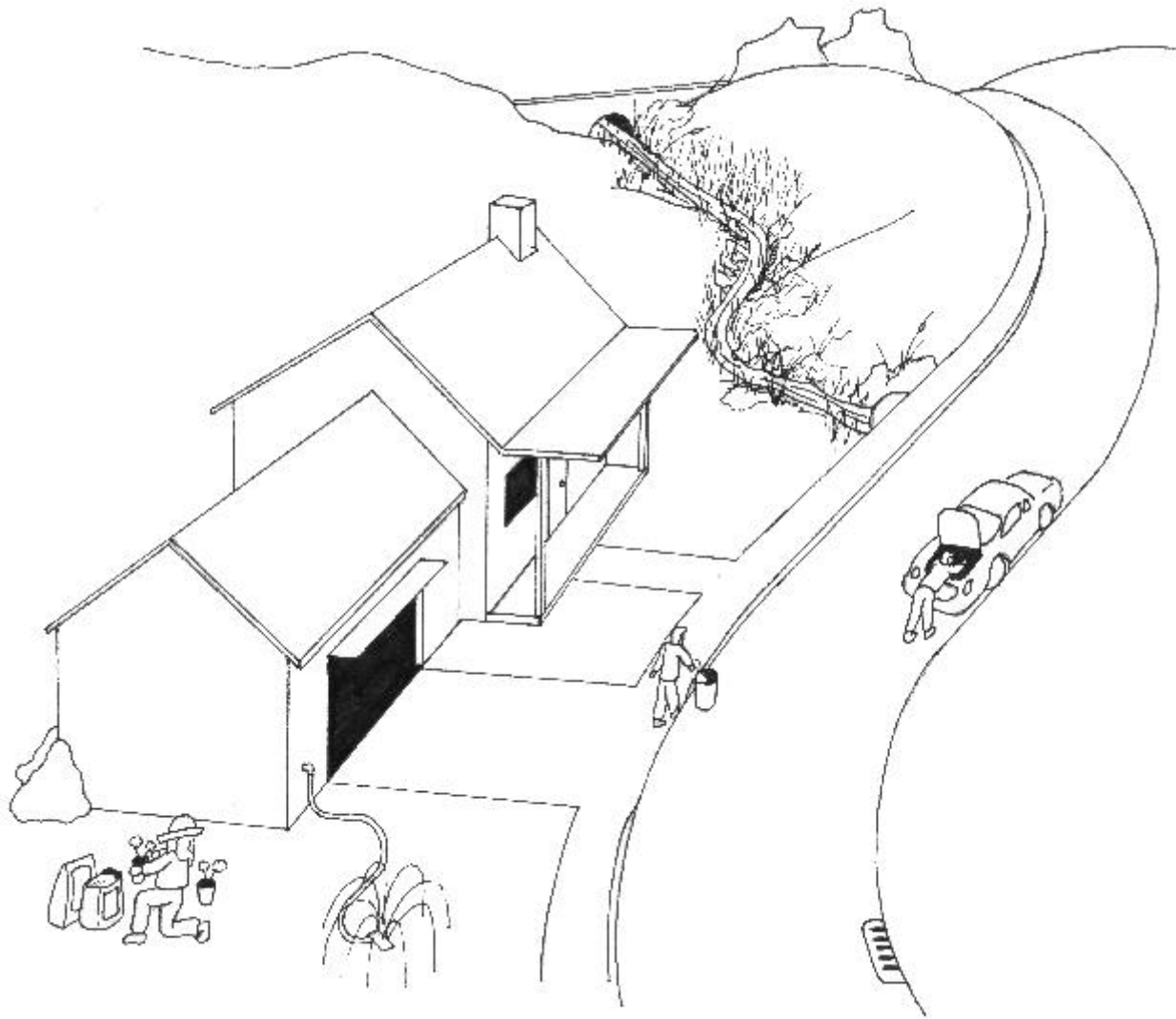


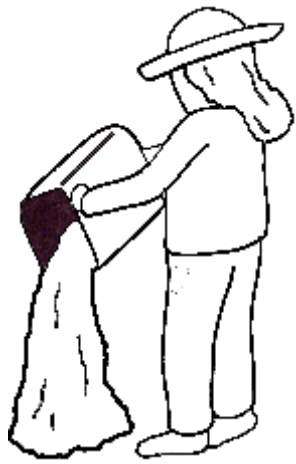
STORMWATER POLLUTION SEARCH

Compare the picture on this page with the picture on the next page.
Circle all the differences between them. You should circle 6 things.



