3RD GRADE EDITION

WATERSHED WORKBOOK

NORTHEAST OHIO REGIONAL SEWER DISTRICT

NAME:

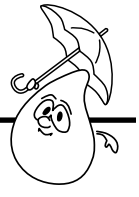
CLASS:

Your Sewer District...

Keeping our Great Lake great.

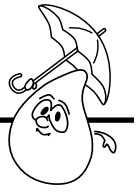
States of water

Draw a picture of the **LIQUID STATE**.

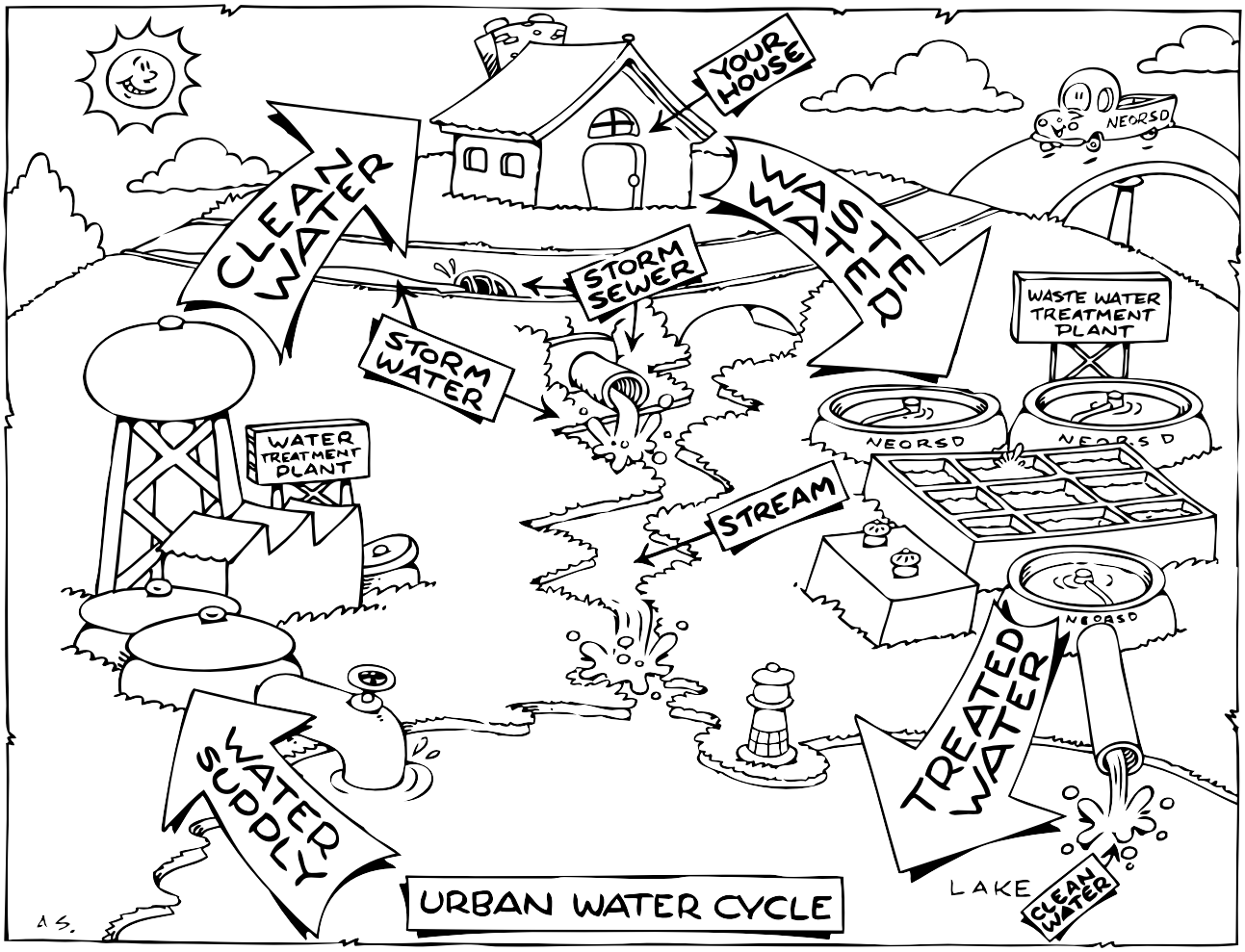


Draw a picture of the **SOLID STATE**.

Draw a picture of the **GAS STATE**.



The urban water cycle



Water supply: Lake Erie is the source of Cleveland's drinking water. The Cleveland Division of water draws its water from the lake.

Clean water: The Cleveland Division of Water pumps treated lake water to our homes and businesses.

Homes and businesses: We use clean water at home to drink, wash, bathe, or flush our toilets, and there are many other uses.

