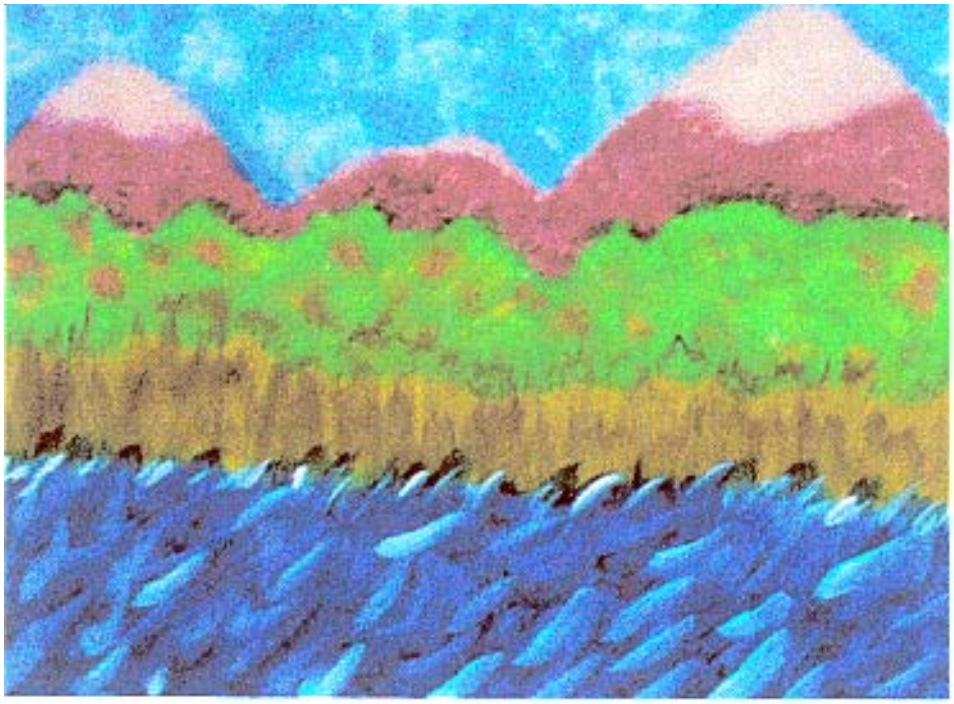
Watershed Connections

an activity book for kids
who care about Virginia's waters



Virginia Association of Soil & Water Conservation Districts
- a partnership to conserve natural resources -

Virginia Association of Soil & Water Conservation Districts

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Megan Previs and Hannah Simmons

Watershed Connections

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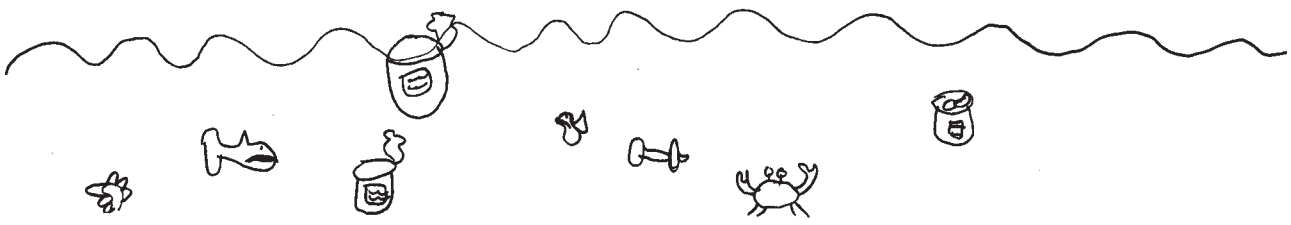
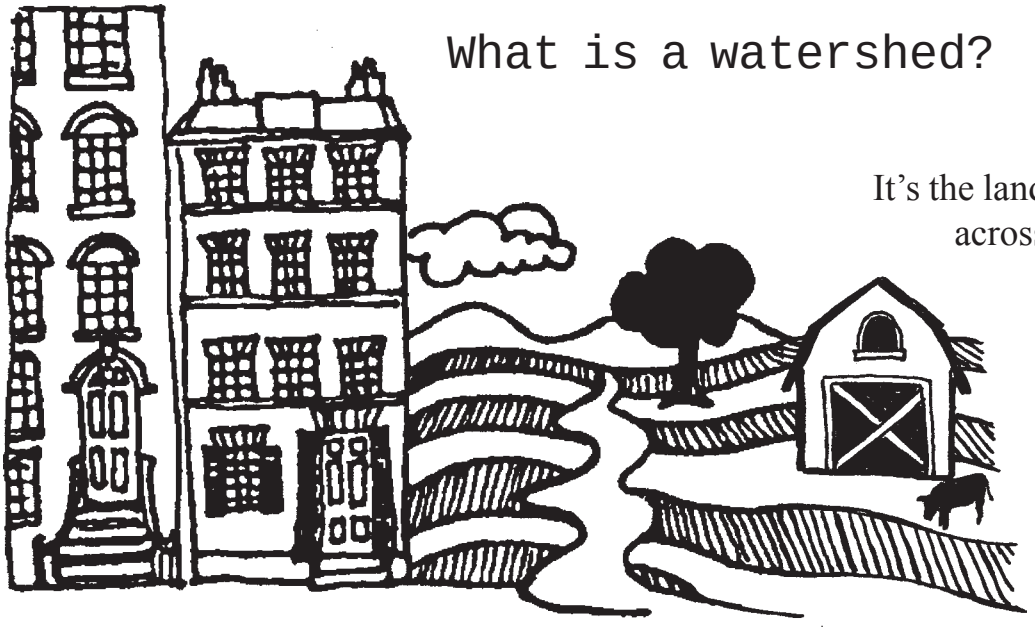




What is a watershed?

It's the land that water flows across or under on its way to a stream, river or lake.

Not all watersheds are the same. A watershed can be in the mountains or where the land is nearly flat.
Cities, farms and forests may be in a watershed.
How we use the land in a watershed affects the water that flows through it.
We all live in a watershed — even plants and animals. So it's important to protect our waterways.

Unscramble these words to find out some of the reasons we need clean water. (The answers are on page 21.)

g i r d n k i n _____

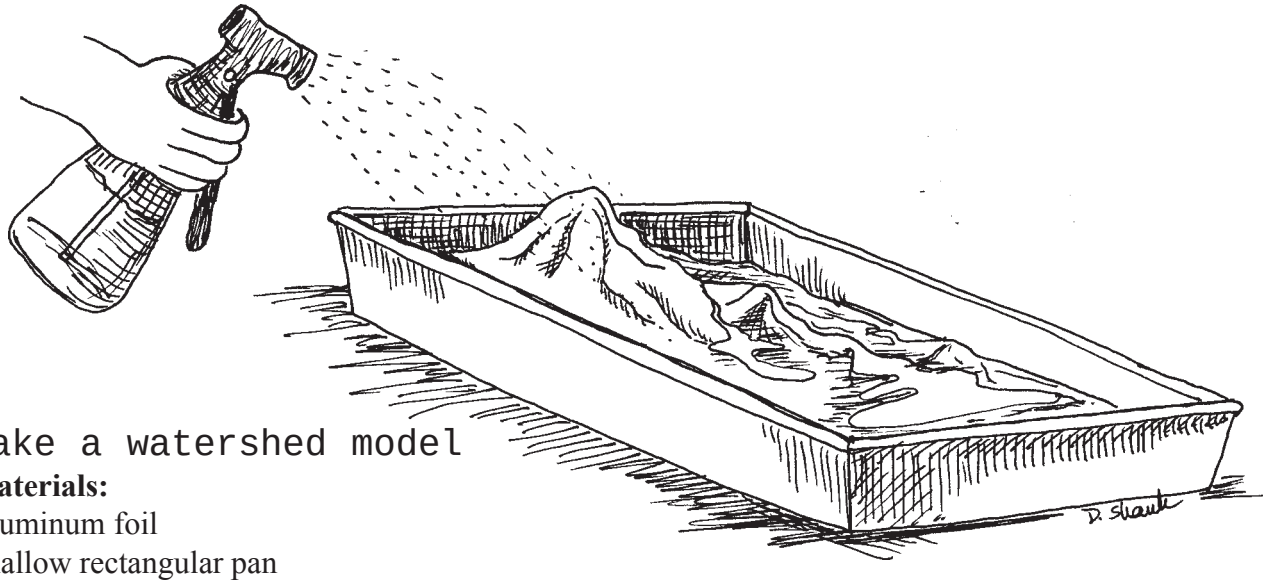
m n i s w m i g _____

n i f s g i h _____

f g i r a m n _____

t r e a c o i n r e _____

d p r o u n c g i s o g o d _____ _____



Make a watershed model

Materials:

Aluminum foil
Shallow rectangular pan
Food coloring or colored powdered drink mix
Soil
Spray bottle or paper cup with holes punched in bottom

Directions

1. Tear off a piece of foil to fit inside the pan. Crumble another piece of foil to make dips and gulleys to represent streams and rivers.