What do these differences have to do with protecting our water from stormwater runoff? Look at the next 6 pages to find out!





Oops!

This woman is dumping fertilizer or pesticides directly on her lawn.



This looks better!

Only use as much fertilizer or pesticide as you need and be careful not to spill.

Remember:

- ★ Fertilizers can help our lawns become nice and green. But, when they wash into lakes and streams, they can pollute the water and use up all the oxygen that the fish need.
- ★ Pesticides keep harmful insects from damaging lawns and gardens, but if they wash into our lakes and stream they'll kill the fish and other critters that live there.

Who cares?

Fish need lots of clean water with no pesticides and plenty of oxygen.

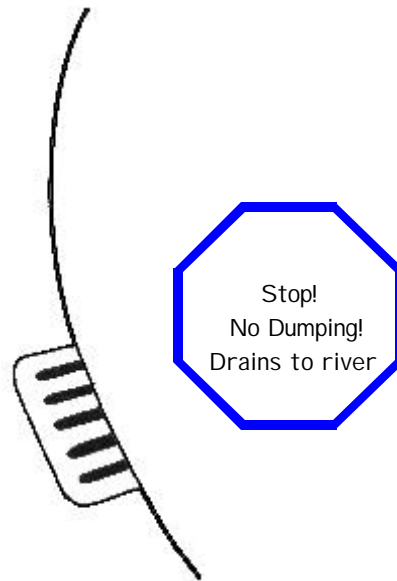
Draw a picture of a fish or some other cool animal that lives in water.





Oops!

This man is dumping chemicals down the storm drain.

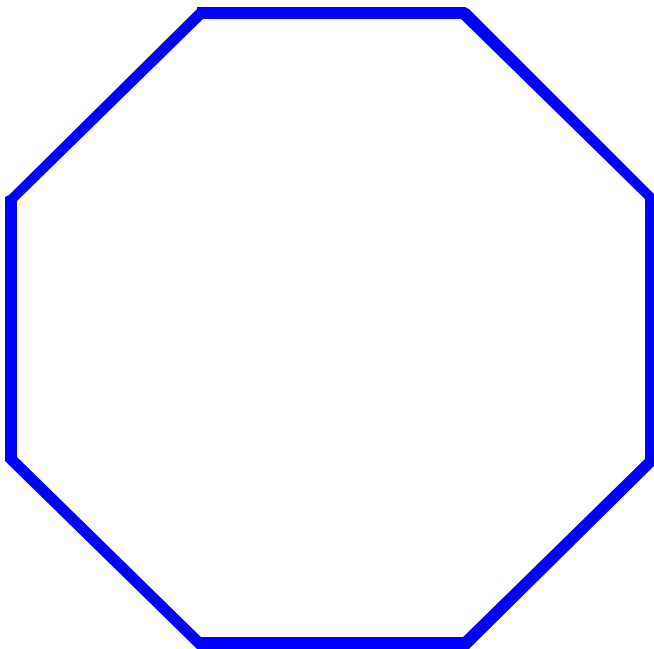


This looks better!

Never put something down a drain that you think might hurt a fish.

Remember:

- ★ Encourage your parents to only buy as much cleaner and paint as they need. Substitute less poisonous products when you can.
- ★ Always dispose of hazardous waste like used motor oil, antifreeze, cleaners and paints properly. Check for hazardous waste disposal days in your community.



Who cares?

Remember that storm drains often go straight to a stream or lake. You can help by reminding others not to dump anything down these drains.

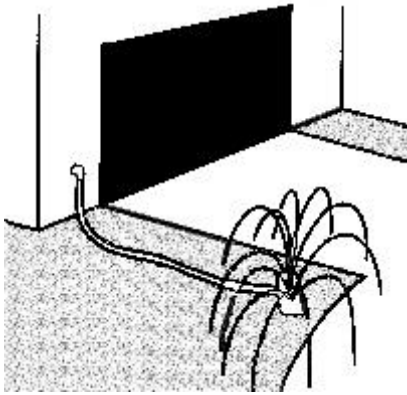
Draw a picture in this sign that reminds people why they shouldn't dump wastes into a storm drain.