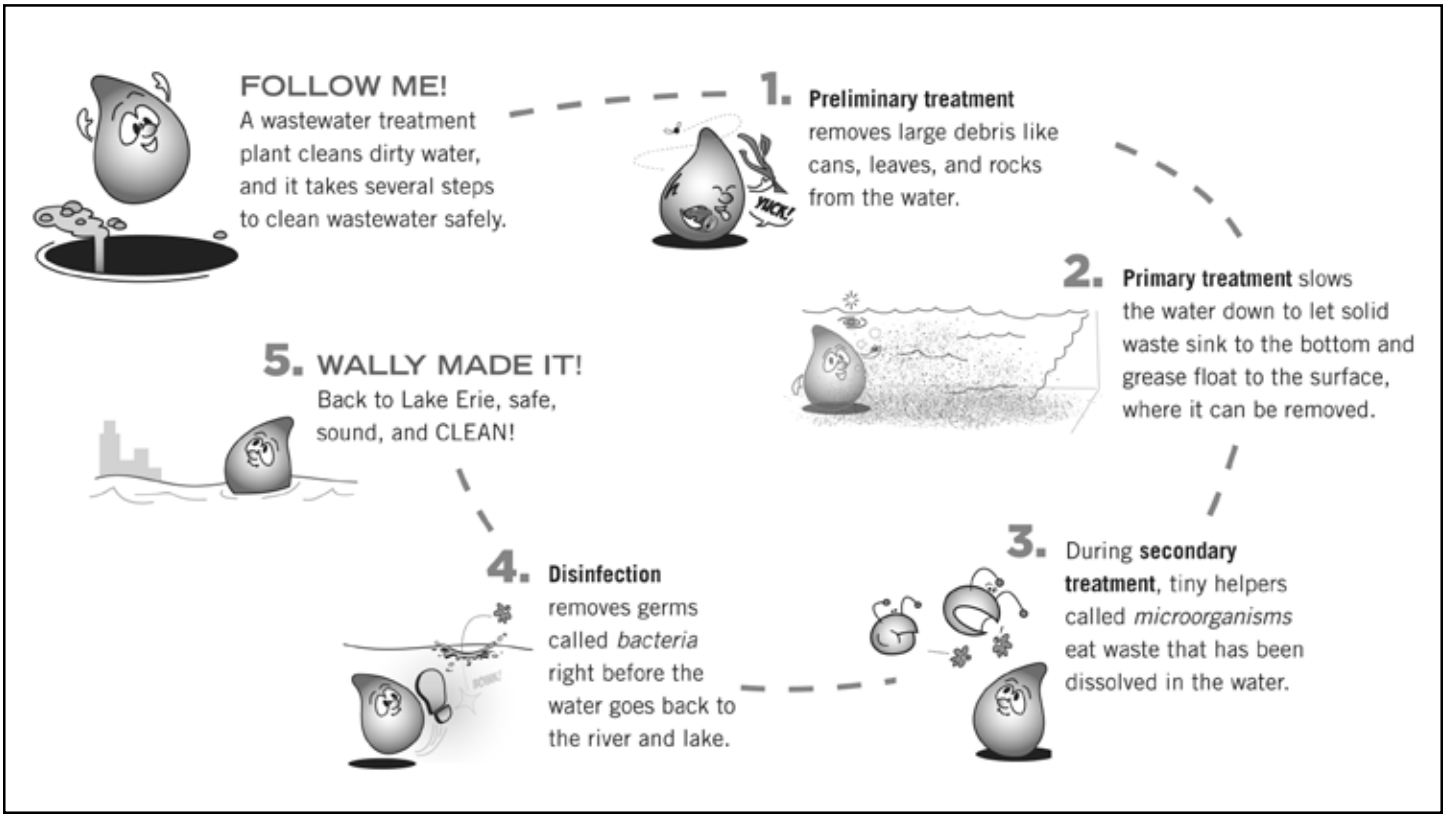
Wastewater: Once we use the water, it is called wastewater and enters the pipes under your home and reaches sewers underground and flows to the Northeast Ohio Regional Sewer District.

Treated water: Once the wastewater has been cleaned, it is released safely back into Lake Erie.

QUESTION: How does the URBAN water cycle compare to the NATURAL water cycle?

How dirty water gets clean

Wally Waterdrop from the Northeast Ohio Regional Sewer District knows all about the wastewater treatment process. Once flowing down the drain at home and into the wastewater treatment plant, it takes five steps before he's safe to go back to Lake Erie.



Observations: Hands-on investigation PART 1

Draw a picture of your observations BEFORE beginning the investigation.

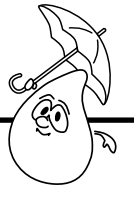
What is the soil made of? Does it all feel the same?

How do you think the soil parts would react if you poured water on them?

Draw a picture of your observations DURING the investigation.

What happens to the surface of the dirt when the water hits it?

What happens to the water from the first pan as it flows into the second pan?



Draw a picture of your observations AFTER the investigation.

Do you think it matters if the soil starts out wet or dry?

What would happen if you made the slope steeper?

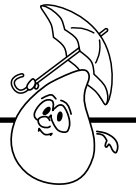
Do all the soil particles get pushed at the same speed?

Observations: Hands-on investigation PART 2

Draw a picture of your observations BEFORE beginning the investigation.

What is the soil made of? Does it all feel the same?

How do you think the soil parts would react if you poured water on them?



Draw a picture of your observations DURING the investigation.

What happens to the surface of the dirt when the water hits it?

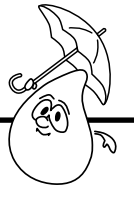
What happens to the water from the first pan as it flows into the second pan?

