



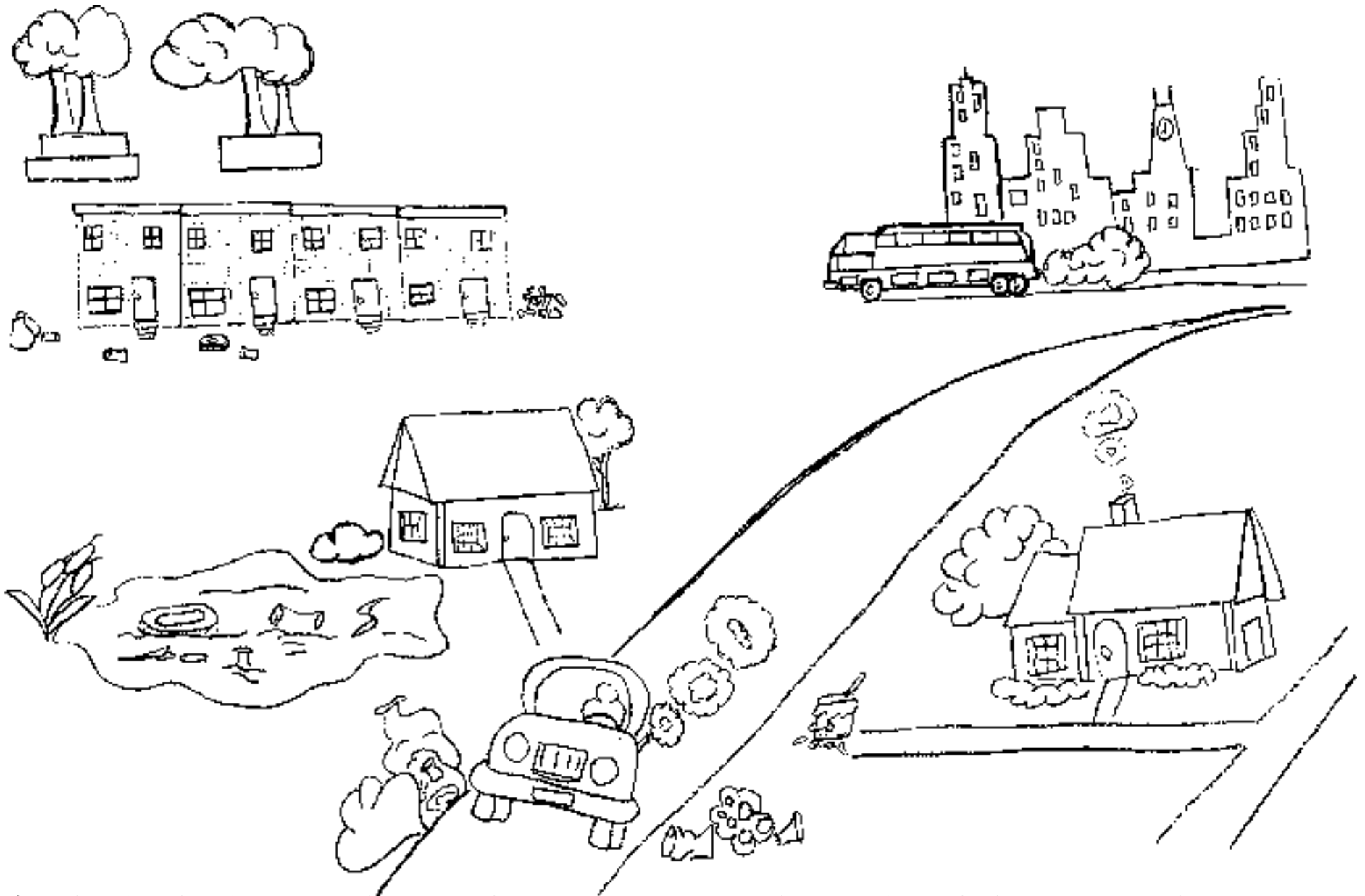
# Captain Cleanup's Coloring and Activity Book