2. At one end of the foil, make a larger basin or pocket. This will be a bay or ocean and will collect water that runs off from the tributaries.

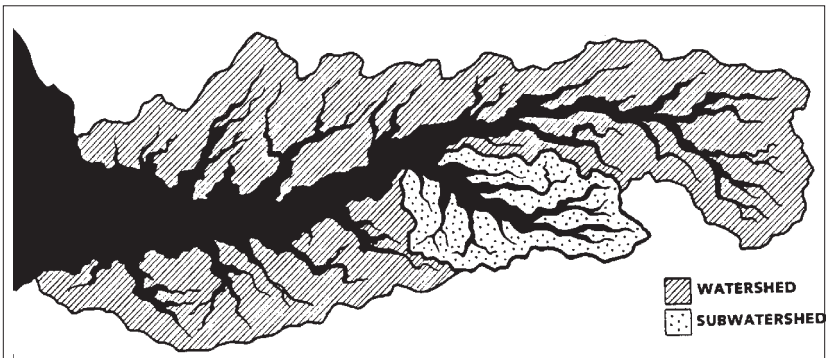
3. Put blocks or rocks in the corners of one side of the pan to make mountains and shape the foil over the blocks.

4. Pile soil up at the upper end of your watershed near the mountains on top of the raised sections of foil. You can make the mountain end higher by putting a book under the pan to prop it up. The cracks and dips represent bodies of water.

5. Squeeze a few drops of food coloring in the soil to represent a source of pollution.

6. Make it "rain" over the mountains with a spray bottle or paper cups with holes punched in the bottoms.

7. Watch how the water runs off of the land, into the **tributaries** and then to the bay or ocean, carrying the pollution with it.

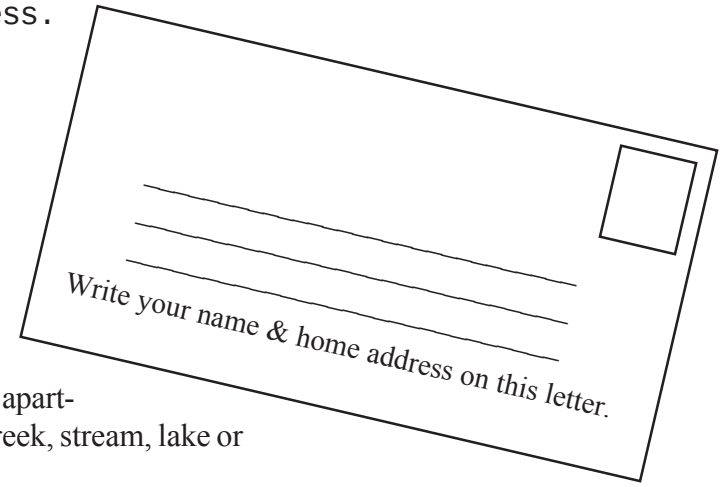


Larger watersheds are made up of many smaller sub-waterheds.

Adapted from Chesapeake Bay Estuary Program's, "What's a Watershed," U.S. Fish & Wildlife's ***Chesapeake Bay Watershed Activity Guide, Bay BC's*** and ***Watershed Watchers***, Lord Fairfax SWCD's curriculum for 4th graders

What's your watershed address?

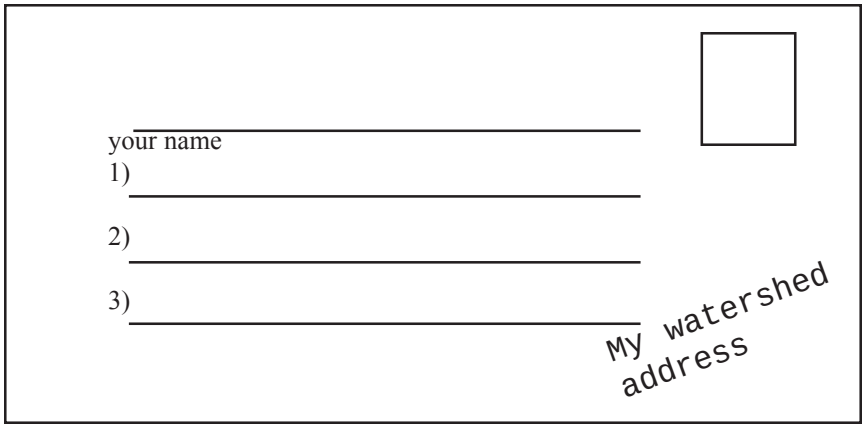
You know your street address.
Do you know your
watershed address?



To figure out your watershed address, think about where you live. Find a map of your county and figure out exactly where you live.

When it rains on the roof of your house or apartment, where does the water go? Is there a creek, stream, lake or river near your house that the water flows to?

1) The name of the closest body of water is the first part of your watershed address. Write the name of that waterway on the second line on envelope below.



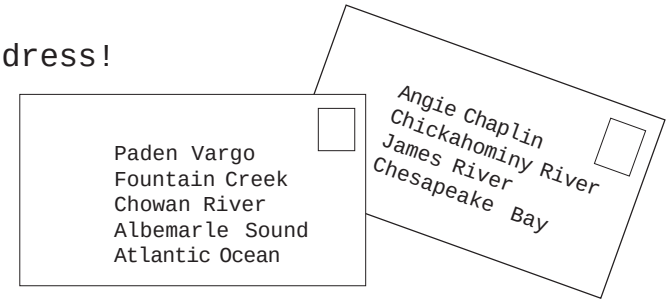
You may have to do some detective work if you have storm drains on your street. Where does the water go from the storm drain? Look at a map and see if you can trace its path.

You may live in an area where the water seeps into underground caves and streams. This land is called **karst**. If you live in a karst area, the rain from your roof may flow straight to the **groundwater**.

2) Where does the water go from there? Trace the river or creek to the next body of water on the map. That's the next part of your address. Write the name of the waterway on the next line.

3) Keep following the path the water would take until you get to a bay, ocean or lake. This is the last part of your watershed address. Write the name of the waterway on the last line.

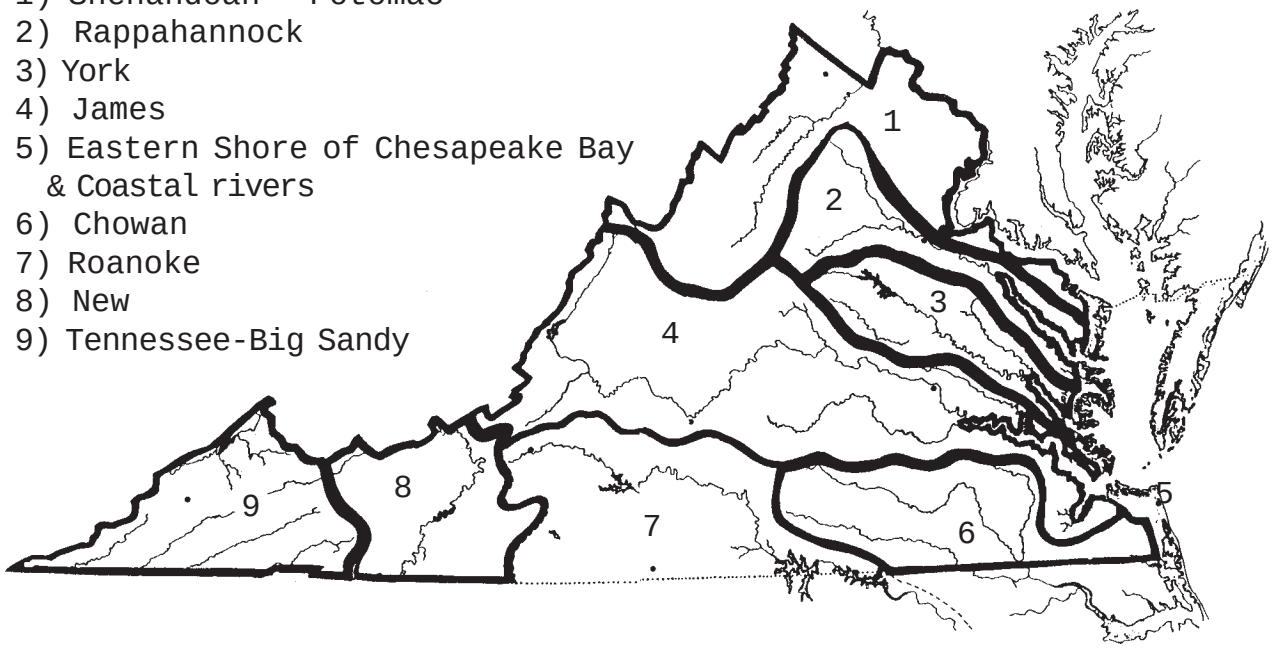
Now you know your watershed address!