Draw a picture of your observations AFTER the investigation.

Do you think it matters if the soil starts out wet or dry?

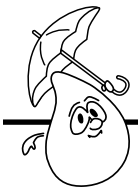
What would happen if you made the slope steeper?

Do all the soil particles get pushed at the same speed?

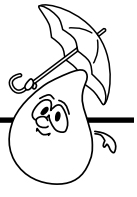


Compare your prediction to the actual results of Part 2.

Why do you think this is?

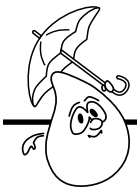


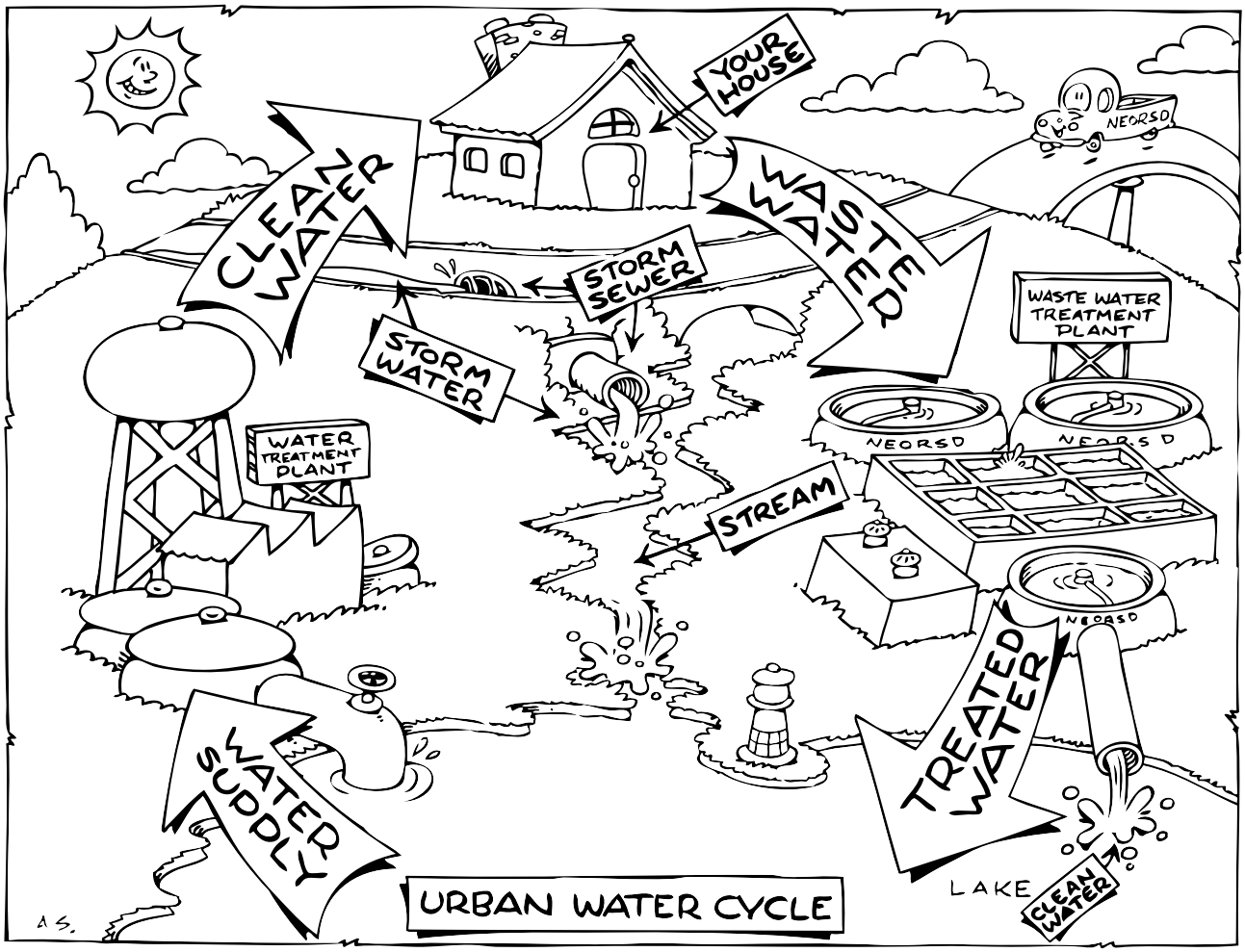
NOTES



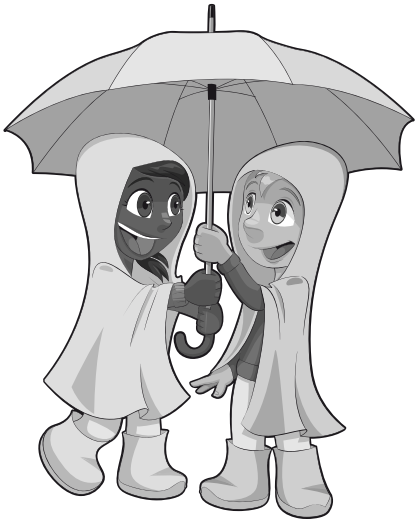
LapBook GRADING RUBRIC

	4 ADV	3 PRF	2 PRG	1 BEG
Vocabulary • Multiple literacies • Science	All vocabulary words are included. Each word has a colored picture, definition and sentence.	No more than three vocabulary words are missing. Words have a colored picture, definition and sentence.	No more than seven vocabulary words are missing. Many words are missing a sentence, definition, or colored picture.	More than seven vocabulary words are missing. Notes are incomplete or illegible.
Notes • Science • Writing	Student took legible notes. He/she wrote in complete sentences explaining his/her learning. Answers are written in paragraph form.	Student took legible notes. Answers are written in complete sentences.	Notes are messy and illegible. Answers are written in complete sentences.	Notes are messy and illegible. The student did not answer all journal questions. Answers are incomplete.
Charts/Data/Graphs • Science • Multiple literacies	All charts are completed and attached to or enclosed in the LapBook.	Charts are completed, but not attached to the LapBook.	Charts are partially incomplete but included in the LapBook.	Charts are blank or missing from the LapBook.
Other • Science • Effort	All other pieces of the LapBook are completed.	One piece of the LapBook is missing. Remaining pieces are completed legibly.	Two pieces of the LapBook are missing. The remaining pieces are illegible.	Several pieces of the LapBook are missing, and the included pieces are illegible.