*Helping kids to learn about  
Maryland's environment.*

**Maryland Department  
of the Environment**

**[www.mde.state.md.us](http://www.mde.state.md.us)  
1-800-633-6101**

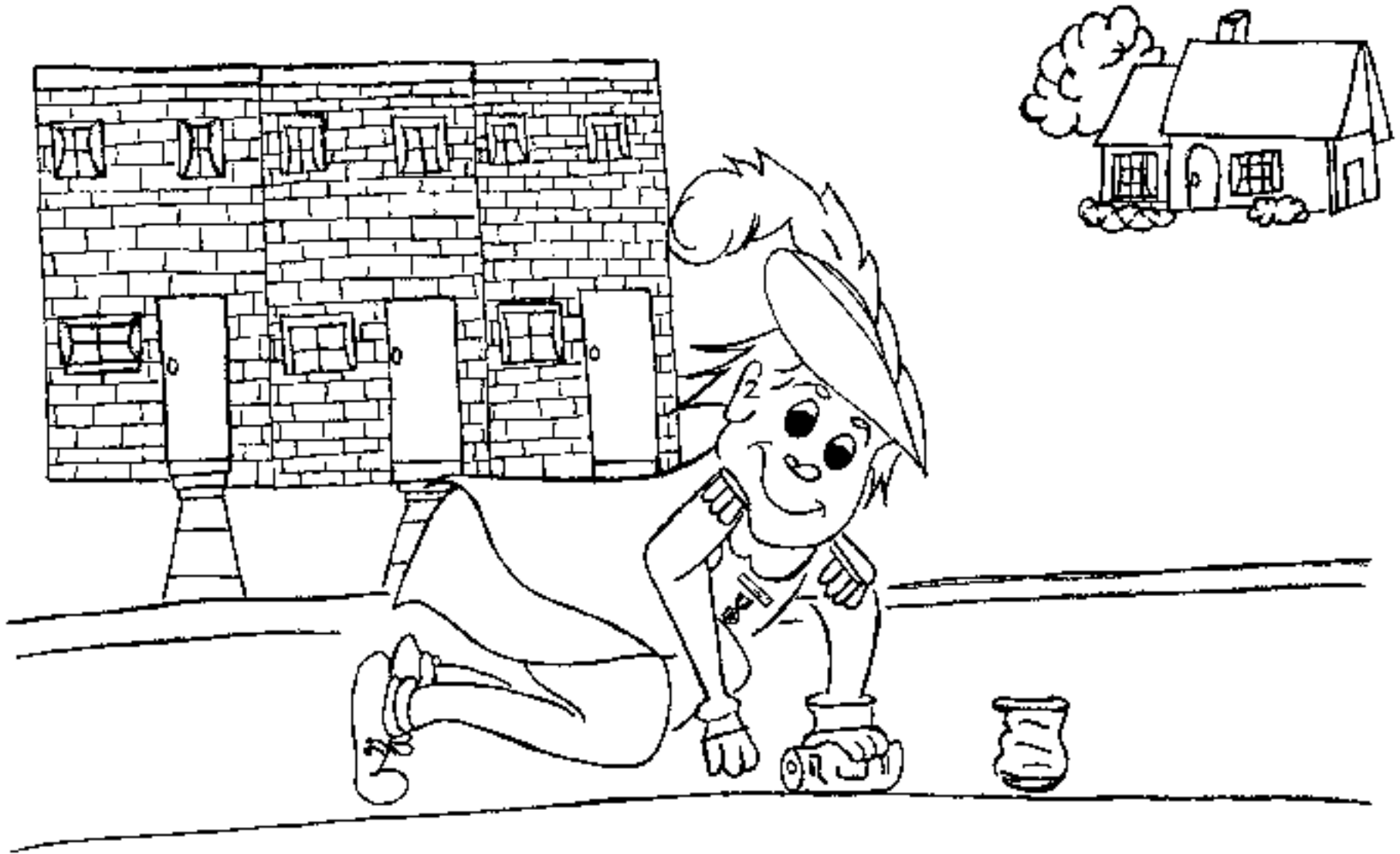




Maryland's land, air and water have a very special friend to help protect them against harmful pollution...



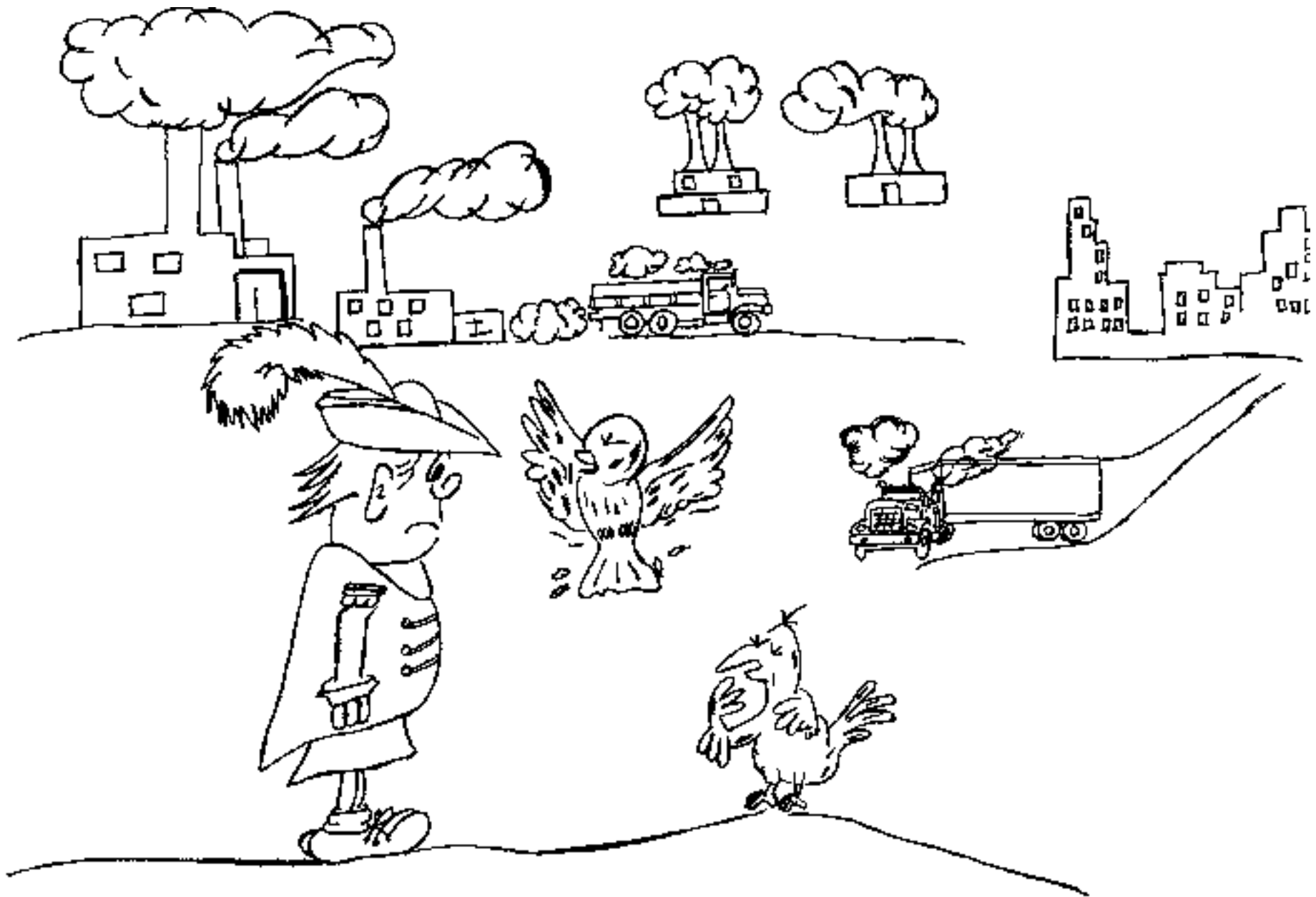
**It's Captain Cleanup!**



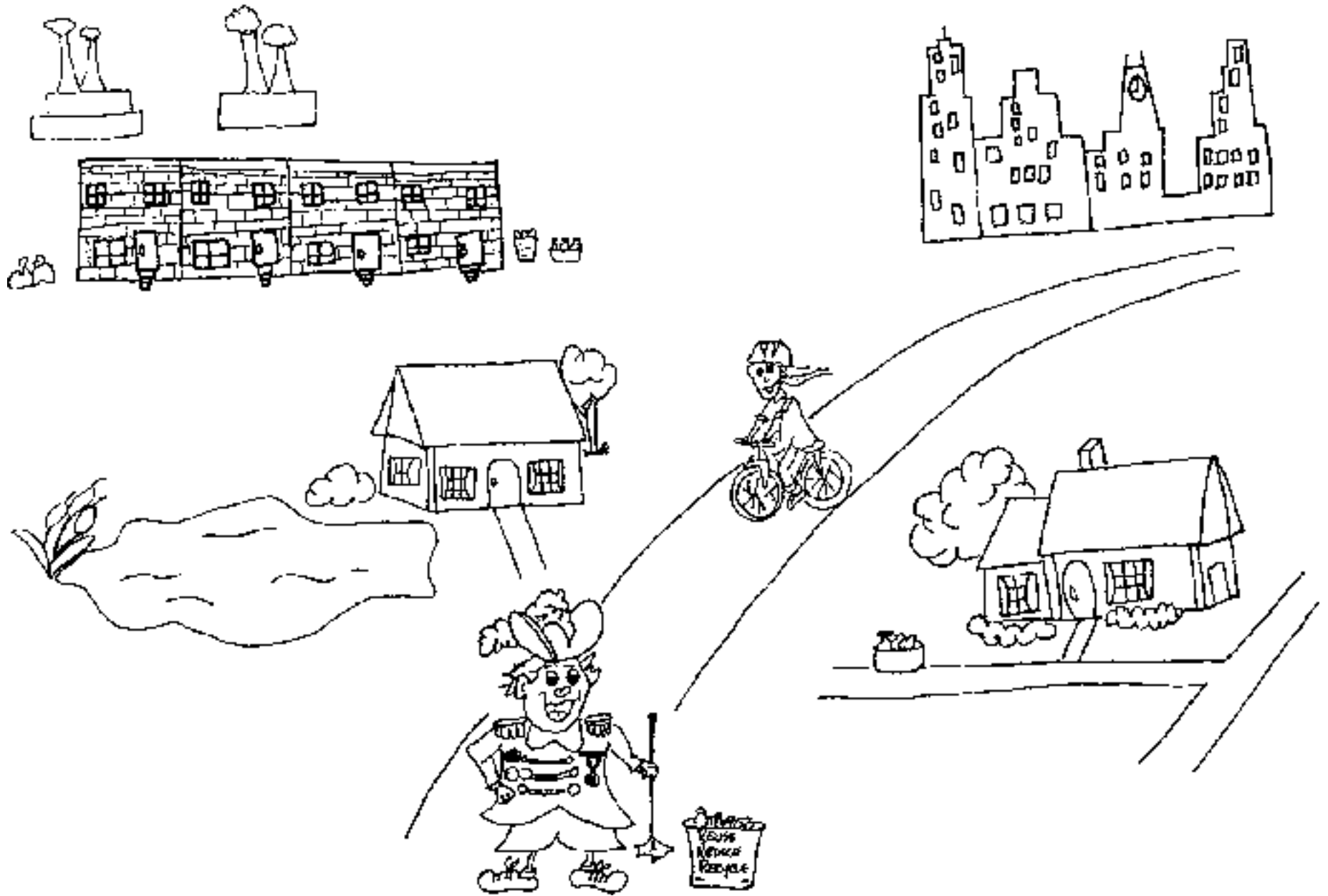
**Captain Cleanup is always on the job...**