Virginia's watersheds

There are nine major watersheds in Virginia. Some flow to the Chesapeake Bay. Some go directly into the Atlantic Ocean. Others flow to the Albemarle Sound in North Carolina. Some rivers in Virginia even flow to the Mississippi and then the Gulf of Mexico!

1) Shenandoah - Potomac
2) Rappahannock
3) York
4) James
5) Eastern Shore of Chesapeake Bay & Coastal rivers
6) Chowan
7) Roanoke
8) New
9) Tennessee-Big Sandy



Color in the watershed where you live.
Do you have a friend or relative who lives in another watershed?

Put a check by the rivers that you have visited on the list below.

Tributaries of the Chesapeake Bay

☐ **Potomac** - ☐ Shenandoah River ☐ Occoquan River

☐ **Rappahannock** - ☐ Rapidan River ☐ Robinson River

☐ **York-** ☐ North Anna River ☐ Pamunkey River ☐ Mattaponi River

☐ **James** - ☐ Jackson River ☐ Cowpasture River ☐ Maury River ☐ Appomattox River ☐ Rivanna River ☐ Chickahominy River

Eastern Shore & Coastal Rivers-

☐ Back Bay ☐ Elizabeth River ☐ North Landing River ☐ Lynnhaven River

Tributaries of the Albemarle Sound

☐ **Chowan** - ☐ Nottoway River ☐ Meherrin River ☐ Blackwater River

☐ **Roanoke** - ☐ Smith River ☐ Dan River ☐ Hyco River ☐ Bannister River ☐ Staunton River ☐ John Kerr Reservoir ☐ Lake Gaston ☐ Smith Mountain Lake

Tributaries of the - Mississippi River - Gulf of Mexico

☐ **Tennessee - Big Sandy Rivers**- ☐ Holston River ☐ Clinch River ☐ Powell River

☐ **New River**- ☐ Claytor Lake

River facts

Potomac - Shenandoah - The Potomac and Shenandoah watershed covers about 5,700 miles. One third of the Potomac River watershed is in Virginia, but none of the river flows through the state. A lot of people live in the Potomac watershed. The Occoquan River is an important source of water for the people who live in the watershed.

Shenandoah is a native American word meaning "daughter of the stars." The Shenandoah River joins the Potomac at Harper's Ferry, West Virginia. There are lots of farms in the watershed, which is famous for apples, chickens and turkeys. Limestone caves and unusual rock formations like Natural Chimneys and Luray Caverns are special places to visit in the watershed. Famous Americans like George Washington, Patrick Henry and James Monroe lived in the watershed during colonial times.

Rappahannock - The Rappahannock River begins in the Blue Ridge Mountains near Chester Gap in Warren County and flows 212 miles to the Chesapeake Bay. The watershed in northeastern Virginia is one of the fastest growing areas of the state. Fishing, farming and tourism are important. Much of the watershed is forest and cropland. More than 25,000 people depend on the river for drinking water.

York - The York River is only 34 miles long and is influenced by tides from the Chesapeake Bay. Most of the watershed is forest, cropland and pasture. Paper manufacturing is also important. The Mattaponi and Pamunkey Rivers join at West Point to form the York. Yorktown, at the mouth of the river, was the site of a famous battle during the Revolutionary War. During WWII the American fleet was anchored in the harbor.

James - The James River watershed is Virginia's largest and covers about 1/4 of the state, more than 10 thousand square miles. Nearly a third of the population lives in the watershed. From its beginning in Botetourt County, it flows 340 miles to the Chesapeake Bay. Richmond, the state capitol is located on the James River. Newport News is one of the world's largest shipyards and nearby Hampton Roads is one of the nation's busiest ports and the site of the world's largest naval base. The James was important to the settlement of America where the first English colony in the New World was located at Jamestown. The first Thanksgiving in America was celebrated at Berkeley Plantation on the James River in 1619.

Coastal Rivers - Many Virginians live in this Tidewater area, which is only a few feet above sea level. Many of the rivers and streams in the watershed are short and bordered by marshes. Commercial shell fishing, fishing, shipping, farming, brick and fertilizer manufacturing and tourism are important industries in the watershed. The counties on the Eastern Shore produce lots of different crops in the sandy soil. There is also lots of poultry raised on the Eastern Shore. Farmers use more groundwater for watering crops on the Eastern Shore than for all of Virginia's other counties combined.

Chowan - The Chowan River watershed is mostly rural. Most of the watershed is in Virginia, but the river itself forms on the Virginia - North Carolina border and flows into the Albemarle Sound in North Carolina. The Blackwater River, one of the **tributaries** of the Chowan flows through farmland where tobacco, peanuts and soybeans are raised. Another tributary, the Nottoway River is bordered by wooded swamps where lots of fish and wildlife live. Lake Drummond, one of Virginia's two natural lakes is located in the center of the Great Dismal Swamp in the watershed.

Roanoke River - The Roanoke River watershed covers about 15 percent of Virginia's land area. Farming, generating electricity, furniture production and transportation are important in the watershed. There are four man-made reservoirs in the watershed: Smith Mountain Lake, Leesville Lake, Buggs Island Lake and Lake Gaston. These lake were built to control flooding, for power plants and also provide lots of recreation. Between Leesville and Buggs Island, the Roanoke River is called the Staunton River. Fishermen agree that the watershed has lots of great places to fish.

New River - It sounds funny, but the New River is one of the world's oldest rivers. It flows north for about 320 miles and finally empties into the Mississippi River. Most of the watershed is mountains, forest, cropland and pasture. The river helps generate power at Claytor Lake Dam. Mountain Lake, one of the two natural lakes in Virginia is found in the watershed. The New River is a great place to go canoeing or rafting.

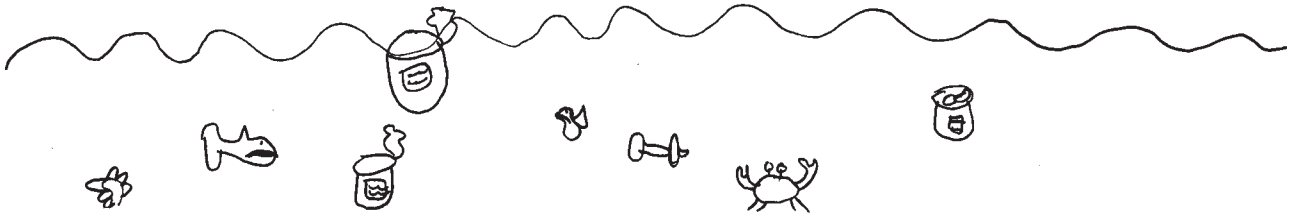
Tennessee-Big Sandy River - Neither the Tennessee nor the Big Sandy flow directly through the state, but its many tributaries are in the southwest corner of the state. Coal, lumber and tourism are the major industries in the mostly rural watershed.

The Clinch, Powell and Holston rivers are important tributaries of the Tennessee-Big Sandy watershed. Pollution has been a serious problem in the watershed for many years. In the early 1970s the North Fork Holston was named one of the most polluted rivers in the United States. Problems go back as far as 1760 when commercial salt mines operated at Saltville. There was a chemical spill in 1924 and a spill of sulfuric acid in the Clinch River in 1970. A lot of work is being done to help clean up the rivers.