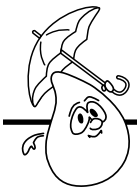




MY **WATERSHED** LAPBOOK



Northeast Ohio Regional Sewer District



Where to glue your LapBook activities

Cut this page out, and glue it to the inside of your LapBook. This will show you where to glue each of your activities.

"Ways to control erosion" flap book GOES HERE

Northeast Ohio Regional Sewer District

Water cycle wheel GOES HERE

Compare/Contrast flapbook

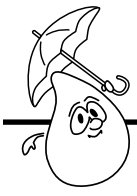
GOES ON THE RIGHT FLAP

Vocabulary Cards pocket

GOES ON THE LEFT FLAP

Fact Cards pocket GOES HERE

Glue this side to the inside
back cover of your LapBook.



Create a three-tab flip book

Cut along the dotted lines to create four pages for your tabbed flip book. Cut out the gray rectangles to make your tabs, then staple your pages together in order.

STATES OF WATER

Draw a picture of water as a gas.

GAS

CUT OUT.

LIQUID

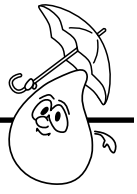
Draw a picture of water as a liquid.

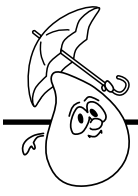
CUT OUT.

SOLID

Draw a picture of water as a solid.

CUT THIS OUT. REMOVE IT.

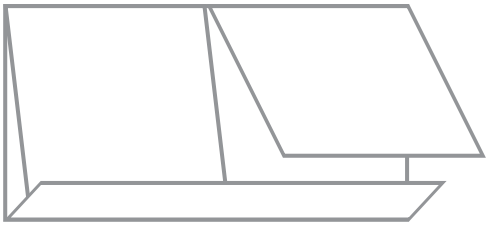




Compare and contrast: Wastewater and stormwater

Are wastewater and stormwater the same thing? Cut out the flipbook below and write or draw your definitions. How are they the same? How are they different?

Your finished flipbook should look like this:



CUT HERE

COMPARE AND CONTRAST

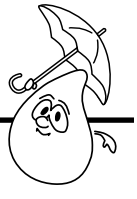
FOLD

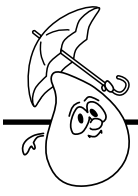
Glue this side to the back inside cover of your LapBook.

FOLD

FOLD

STORMWATER	WASTEWATER
DRAW A PICTURE OF STORMWATER.	DRAW A PICTURE OF WASTEWATER.





Water cycle wheel

Cut out these circles and attach them with a brass fastener. Draw a picture of each step in the water cycle.