**Whenever your rivers get cloudy...**



Whenever the air gets smokey...



**Captain Cleanup comes to the rescue!**



**But he can't do it all by himself. He needs everyone to help out.  
Will you help?**





**1/3 of all nutrient pollution in the Chesapeake Bay comes from automobiles.**



**When it is safe, walk, bike or skate instead of having your parents drive to help reduce pollution from automobiles.**



Using electric lawn care equipment reduces ground-level ozone, a part of air pollution which is harmful to our lungs.



**Your family can use electric lawn equipment to help keep our air clean instead of using smokey, gas powered mowers.**

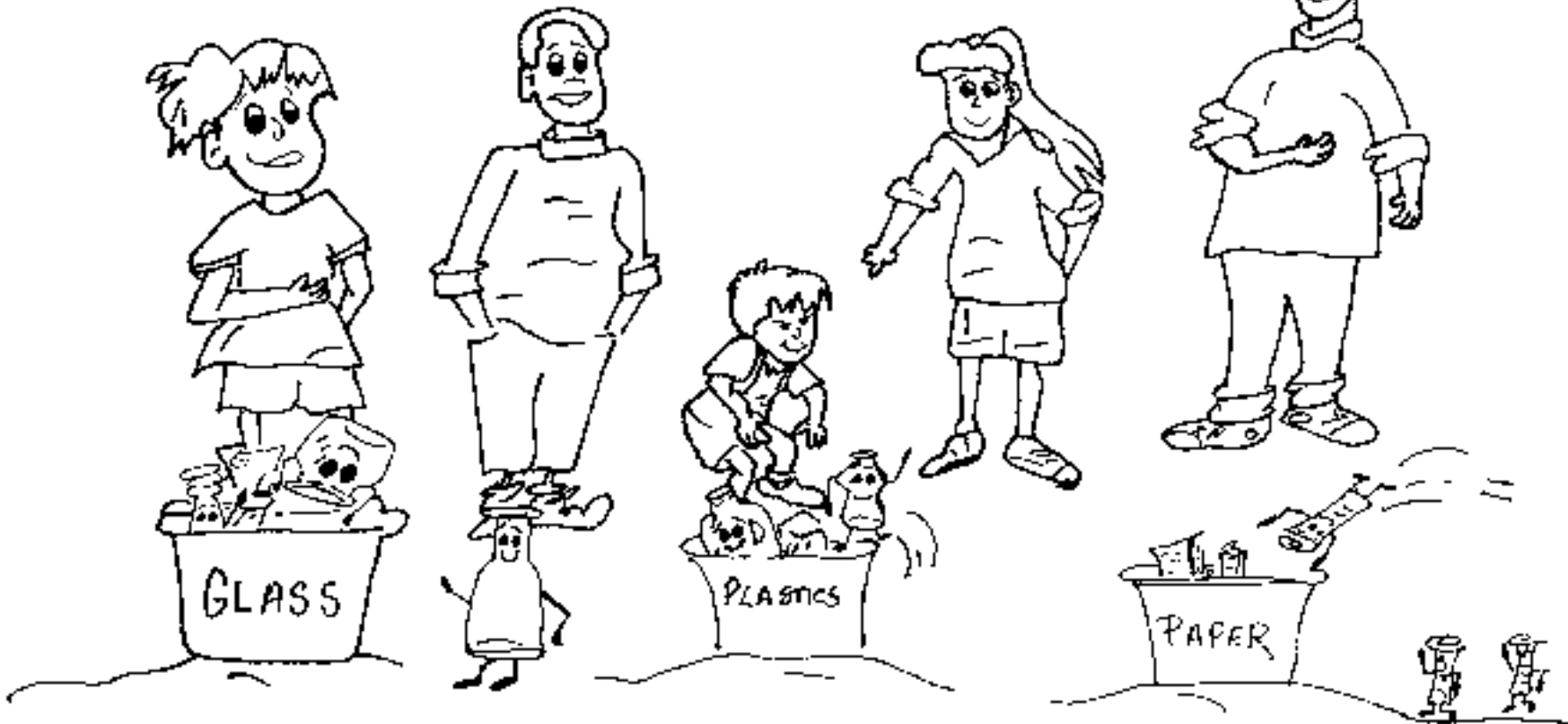


Maryland's goal is to replace 60,000 acres of wetlands lost to development since the 1940's.



**Maryland's wetlands filter pollution, are homes for fish and wildlife and stop flooding. Take a field trip to your local wetland to see for yourself.**

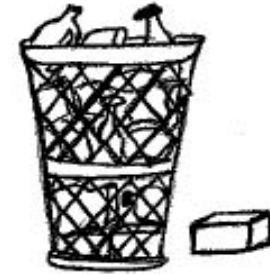
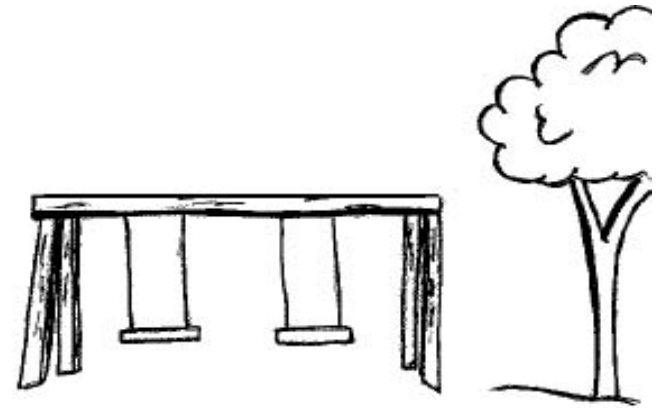
Using electric lawn care equipment reduces ground-level ozone, a part of air pollution which is harmful to our lungs.