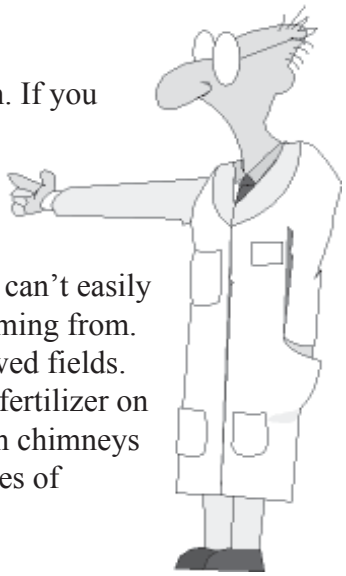
Clinch & Powell Rivers - The Clinch River and Powell Rivers have more than 100 kinds of freshwater fish and mussels - some of them are on the endangered species list. The Breaks section of Russell Fork is known as the "Grand Canyon of the East" and is part of Breaks Interstate Park on the Kentucky-Virginia border.

Holston River - The Holston River has three main branches-the North, Middle and South Forks. The river flows in valleys between steep mountain ridges. Mt. Rogers, the state's highest mountain is in the watershed.

Water is one of our most important natural resources.
We need clean water to keep us alive.



There are two kinds of water pollution – point source and nonpoint source.



It's usually easy to figure out where **point source pollution** comes from. If you see a pipe emptying into the water, that's a point source.

You can point to where it's coming from.

Much of the pollution that enters our waterways comes from places you can't easily identify— that's **nonpoint source pollution.** It's hard to tell where it's coming from. Rain washes loose soil off construction sites, bare spots in the yard or plowed fields. Rain washes oil and litter off of parking lots and roads into streams. Extra fertilizer on lawns, golf courses and farm fields wash into our waterways. Exhaust from chimneys and cars goes into the air and comes down with the rain. These are examples of nonpoint source pollution.

Which is point source and which is nonpoint source?

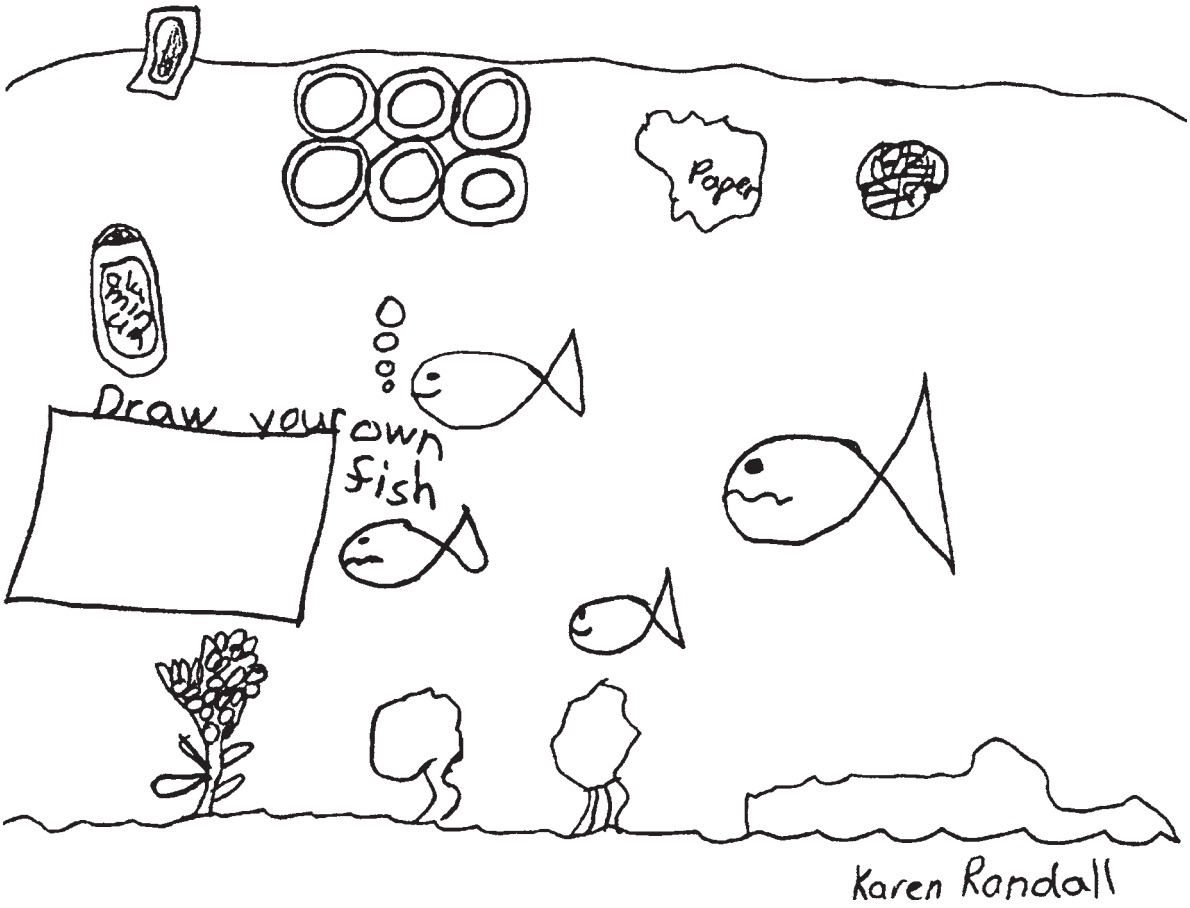
Place a P in the box if the source of pollution is a point source and an N in the box if the pollution is a nonpoint source. (Answers on page 21.)

- ☐ discharge from a pipe entering a river
- ☐ fertilizer from people's yards
- ☐ an overflow at a sewage treatment plant
- ☐ rainwater running off a parking lot after a storm
- ☐ loose soil from a construction site
- ☐ smoke in the air from a power plant
- ☐ animal manure from a pasture
- ☐ used motor oil from a car whose owner empties it directly into a storm drain
- ☐ soil eroding from a streambank
- ☐ an old gasoline storage tank leaking gasoline into the groundwater

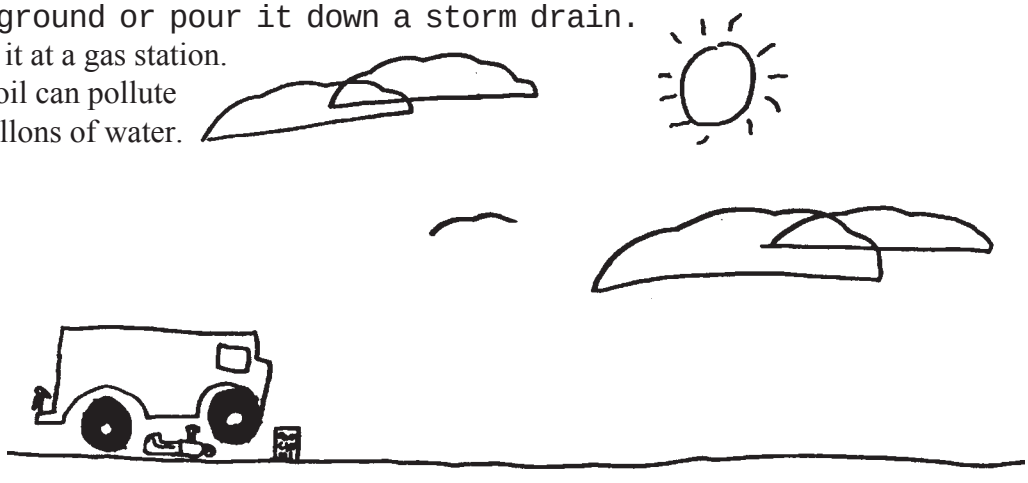
What you can do to help keep your waterway healthy

There are lots of things kids can do to prevent water pollution.

Don't litter. If you visit a river or go to the beach, don't throw trash in the water. Creatures live there. How would you like it if people dumped garbage in your house?



If you know someone who changes the oil in their car, make sure they don't dump it on the ground or pour it down a storm drain. Tell them to recycle it at a gas station. One quart of motor oil can pollute up to two million gallons of water.

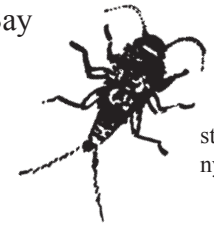


drawing by Jimmy Gray

Adopt a stream or river.