Always dispose of trash in a proper container (or pocket the trash until you find one).

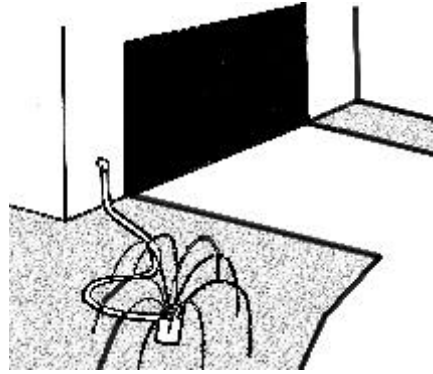
What can you do?

This image shows a blank sheet of white paper designed for writing. It features seven horizontal blue lines spaced evenly down the page. A single vertical red line runs along the left edge, creating a margin. The paper is otherwise empty of any text or markings.



Oops!

Don't water the driveway or the sidewalk. We live in a dry state and need to conserve water.



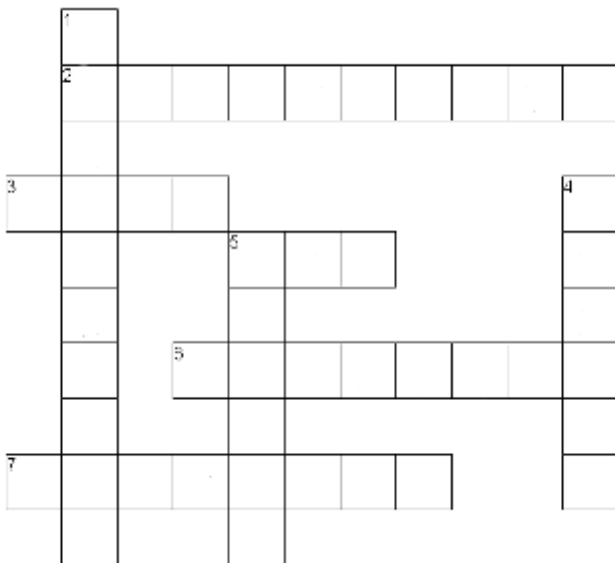
This looks better!

The water that lands on a driveway or sidewalk doesn't help your lawn, and ALSO washes pollutants into storm drains.

How can you help?

- ★ Place sprinklers so that the water lands only on the lawn.
- ★ Water the lawn or garden during the cooler times of the day.
- ★ Don't water on windy days. The water may blow away and be wasted.
- ★ Try to wash your car (or even your dog!), on your lawn or someplace that doesn't run straight into the street.

Do this crossword puzzle about water conservation!

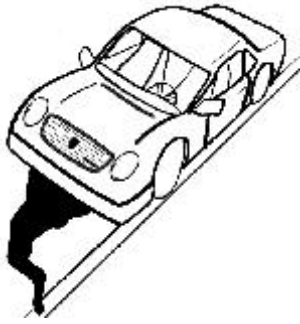


Across

- 2) Can wash into storm drains and streams from the driveway
- 3) Can blow away water while sprinkling
- 5) Wash this on the grass
- 6) Do this because we live in a dry state
- 7) Water that lands on this does not help your lawn

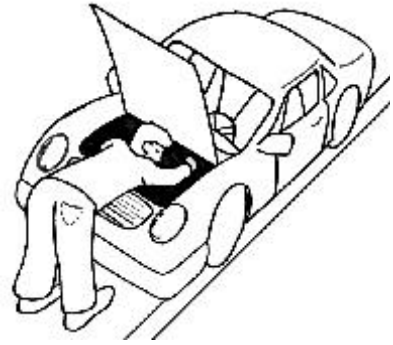
Down

- 1) Only water lawns, not driveways, with these
- 4) Water can carry pollutants here
- 5) Water only in this part of the day



Oops!

Oil that drips from cars can wash straight into our lakes and streams.



Fix those leaks!