**Recycle cans, bottles, paper and plastic.  
Call 1-800-IRECYCLE to find out how!**



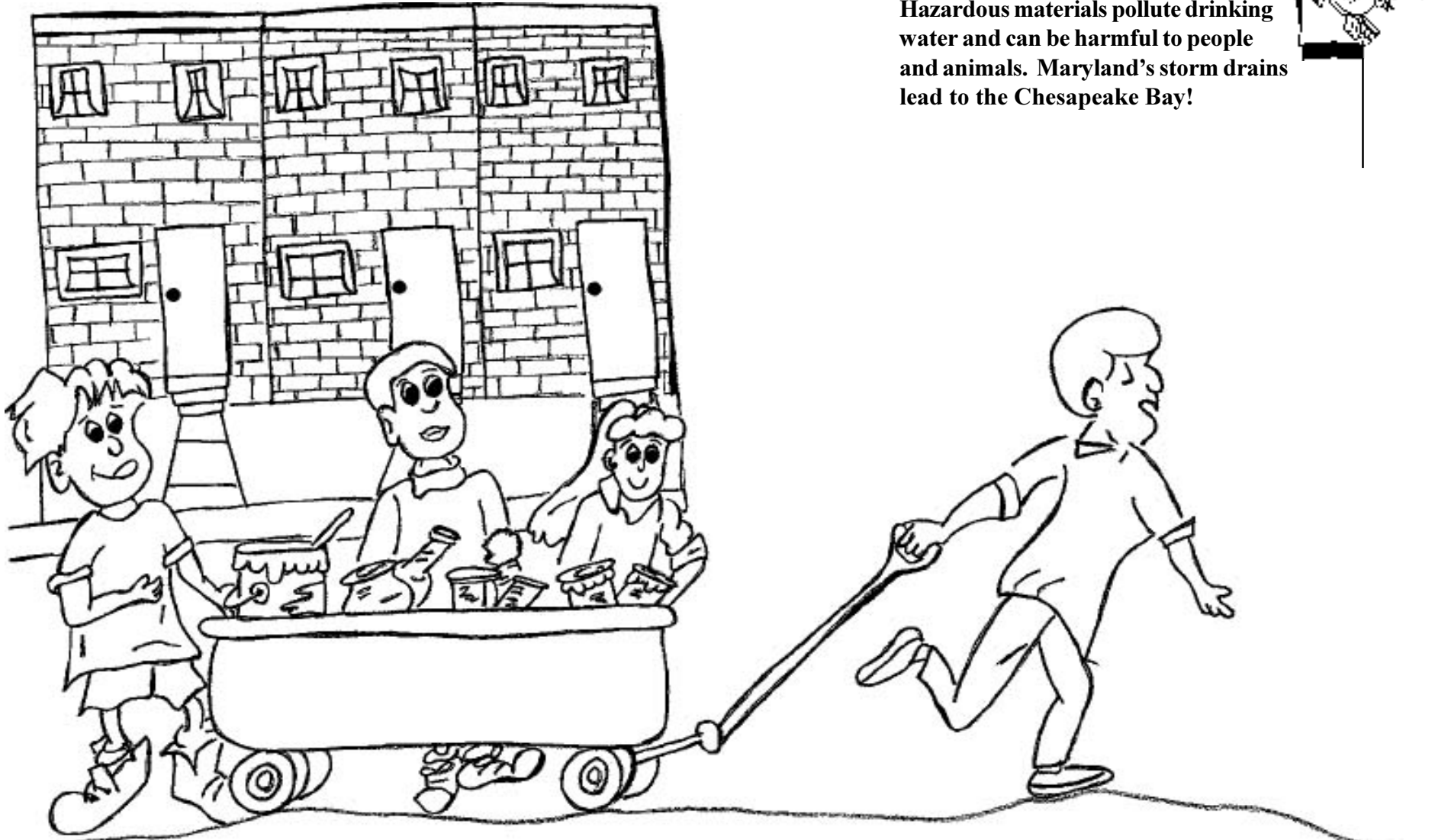
**Talk to your friends and encourage them to help out. Ask them to dispose of trash properly and never litter!**



**Pack a Captain Cleanup pollution prevention lunch! Use re-usable containers, insulated jugs and a lunchbox instead of disposable paper or plastic bags and cans.**



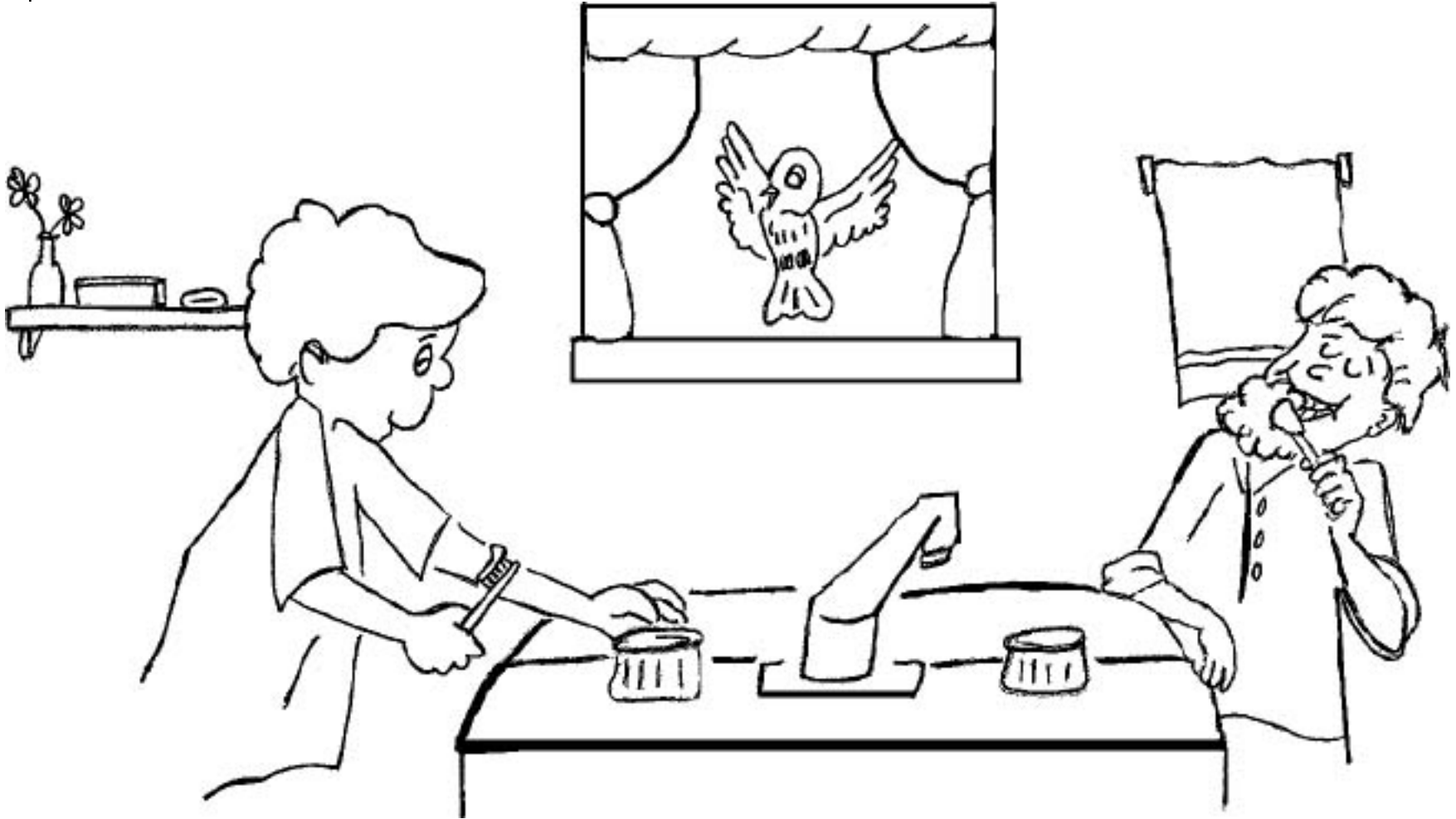
Hazardous materials pollute drinking water and can be harmful to people and animals. Maryland's storm drains lead to the Chesapeake Bay!