Your family or class can learn how to do water quality monitoring. Pick a place that's easy and safe to get to. You can do tests on the water using chemical kits or by catching and counting macroinvertebrates a couple times a year. Groups like the Izaak Walton League of America or the Alliance for the Chesapeake Bay can teach you how.

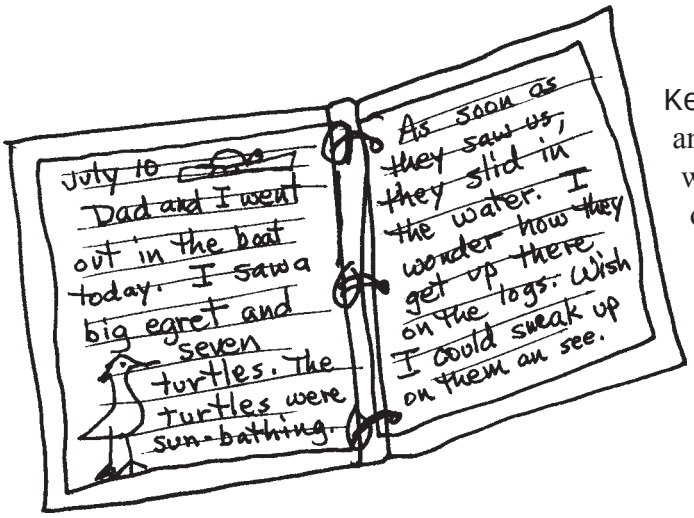
damselfly nymph



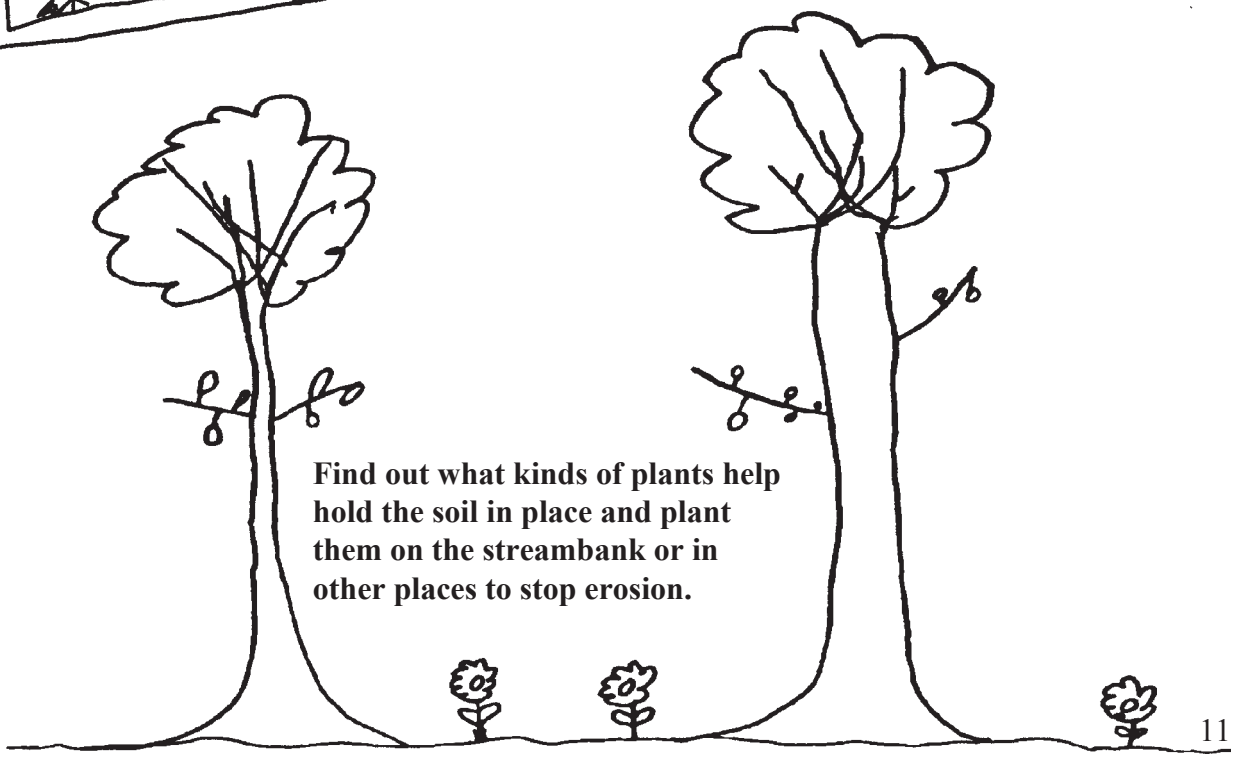
stonefly nymph

Clean up the river bank.

Get a group of friends and an adult or two, take along some trash bags and clean up trash along the river bank or beach. Many groups have organized clean-ups from boats and canoes. Sometimes there's even a party afterwards to celebrate what a great job everyone did! Look in the newspaper, especially in the spring and fall for special clean-up events.



Keep a journal of what you see and if anything is changing. You might want to record what the water looks or smells like, what kinds of animals, birds or fish you see or if new houses are being built close by. Has it rained a lot lately? Is it summer or winter? How does that affect the river?



Find out what kinds of plants help hold the soil in place and plant them on the streambank or in other places to stop erosion.

Clean up after your pet.

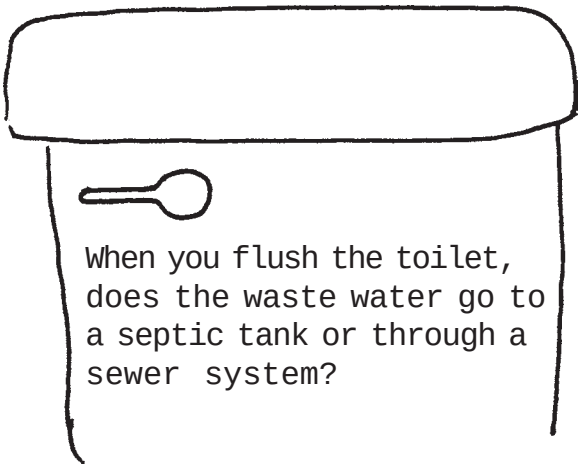
Bury animal waste in the leaves so it won't wash down the street and end up in the river.

Find out where your water comes from and where it goes.

Do you get your water from a well? Does your water come from a reservoir? Does it come from a water treatment plant? Whose job is it to make sure your water is O.K. to drink?

My water comes from _____.

It is _____'s job to make sure my water is safe to drink.



When I flush at home, the water goes to a _____.

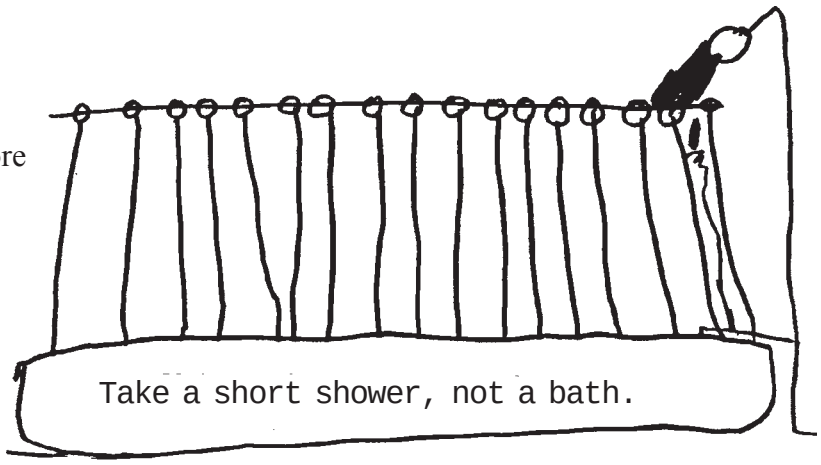
When we flush at school, the water goes to a _____.