Oil and antifreeze make our cars run well, but leaks can be very dangerous to fish, birds and even cats and dogs!

Another use for cat litter!

Did you know that cat litter absorbs leaks from cars really well? Spread it on the ground over the leak, let the oil and junk soak up, then sweep up the cat litter. Remember to dispose of the cat litter properly (with your household garbage.)

Unscramble the words below:

Hint- they are all found on this page!

1. iol_____

2. dsrpi_____

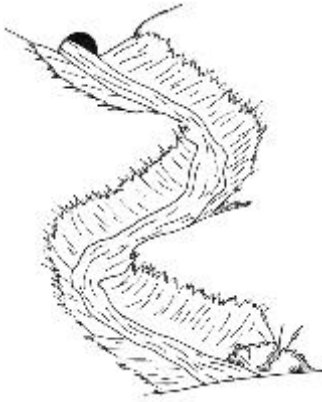
3. zifnreeeat_____

4. abgager_____

5. klsae_____

6. csra_____

7. samter_____



Oops!

The bare banks let dirt wash straight into the stream. This can cloud the water and smother fish eggs.



This helps!

A few plants go a long way. The roots keep the bank from eroding. Plus the plants look nice!

How can you help?

- ★ Help your community plant trees or leave native grasses and shrubs along a stream bank to reduce erosion.
- ★ Walk only along existing trails when near water.

Solve the hidden message! Use the clues below.

♥ ☼ ✂ ✕ ✚ ☼ ✕ ☆ ☼ ♪ ♣ ● ☼ ■ ◆ ✕ ⇒ ◆ ✕ ♠ ◆ ♥ ☼ ☆ ◆ ✓ ☼ 🐸 ● !

🐸=A

✓=R

♪=D

☼=E

✕=P

●=M

✂=L

✚=K

♠=F

⇒=U

◆=T

☆=S

♣=I

■=N

♥=H

✕=O

H _ _ _ _ _
_ _ _ _ _ !

Stormwater Pollutant Quiz

Match the pollutant with the problem. If you need help, look back in the book.

- | | |
|--------------------|---|
| 1) Motor Oil | A. Used to kill garden pests, but can also kill animals living in the water. |
| 2) Hazardous Waste | B. Animals sometimes confuse this with food and can die from eating it. |
| 3) Fertilizers | C. This can cloud the water and make it hard for animals to see, and can even smother eggs. |
| 4) Trash | D. Leftover poisonous chemicals that can pollute lakes and streams. |
| 5) Dirt | E. Good for cars, bad for birds and fish. |
| 6) Pesticides | F. Helps plants grow, but can pollute a stream and use up the oxygen. |

Now match the pollutant with something you can do to help protect your water.

- | | |
|--------------------|---|
| 1) Motor Oil | A. Only use as much as you need to get rid of harmful pests. |
| 2) Hazardous Waste | B. Don't litter, put this in its place. Better yet, recycle as much as you can! |
| 3) Fertilizers | C. Cat litter can clean this up. |
| 4) Trash | D. Look for disposal days in your community to get rid of this. |
| 5) Dirt | E. Always use the right amount on your lawn to keep it green. |
| 6) Pesticides | F. Plant trees and other plants near streams to help hold the soil in place. |

Certificate

Congratulations! You have completed the "Watershed Stormwater Activity Book". You are now an expert on detecting and preventing stormwater pollution. Be sure to tell your parents, friends, and neighbors what you have learned. Everyone needs to help protect the water that we all need.

I, _____, have completed this activity

(Sign your name here)

book and will protect the water around me by not wasting water, not dumping anything into a storm drain, and by telling people about the dangers of stormwater pollution.



Summary Activity

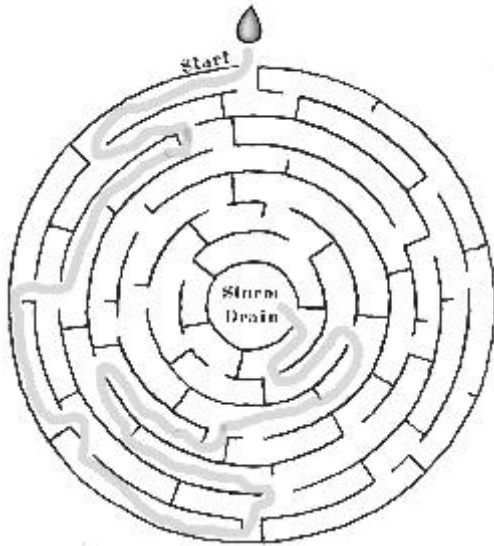
Fill in the blanks to create correct or silly sentences!