**Properly dispose of oil and household chemicals. Never dump them on the ground, down the drain or in the trash.**



Although many people get their water from regulated community water supplies, others rely on private wells. What's dumped on the ground, poured down the drain or tossed in the trash can pollute drinking water wells.



**Remember to turn off the faucet while you brush your teeth to conserve water.**



Communities grow smart when they use existing roads, sewers, water lines and public services instead of building in green spaces. Investing in our cities is a smart way to grow!



**Get involved with your community's environment or plan a neighborhood cleanup!**





Ask your teacher to call (410)-537-4100 for Captain Cleanup to speak to your class or club about Maryland's environment.



**Start an environmental club at your school!**

If everyone in Maryland helped out, think of the difference we could make!



**Tell your family and friends...**



**Because together we can clean up Maryland and make it a healthy place to live and grow!**

# Top Ten Tips to Help Reduce Ground-level Ozone!

Fill in the missing words from the list below to complete the secret message at the bottom. The answers are on page 28.



Fill in the blanks with these words --

Days, Driving, Energy, Lawn, Transportation, Grills, Automobiles, Refuel, Air, Cycle, Throughs, Contain

- Never use gasoline powered 16 **L A W N** mowers or other gasoline powered lawn equipment on code red days.
- Limit 1 \_\_\_\_\_. Share a ride, bike or combine errands.
- Take public 6 19 10 2 such as buses, Light-Rail and trains.
- Postpone using oil-based paints and solvents. Fumes from these products help to create 22 14 pollution.
- 21 12 your family's car after dusk on Ozone Action 9 7 to reduce gasoline evaporation.
- Avoid drive-8 13 and excessive idling.
- Keep your 5 4 11 well tuned.
- Never use household products that 24 18 fumes or evaporate easily.
- Start charcoal 23 with electric or chimney-type fire starters instead of lighter fluid.
- Conserve 17 3 and re 15 20

\_\_\_\_\_

1 2 3 4 5 6 7 8 9 10 11

\_\_\_\_\_

12 13 14 15 16 17 18 19 20 21 22 23 24

L

**SECRET MESSAGE**



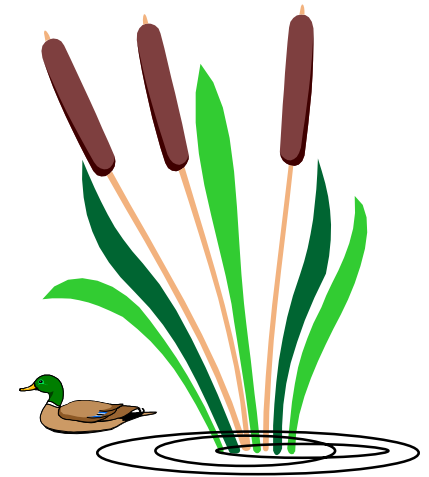


Find the 25 words that relate to Maryland's wetlands.  
Remember to look backward, forward, diagonally,  
horizontally and vertically! The answers are on page 28.

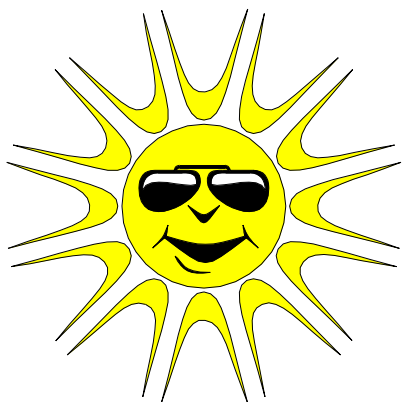


- Agriculture
- Bald Eagle
- Bog
- Development
- Ducks
- Egret
- Endangered Species
- Fishing
- Flood Control
- Fresh Water
- Habitat
- Heron
- Life
- Lost Acres
- Low Lying
- Marsh
- Natural
- Nontidal
- Plant
- Pollution
- Recreation
- Saltwater
- Tidal
- Wildlife
- Wet