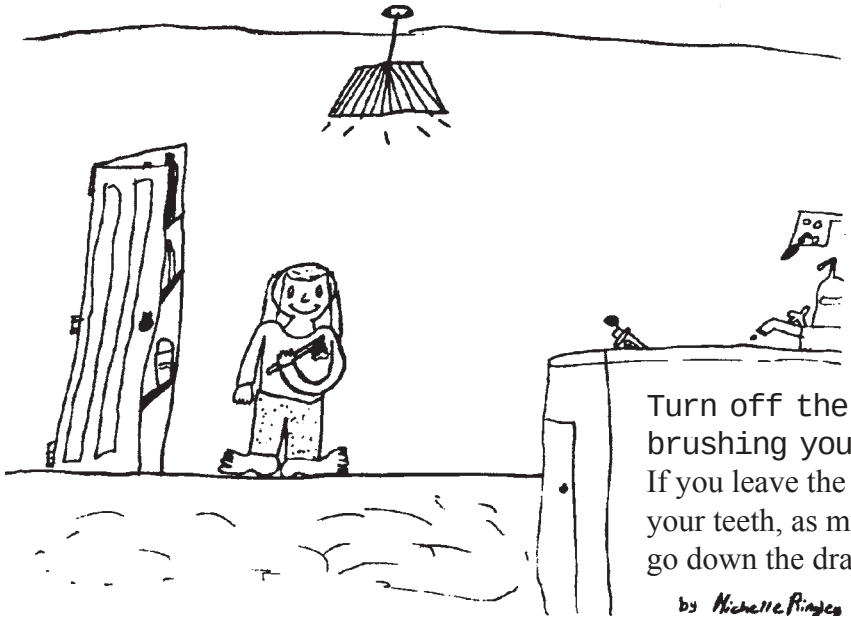
Toilets use 3-6 gallons of water with each flush. If your family agrees, at home flush less often ... after 2 or 3 uses or when there is solid waste. Never use the toilet as a trash can to flush away things like gum wrappers, paper towels or your dead goldfish. Flushing some things down the toilet can ruin your septic system.

Save water.

Take a short shower, not a bath. You'll use less water. Get out before your Mom yells at you. Running a shower uses five gallons of water per minute. A bath takes about 35 gallons.

If you *really* hate to take baths, use water conservation as an excuse not to take a bath if you really don't need one!



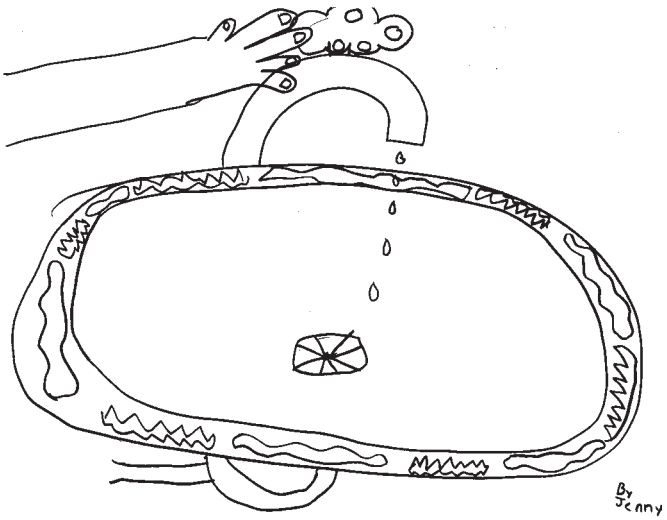


Turn off the water while you're brushing your teeth.

If you leave the water running while brushing your teeth, as much as 2 gallons of water can go down the drain.

by Michelle Ringer

Help grown-ups fix the drippy faucets in the house.



America has more faucets and toilets than any other country. Washing dishes by hand takes about five gallons of water. Running an automatic dishwasher uses about 30 gallons.

We use land in many different ways.
Different land uses can sometimes cause water pollution.

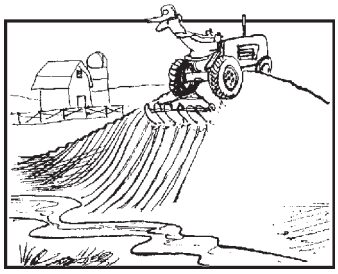
Here are some ways we use land. On the chart below, fill in what kinds of problems you think might come from each land use and what could be done to help.

Land Use	Potential problem	Solution
Construction - building		
Farming		
Roads, streets & parking lots		
Golf courses		
Lawns		
People & animals		
Forestry		
Other		

You'll find some possible answers on pages 15-17.

Construction - Whenever something is being built, the soil is disturbed in some way -- whether it's to build a new house or a shopping mall. The loose soil or **sediments** wash into streams. It clouds the water, chokes fish and other animals, blocks sunlight that aquatic animals need to grow and makes it harder to clean up our drinking water. Erosion and sediment control laws require builders to put up silt fences, stake hay bales and put in strucutures to slow down run off and keep loose soil out of streams and rivers.

Farming - Plowing to plant crops disturbs soil. Many farmers now use **conservation tillage** instead of the old way to plow to keep soil in place. Seeds are drilled into the soil and come up through the stubble of the old crops. Planting rows across the slope of the land (instead of up and down the hill as the illustration shows) helps keep soil from washing into the stream. Putting grass on areas that erode easily is another way farmers help protect waterways.

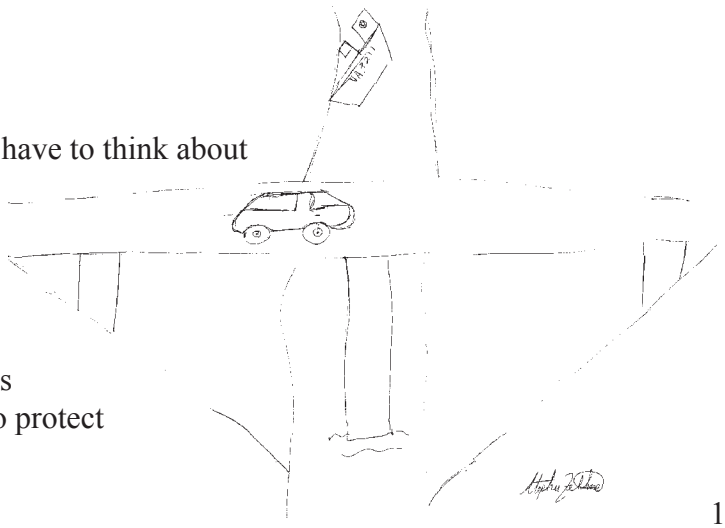


Fertilizers and pesticides that aren't used by the crops or pasture can also run off into waterways. By putting them on fields at the right time and in the right amounts, farmers can reduce what might run off. Farmers can check their fields to see if they need to spray for bugs instead of spraying automatically. They can also use other bugs that are the pests' natural enemies to destroy them. This is called **Integrated Pest Management.**

If you know a farmer, find out about other **Best Management Practices** he or she uses to save soil and protect water.

Roads, streets and parking lots

Have you ever looked at a parking lot after it rained and seen little rainbows on the pavement? What is that? Cars leak oil and antifreeze on to the pavement. People litter in the parking lot. Have you ever noticed all the cigarette butts on the side of the road at a stoplight? What about the sand and chemicals that go on roads when it snows. When it rains, where does all that stuff go? That's right, down the street, into a ditch, storm drain and then into your river!
Which moves faster — water running off of a grassy area, a wooded area or a parking lot? Why?



People who build parking lots and roads have to think about how the water is going to run off these surfaces. Look at the parking lot at your school or at a mall. Do you see anything that's there just to slow down the water? Are there any ponds nearby to catch the water from the parking lot? These structures and ponds may have been put on purpose to protect your river.

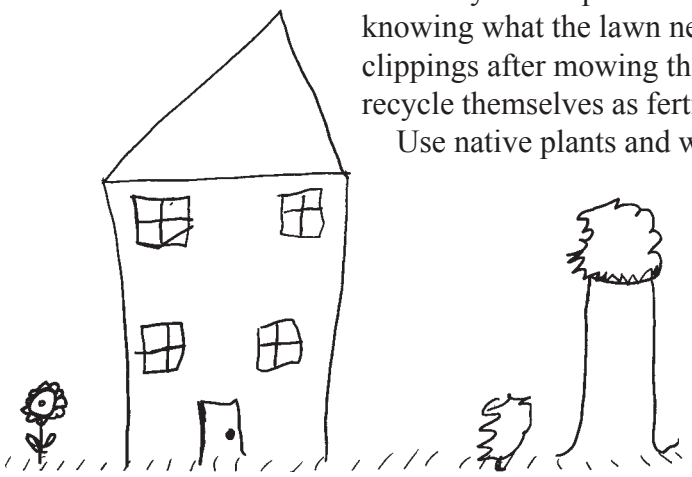
by Megan

Lawns

If you took all the fertilizer used on people's lawns and golf courses it would add up to much more than what farmers use on all their fields combined! It's nice to see pretty green grass. But, lots of home owners think if a little fertilizer is good, then a lot would be better. It's not.