REMOVE
THIS AREA

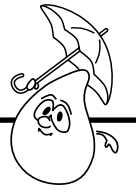
WATER
CYCLE

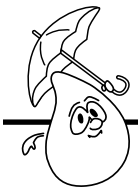
EVAPORATION

COLLECTION

CONDENSATION

PRECIPITATION

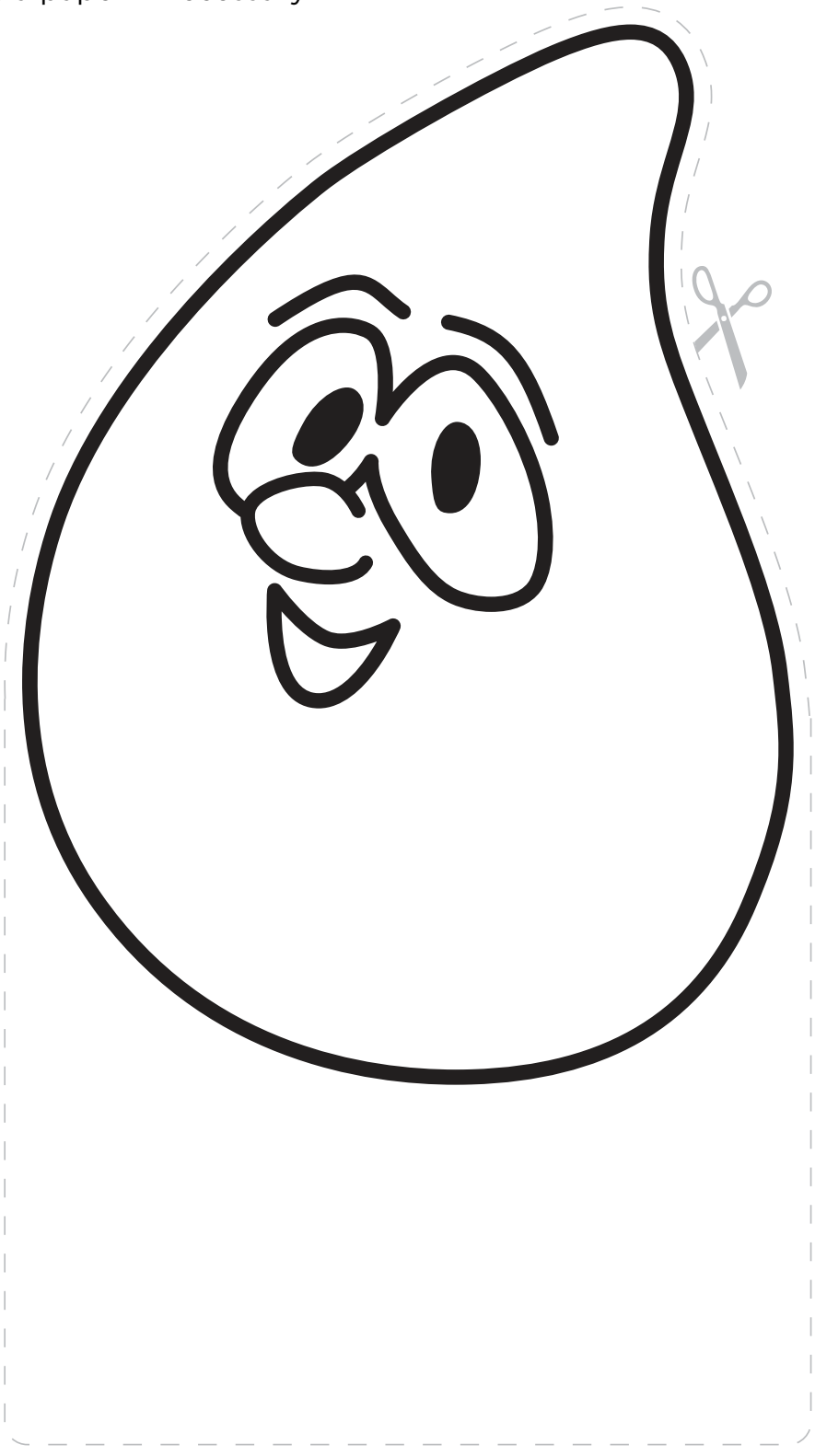


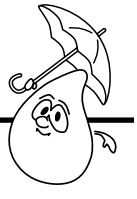


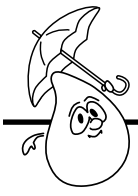
Wally Waterdrop!

Color and cut out Wally Waterdrop and then write or draw about his journey through the water cycle on the bottom flap.

Use extra paper if necessary.