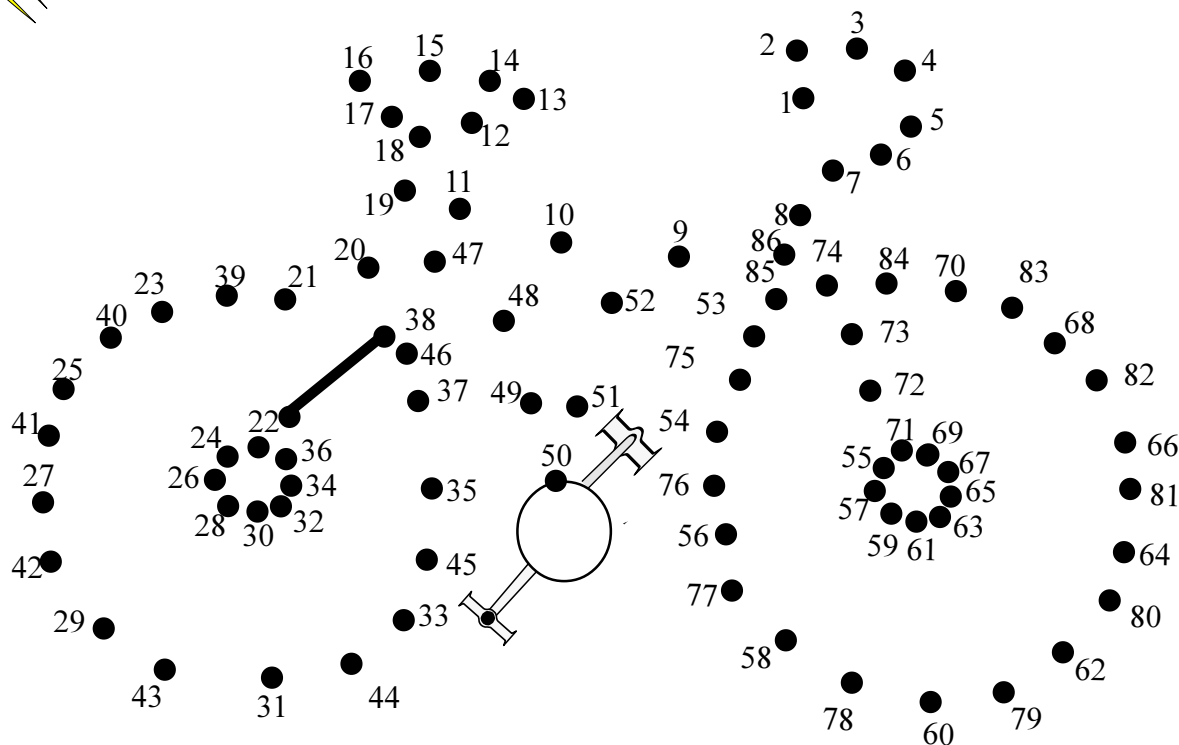
G	F	O	L	B	E	H	A	B	I	T	A	T	J	I	B	E	L	D	S	E
F	T	L	Y	E	F	I	L	D	L	I	W	P	I	E	A	R	U	C	A	R
L	N	O	R	E	H	T	S	U	R	S	M	O	D	U	L	O	V	B	I	U
O	A	T	I	G	L	A	B	C	I	A	I	L	E	H	D	E	R	T	U	T
O	T	L	U	R	K	I	A	K	W	S	O	L	H	D	E	E	G	H	P	L
D	U	E	N	E	P	O	A	S	F	N	X	J	P	L	A	N	T	L	N	U
C	R	W	B	T	O	B	P	F	L	O	E	W	E	T	G	O	J	O	R	C
O	A	A	O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



# Captain Cleanup's Wonderful Wetlands Word Search



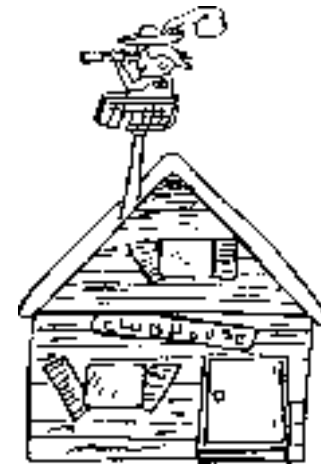
Can you guess how to help reduce air pollution? Connect the dots to find the answer! The answer is on page 28.



I can \_\_\_\_\_ my \_\_\_\_\_ to help reduce air pollution.



Take a trip to my clubhouse! Use scrap paper to make pieces numbered 1-5. Mix them up. The first player takes the top number, moves that many spaces and replaces the number at the bottom of the pile. Follow the directions written in the space. Use re-usable tokens for each player such as pennies, buttons or paper clips. Continue to draw numbers until the first one to land directly on the clubhouse wins!



<p>It's a beautiful day for a ride!</p>	<p>Old tire in path. Lose a turn!</p>	<p>Enjoy the view from your picnic spot!</p>	<p>Almost there! Think of 2 things you can do today to help prevent pollution or go back 2 spaces!</p>
<p>Thanks for letting the recycling truck go ahead! Go ahead 1 space.</p>	<p>You remembered to tune up your car before leaving. Go ahead 1 space!</p>	<p>You left trash behind from your picnic lunch. Lose a turn!</p>	<p>Stopped at a visitor center and learned about the Chesapeake Bay.</p>
<p>While refueling your car you reported a gasoline leak at the pump. Go ahead 1 space.</p>	<p>Stopped to play at the tire playground and learned new ways to reuse tires!</p>	<p>You used only reusable containers and cloth napkins in your picnic lunch to reduce waste. Go ahead 2 spaces!</p>	<p>Your car has an oil leak!!!! STOP and have it fixed. Lose a turn.</p>
<p>You chose to travel by bicycle to reduce pollution! Go ahead 2 spaces.</p> <p><b>START</b></p>	<p>Someone threw a glass bottle out their car window instead of recycling and now you have a flat! Lose a turn!</p>	<p>While changing the flat tire you notice leaking drums on the side of the road and reported them to MDE's Emergency Response Team. Go ahead 3 spaces!!</p>	<p>Thank you for recycling your used motor oil &amp; replacing it with rerefined motor oil!</p>

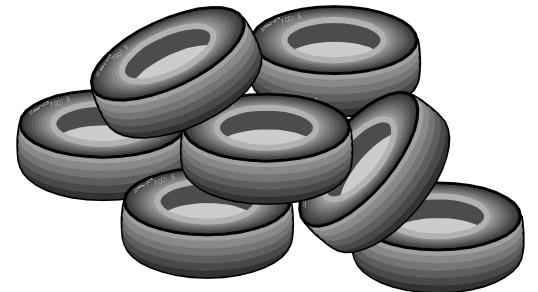




To break my secret code write down the letter of the alphabet that comes before the letters in the code. The letter O is a tire (⊙). The answer is on page 28.