The nutrients that grass, trees and flowers don't use runs off into waterways or seeps into the groundwater. Taking a soil sample and knowing what the lawn needs is a good idea. Instead of raking up grass clippings after mowing the grass, leave them on the lawn where they can recycle themselves as fertilizer.

Use native plants and wildflowers to landscape the yard. You won't have to mow them and birds and butterflies love them.

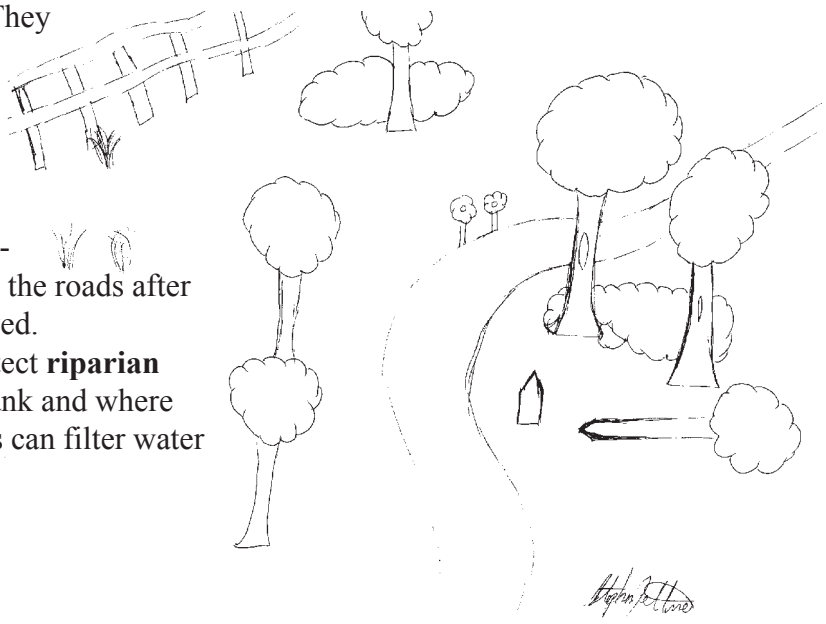


Decks and brick-on-sand patios make great places to have fun outdoors and let water go through to soak into the soil.

Forestry

We use trees for lots of things — paper, furniture, and wood to build houses. Even chewing gum and some plastics are made from trees. We can plant trees and grow them to use for these things. It takes a lot longer to grow a tree than it does a tomato. Trees are a renewable resources.

Trees provide shade. Birds and animals use them for homes and shelter. When trees are harvested, loggers are careful to do things to protect our waterways. They put in **Best Management Practices** just like farmers and builders. Roads made to get the trees out of the woods and onto trucks are where problems can occur. Loggers can put in *water bars* to keep rain from washing down a road. They plant grass on the roads after all the trees have been cut and removed.



Foresters and farmers work to protect **riparian zones** or areas between the stream bank and where forests or fields begin. Riparian areas can filter water on its way to the stream.

Answers

Reasons we need clean water page 2

Drinking
Swimming
Fishing
Farming
Recreation
Producing goods

Which is point source and which is nonpoint source pollution? page

P discharge from a factory pipe entering a river
N fertilizer from people's yards
P an overflow at a sewage treatment plant
N rainwater running off a parking lot after a storm
N loose soil from a construction site
N smoke in the air from a power plant
N animal manure from a pasture
P used motor oil from a car whose owner empties it directly into a storm drain
N soil eroding from a streambank
P an old gasoline storage tank leaking gasoline into the groundwater

Natural Resources Jeopardy page

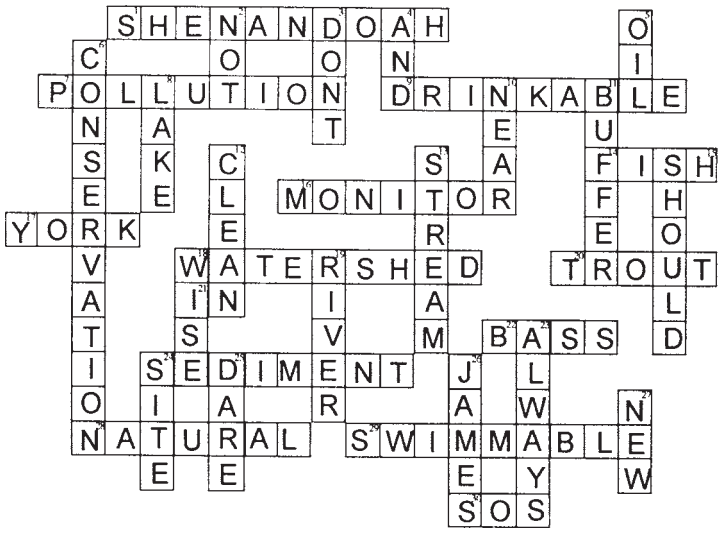
Water Words
$10 - What is water?
$20 - What is a shower?
$30 - What are hydrogen and oxygen?
$40 - What are wells?
$50 - What is precipitation?

Pay Dirt
$10 - What is erosion?
$20 - What is topsoil?
$30 - What is an earthworm?
$40 - What is the percolation rate?
$50 - What is sediment?

Pollution & solutions
$10 - What is conservation?
$20 - What can be recycled?
$30 - What is nonpoint source pollution?
$40 - Who are the largest contributors to water pollution?
$50 - What is composting?

Watersheds
$10 - What are wetlands?
$20 - What is a tributary?
$30 - What are motor vehicles?
$40 - What is your watershed address?
$50 - What is the Chesapeake Bay?

Watershed Connection Crossword Puzzle, page



People and animals.

Every living thing on Earth is mostly water. An  is 70 percent water. A  is about 65 percent water . . . and so are you! A typical person uses about 70 gallons of water a day.
Factories use more water than any other material. It's important to conserve water and take care of it. There are lots of things you can do mentioned in this book.
List some of the ways you have used water today. How many gallons do you think you used?

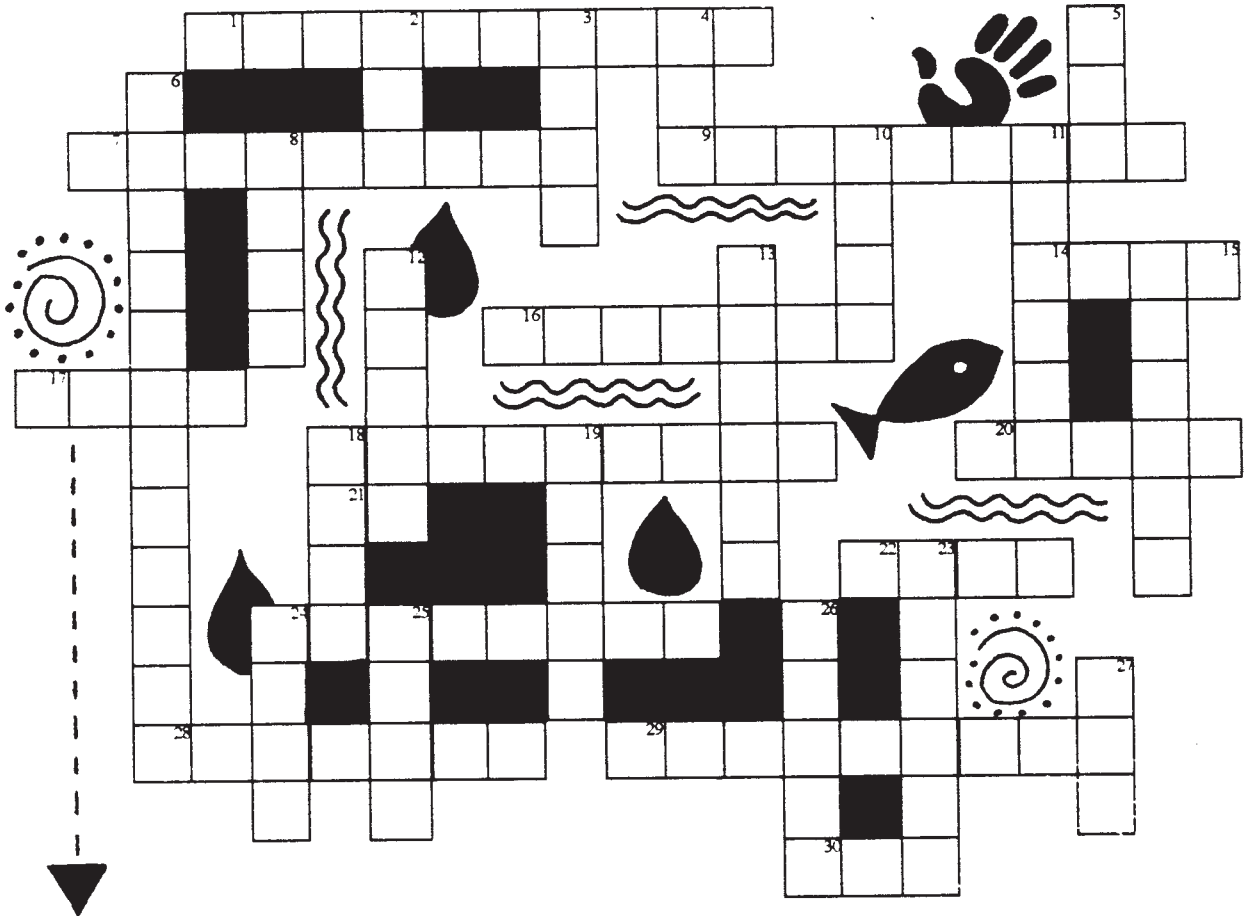
1) _____
2) _____
3) _____
4) _____
5) _____