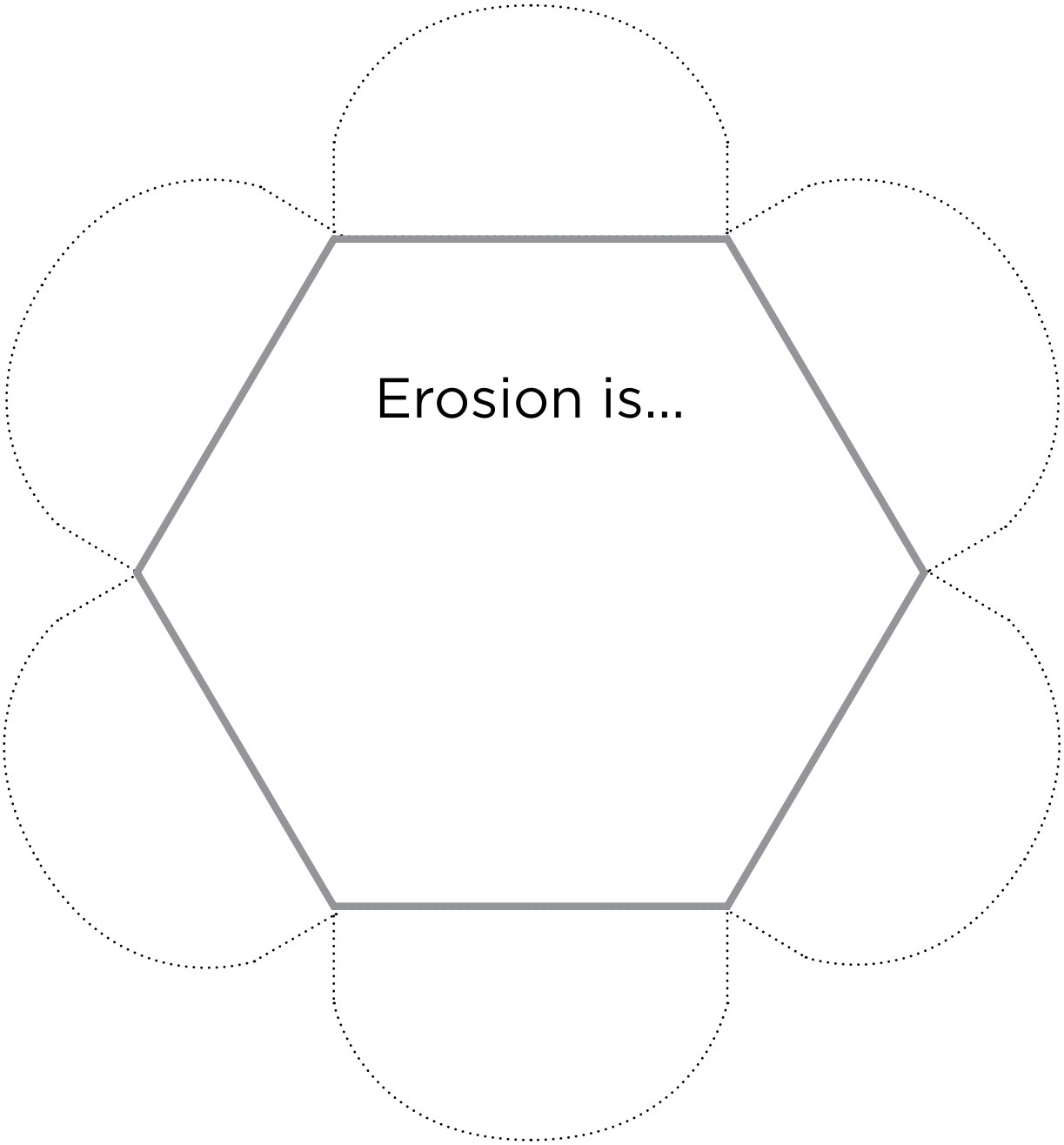


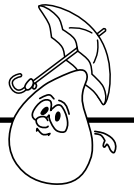


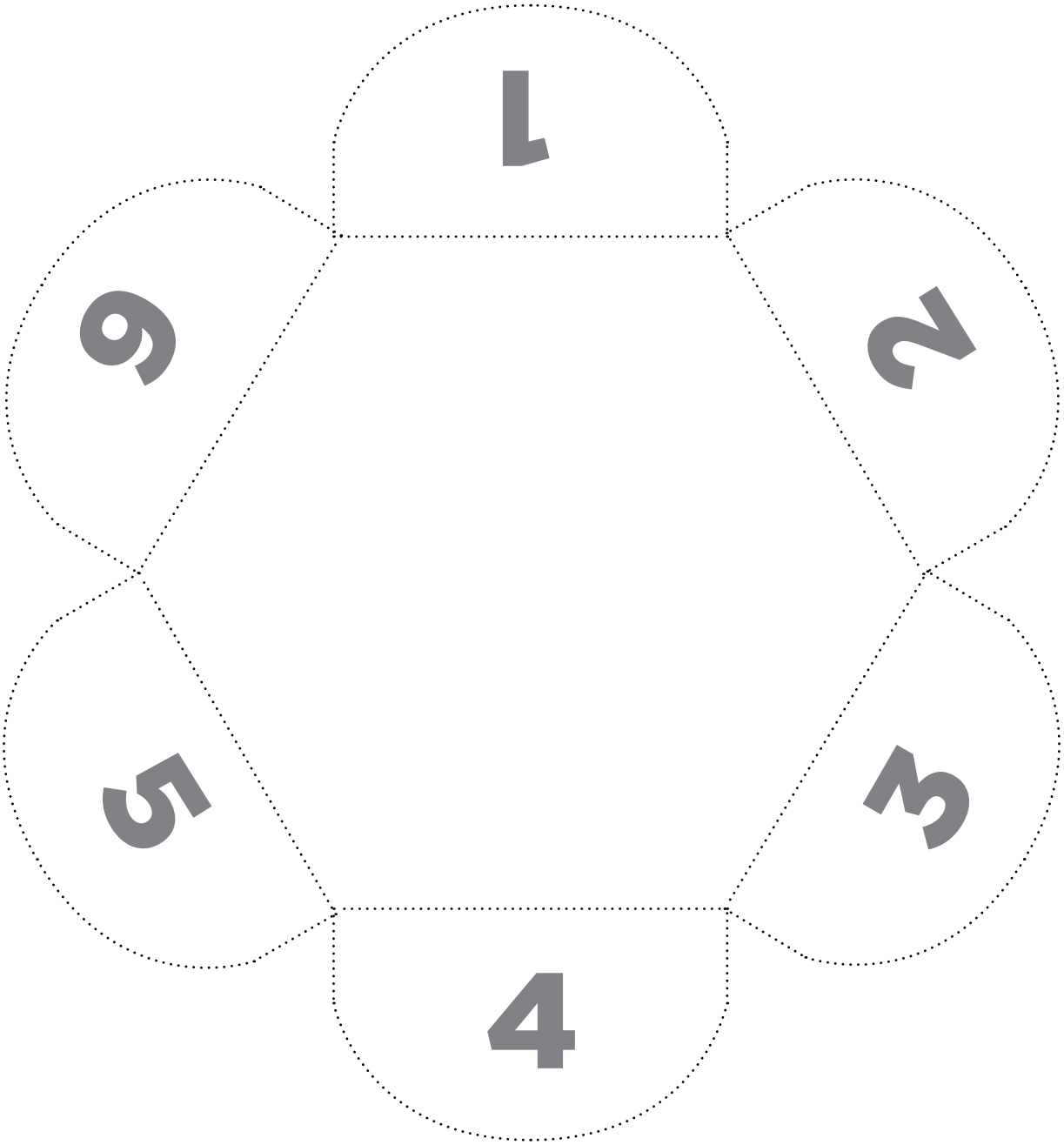


“Ways to control erosion” flap book

Can you think of six ways to control erosion? Cut out the flower shape below, and write one conservation fact on each petal. Then fold the petals along the solid lines so the numbers are showing.