## Can You Break the Secret Code?

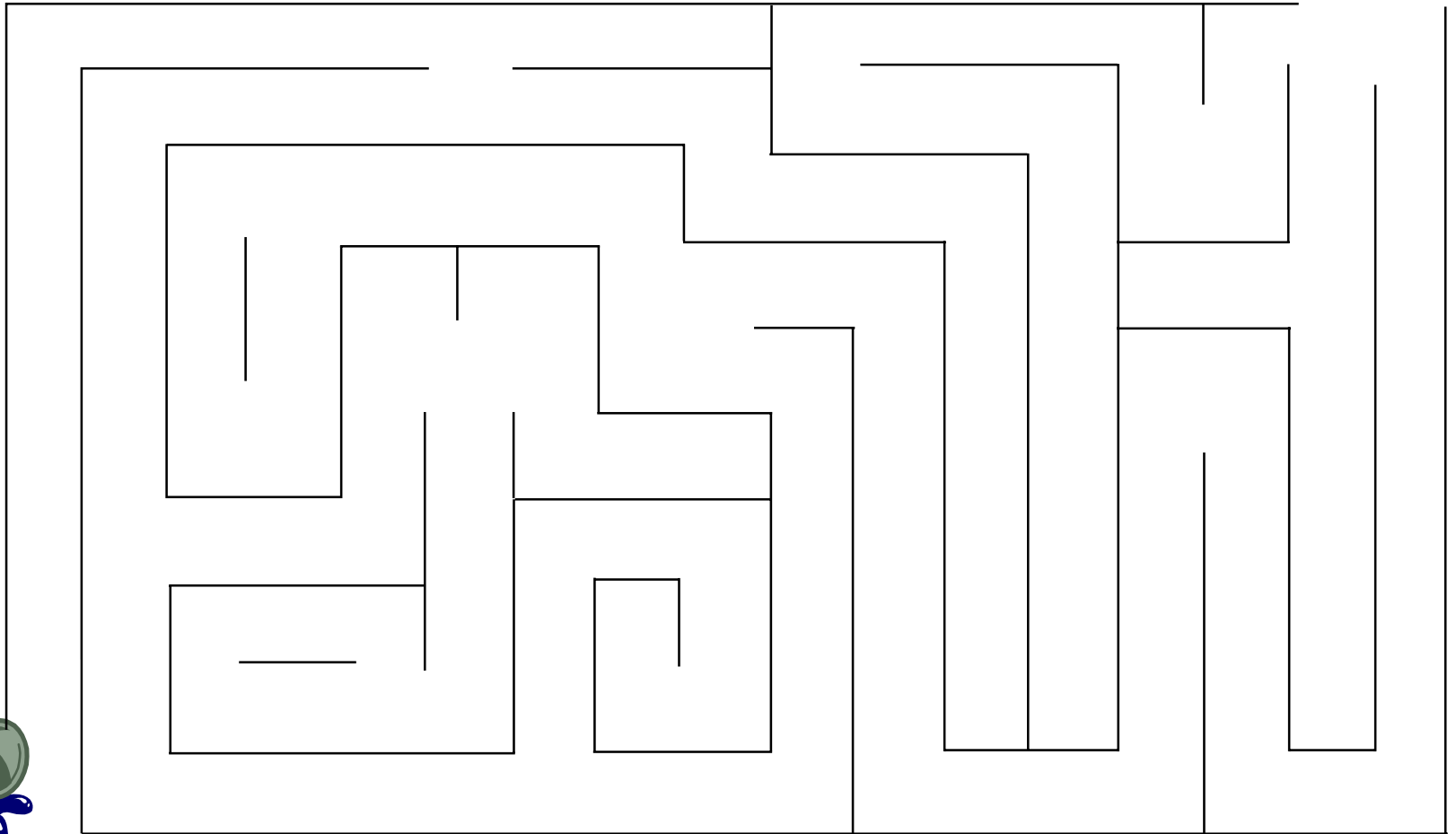
EJE Z⊙V LO⊙X UIBU PME UJSFT DBO  
CF SFDZDMFE? UIFZ DBO CF NBEF  
JOU⊙NBOZ UIJOHT MJLF S⊙BET,  
GM⊙⊙S NBUT, TBOEBMT, BOE FWFO  
QMBZHS⊙VOET!



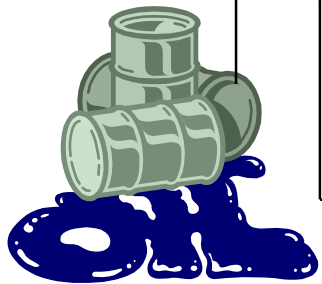




Show MDE's Emergency Response Team the fastest route to the oil spill and help save the Chesapeake Bay!  
The correct route is marked on page 28.



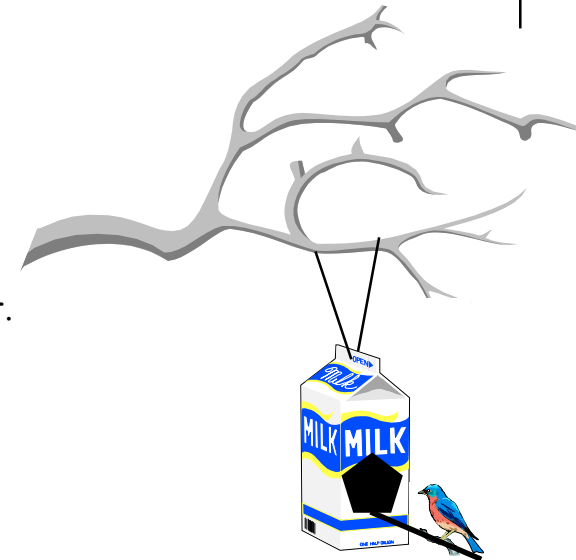
**Finish**





# Recycling for the Birds

By reusing every day containers, we can make bird feeders for our feathered friends! Make sure the container is clean before you start the project.



## You will need:

- a clean, plastic container such as a milk jug, carton or two liter bottle with a lid
- a stick or dowel rod -4" longer than your container is wide.
- string to hang your feeder
- bird seed - Decide what type by what type of bird you want to attract.
- sharp knife (and an adult to help you cut)
- scissors

## Here's What to Do:

- Cut two holes, or doors, approximately 2-4" wide in opposite sides of the container. The size of the holes will depend on the type of birds you want to attract.
- Make 1 small hole under each door and insert the dowel rod through both holes.
- Punch several very small holes in the bottom that will allow rain water to drain out but keep birdseed in.
- Attach the string by tying it to the handle, cap or neck of the feeder.
- Do some research to find out where to hang your particular kind of bird feeder and what type of feed to fill it with. Birds have very different diets and may be picky eaters.



Find out what happens when too many nutrients are added to a river, stream or the Chesapeake Bay. This easy experiment can be done at home or at school!

# Nutrients in the Chesapeake Bay

## You will need:

- Bay, stream or river water. Don't go near the water's edge without adult help!
- Two clear, glass jars with lids
- Plant fertilizer - indoor plant fertilizer dissolves faster. Look for a fertilizer with a large amount of nitrogen and phosphorous listed in its contents.
- Measuring spoons
- Tape
- Felt tip pen or marker



## Here's what to do:

Using the tape and felt tip pen or marker, label one jar "fertilizer" and the other "no fertilizer." Fill each jar with the river or Bay water. Add two tablespoons of fertilizer to the jar marked "fertilizer." Tightly seal the lid. Shake well to dissolve the fertilizer. Remove the lids. Place both unsealed jars outdoors where they will get plenty of sun. Observe the jars every day for a month.

## Conclusions:

What did you observe? Did the water containing the plant fertilizer turn cloudy and green after a week or two? What makes the water turn green? A healthy river or stream contains clear, fresh water that includes plenty of oxygen. Plants and other aquatic life use the oxygen and animals release carbon dioxide and animal waste into the water. Bacteria in the water use some more of the dissolved oxygen in the water to break down the animal waste to nutrients. Bacteria also break down dead plants and animals which creates more nutrients. Algae, which is green, use the abundant carbon dioxide and nutrients and release oxygen back into the water. A healthy river, stream or pond has a balance between the production and use of oxygen. Yet, when excess nutrients are added to the water, the balance is disturbed, the water can become overcrowded with aquatic plants and animals making it difficult to keep up with the demand for oxygen. Without oxygen, the water becomes choked with green, slimy algae and then becomes lifeless and stagnant. The fertilizer added to the jar of water contains the major nutrients, nitrate and phosphate, that cause this process to begin. Nutrients can get into a body of water from fertilizers used on lawns and farms, from animal waste, air pollution and from wastewater treatment plants.