Natural Resources Jeopardy

(Answers on page 21.)

$	water words	pay dirt (soils)	pollution & solutions	watersheds
$10	Americans use more than 300 billion gallons of this a day.	Planting trees or plants and using silt fences on contruction sites help prevent this.	Wise use of our natural resources.	Filter areas that provide habitat for waterfowl and help prevent flooding.
$20	Inside the home, an average of 50 gallons of water is used for one of these.	It takes 100 to 1,000 years to make one inch of this.	Aluminum cans, glass, plastic and motor oil.	A stream of river that contributes its water to another stream, river or body of water.
$30	Water is made up of these two elements.	Squiggly creatures that play an important part in mixing, breaking up and aerating soil.	Pollution from non-specific places. It's hard to "point" where it comes from.	Exhaust from this source is a major cause of air pollution and acid rain.
$40	Jack & Jill and almost 40 million others rely on these for their drinking water.	The rate at which water passes or "perks" through the soil.	Industry, sewage and agriculture	The name of the watershed you live in plus where it goes from there.
$50	Snow, rain and sleet are forms of this.	Bits of sand, soil, pebbles and other materials that wash into rivers, lakes and oceans.	Start a pile of grass clippings, leaves and vegetable waste and you'll be doing this.	The Potomac, Rappahannock, York and James Rivers all flow into this.

Watershed Connection Crossword Puzzle



Across

1. Virginia river that inspired a song
7. our everday actions can cause this
9. processing water through waste water treatment plants makes it fit for humans or _____.
14. creatures that live in healthy rivers
16. to measure the health of a stream
18. the land that water flows across or under on its way to a larger stream, river or lake
20. a fish that lives in cold mountain streams and usually indicates very good water quality
21. opposite of out
22. a type of fish, two varieties of this species are the large and smallmouth
28. We need to protect our _____ resources.
29. Before you jump in, it's good to know if the water is clean or _____
30. abbreviation of Izaak Walton League's popular stream monitoring method designed to "Save Our Streams"

Down

2. Negative word
3. "Give a hoot, _____ pollute."
4. conjunction
5. one quart of this poured down a storm drain can pollute up to tow million gallons of water
6. important practices to protect our natural resources
7. a body of water (Drummond, Gaston, & Claytor, & Smith Mountain for example)
10. opposite of far
11. filter strip of grass or strees along a stream or river bank to keep sediment, pesticides or nutrients out of the water
13. small waterway which flows into a river
15. We _____ try to conserve water by taking short showers and repairing leaky faucets.
19. flowing body of water that is made up of small tributaries draining into it
23. when we should care about water quality
24. sediment form a construction ____ can be controlled by using selt fences and other erosion control devices.
25. a challenge
26. a major river in Virginia's Chesapeake Bay watershed
27. one of the oldest rivers in North America: its name implies just the opposite

Resources for more watershed & water quality activities

Project Aquatic WILD - contact the Virginia Dept. of Game & Inland Fisheries, 4010 W. Broad St., Richmond, VA, 23230-1104, (804) 367-1000, email: dgif@va.state.us

Project WET - contact the Dept. of Environmental Quality, 629 E. Main St., Richmond, VA P.O. Box 10009, email: deq@va.state.us

Project Learning Tree - contact the Virginia Dept. of Forestry, P.O. Box 3758, Fontaine Research Park, 900 natural Resources Dr., Charlottesville, VA 22903, (804) 977-6555

Virginia Watersheds Manual - contact the Virginia Museum of Natural History, Douglas Ave., Martinsville, VA, (540) 666-8600

Give Water a Hand - University of Wisconsin Extension, CALS, Environmental Resources Center, Agriculture Hall, Room 216, 1450 Linden Dr., Madison, WI 53706, (800) WATER20; http:www.uwex.edu/eru

Adopt-a-Watershed - (high school level curriculum) contact Kim Hummel, Middle Fork Holston Watershed Coordinator, (540) 783-7355

Watershed Watchers, Greenway Guardian & River Rangers curricula- Lord Fairfax SWCD, 130 Carriebrooke Dr., Stephens City, VA 22655-6000, (540) 868-1130

Tommy Trout: Fish Detective, National Assoc. of Soil & Water Conservation Districts, P.O.Box 855, League City, TX 77574-0855, 1-800-825-5547, ext. 32

Environmental Education Activity Finder on the web- http://eelink.net/eepro/html/activity finder.html, contact Angela Higgs, (804) 261-5984

Hands On Save Our Streams: Science Project Guide for Students, Izaak Walton League of America Save Our Streams Program, 707 Conservation Lane, Gaithersburg, MD 20878-2983, (800) BUG-IWLA

Earthwater Stencils (source for stormdrain stencils), 4425 140th Ave. SW, Rochester, WA 98579-9703, (360) 956-3774; email: erthwatr@ix.netcom.com

Enviroscape model (also posters and publications) - Terrene Institute, 4 Herbert St., Alexandria, VA 22305, (703) 548-5473, web: http://www.terrene.org

Virginia Cooperative Extension's 4-H Centers & 4-H project activity books, contact your local Virginia Cooperative Extension office under your county government listing

Ag in the Classroom, Virginia Farm Bureau, P.O. Box 27552, Richmond, VA 27552, (804) 784-1374

Really cool hands-on websites:

Save Our Streams practice site - **http://wsrv.clas.viginia.edu/~sos-iwla**

4-H Entomology site with bugs, trees, shrubs and wildflowers - **www.upcrc.vt.edu/4hent.htm**

Water quality **- www.epa.gov/OWOW/NPS/kids/splash**

Glossary

Best Management Practices - activities that help prevent water pollution, such as buffers, conservation tillage, silt fences, etc.

conservation - wise use and protection of our natural resources

erosion - wearing down or washing away of soil and land surface by the action of wind, water or ice

ground water - water found in spaces between soil particles underground

karst - an area where the water seeps into underground caves and streams.

natural resources - found in nature --soil, minerals, forests, water, fish, wildlife

nonpoint source pollution - wide-spreak overland runoff containing pollutants that doesn't come from one specific source trace, such as rain washes loose soil off construction sites, bare spots in the yard or plowed fields. Rain washes oil and litter off of parking lots and roads into streams.

nutrient - something that provides food for a living being

point source pollution - pollution that comes from an identifiable point, including pipes, ditches, sewers, channels, tunnels or containers of various types.

reservoir - a body of water (often a lake) in which water is collected or stored

runoff - precipitation that flows over the land to surface streams, river, and lakes

sediment - bits of sand, soil, pebbles and other material deposited by wind, water and glaciers that washes into rivers, lakes and oceans and piles up layer on top of layer

soil - a naturally occurring mixture of minerals, organic matter, water and air that forms the surface of the land

storm drain - an opening in a road where runoff from the surface flows into an underground pipe

tributary - a stream or river that contributes its water to another stream, river or body of water

watershed - the land that water flows across or under on its way to a stream, river or lake.

water treatment plants - facilities that treat water to remove contaminants so that it can be safely used