Find correct answers throughout the booklet.

1. There's more stormwater runoff in _____ than in forests and fields.
(Plural Noun)
2. Stormwater from cities can become very _____.
(Adjective)
3. Water pollution doesn't always come from huge _____.
(Plural noun)
4. Only use as much _____ as you need to keep your lawn
_____. (Noun)
(Adjective)
5. Substitute less _____ products for household chemicals when you can.
(Adjective)
6. _____ as much of your trash as possible.
(Verb)
7. Try to _____ your car on your lawn.
(Verb)
8. Check your car for _____ leaks.
(Noun)
9. _____ trees along the stream to keep the _____ from eroding.
(Verb) (Noun)
10. I am _____ wise!
(Noun)

Answer Page

Storm drain maze:



Stormwater Word Search:

I	N	D	E	R	W	3	L	I	O	R	3	N	J	D
A	Z	W	A	E	T	I	F	C	P	O	T	Y	J	U
B	D	I	E	N	S	T	R	E	A	M	O	Q	S	Y
B	N	R	A	T	G	T	H	X	N	I	R	G	E	X
K	K	L	A	G	N	W	I	G	Z	R	M	T	C	X
M	P	X	Z	I	E	E	Y	C	O	E	W	L	T	N
K	K	G	W	T	N	I	T	N	I	D	A	A	F	H
E	E	R	T	I	L	I	Z	E	R	D	T	W	C	J
T	N	E	M	I	D	E	S	I	R	K	E	N	C	G
T	G	A	Q	A	I	P	V	C	H	C	R	S	R	A
G	W	Y	C	U	D	E	Z	X	Z	A	N	C	E	C
H	N	P	S	W	W	J	F	R	T	A	Y	O	I	L
F	K	D	E	A	W	Q	I	U	W	J	Z	M	C	U
O	J	H	Y	C	E	G	F	V	O	W	F	O	N	V
Z	L	M	I	F	T	J	D	C	G	A	K	X	L	X

Crossword puzzle

Across	Down
2 pollutants	1 sprinklers
3 wind	4 stream
5 car	5 cooler
6 conserve	
7 driveway	

Word scramble

1 oil	5 leaks
2 drips	6 cars
3 antifreeze	7 stream
4 garbage	

Stormwater Quiz

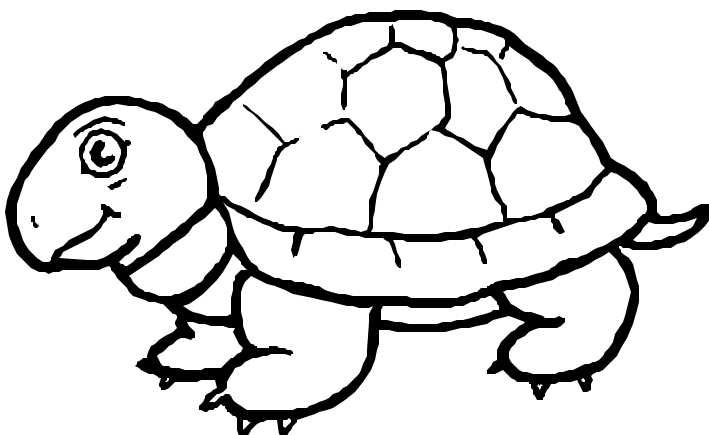
Pollutant and Problem	Pollutant and Solution
1. E	1. C
2. D	2. D
3. F	3. E
4. B	4. B
5. C	5. F
6. A	6. A

Summary Activity

1. cities
2. polluted
3. factories
4. fertilizer, green
5. hazardous
6. Recycle
7. wash
8. oil
9. Plant, banks
10. water

Hidden message: Help keep sediment out of the stream!

Notes and Drawings



Notes and Drawings