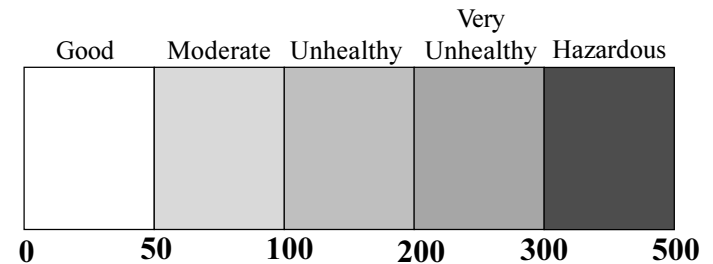
# Weather and Air Pollution



Here's an easy, summer experiment that shows how weather affects air pollution.

## Here's what to do:

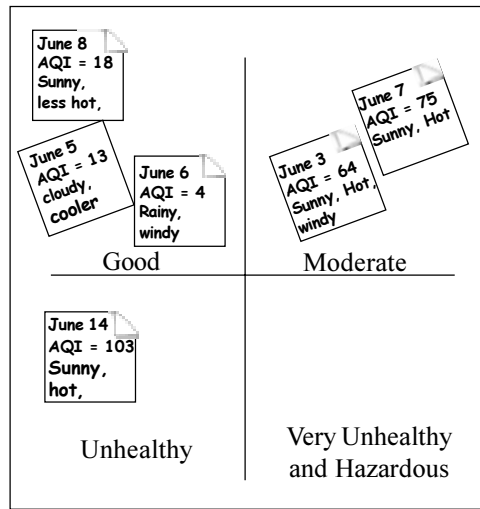
- Call MDE's Air Quality Hotline every day for two weeks. Each day write down the date, Maryland's daily Air Quality Index (AQI), and what the weather was like that day on one of the small squares of paper. Divide a piece of notebook paper into four equal blocks by drawing two crossing lines. Label the four equal blocks according to the scale (Good, Moderate, Unhealthy, and Very Unhealthy/Hazardous) As each day passes categorize your daily AQI numbers and weather observations into those four categories.



## Conclusions:

Does the AQI in your area change from day to day? Does a change in the weather change the AQI? Does rain seem to lower or raise your AQI? Does wind improve the air quality? Are there ways for you to help reduce air pollution and improve Maryland's Air Quality Index?

The Air Quality Index is a measurement of the amount of air pollution. These pollutants are carbon monoxide, sulfur oxides, nitrogen oxides, particulate matter, ground-level ozone, hydrocarbons and lead. In the summer, ground-level ozone is the major contributor to the AQI for most cities. Ground-level ozone is formed when sunlight reacts with pollutants from automobile exhaust and oxygen. On sunny, windless days, the amount of ground-level ozone in the air usually increases. Rain helps wash ground-level ozone and other pollutants out of the air. You should observe in your chart that on hot, windless days, the AQI is higher than on a rainy day.





Here are the answers to the puzzles on pages 19, 20, 21, 23 and 24. How did you do? Are you ready to help spread the word?

page 19

- |                    |                   |
|--------------------|-------------------|
| 1. LAWN            | 6. THROUGHS       |
| 2. DRIVING         | 7. AUTOMOBILE     |
| 3. TRANSPORTATION  | 8. CONTAIN        |
| 4. AIR             | 9. GRILLS         |
| 5. REFUELING, DAYS | 10. ENERGY, CYCLE |

**DO YOUR SHARE FOR  
CLEANER AIR!**

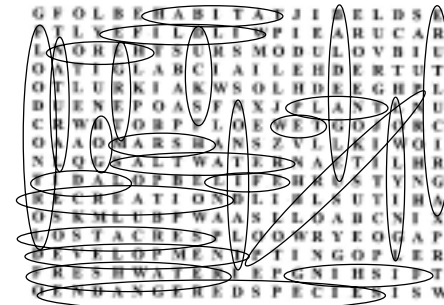
page 21

I can ride my bike



to help reduce air pollution

page 20

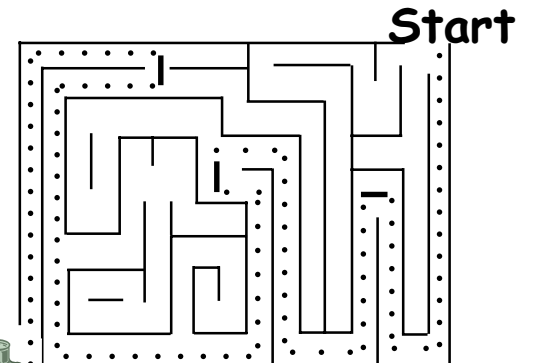


page 23

### Secret Coded Message from Captain Cleanup

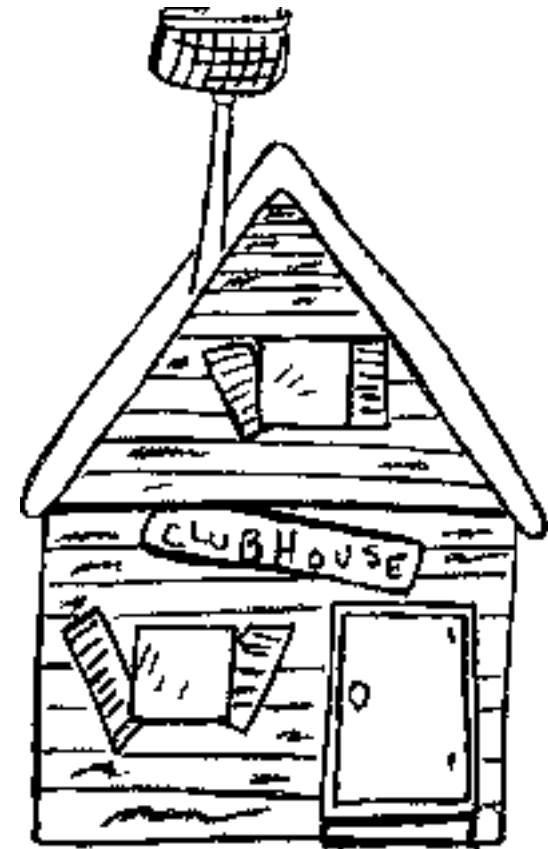
Did you know that old tires can be recycled? They can be made into many things like roads, floor mats, sandals and even playgrounds!

page 24



Finish

Remember,  
together  
we can prevent  
pollution and  
keep  
Maryland  
beautiful!



Captain Cleanup character created and illustrated by Joe Herb