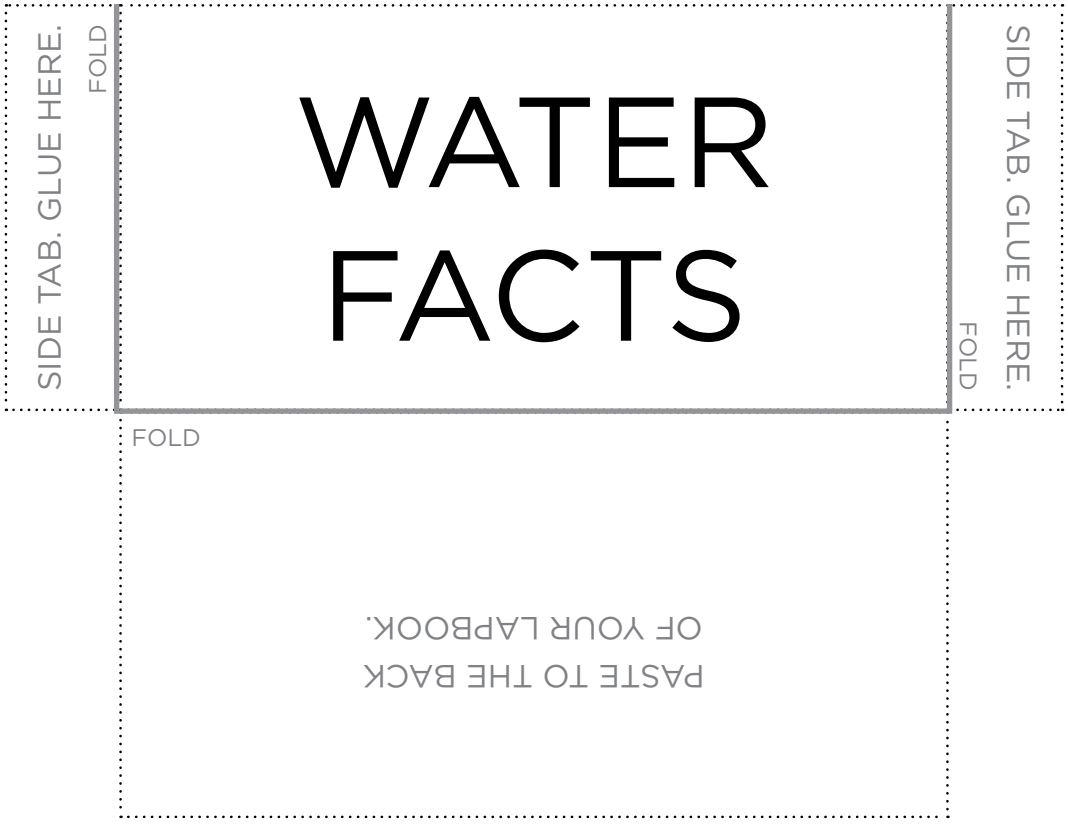


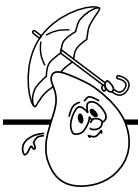



1
2
3
4
5
6

Create a pocket for your Fact Cards

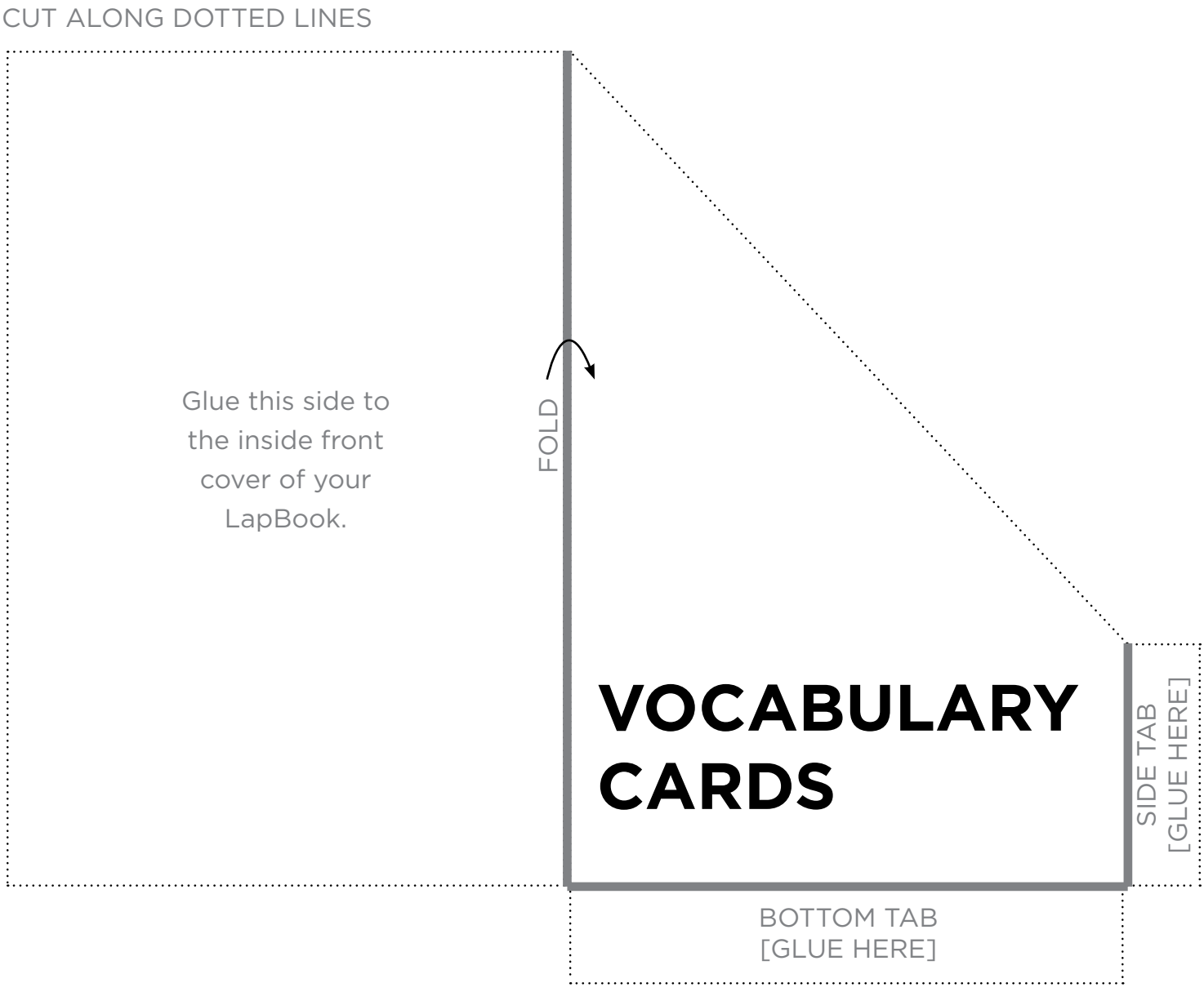
Cut along the dotted lines, then fold and glue the tabs to create a pocket for your fact cards.

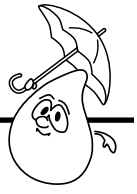


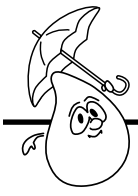


Create a LapBook pocket

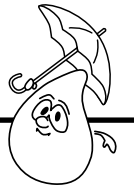
Cut along the dotted lines, and fold the pieces to create a LapBook pocket for your vocabulary cards.

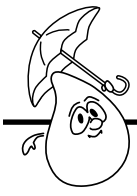




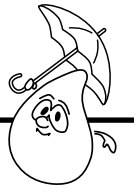


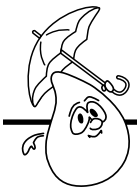
impurities	**investigation**
liquid	**natural environment**
precipitation	**purify**



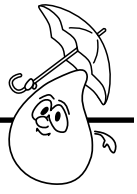


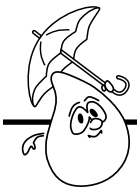
accumulation	**condensation**
cover	**gas**
erosion	**evaporation**



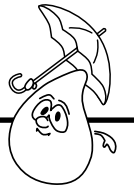


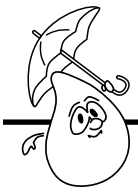
solid	**transpiration**
water cycle	**impervious**
water vapor	**stormwater**



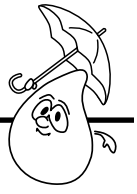


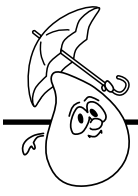
filtration	**watershed**
Lake Erie	**Cuyahoga River**
wetlands	**wastewater**





lake	**river**
stream	**pond**
pervious	





The Water Cycle song

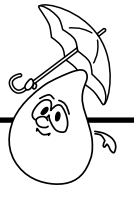
Sing it to the tune of “Old MacDonald.”

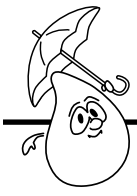
The water cycle has many parts.
These are the parts I know:
Precipitation, water falls
as rain, sleet, or snow!
With a drop, drop here, and a drop, drop there!
Here a drop, there a drop, everywhere a drop, drop!
The water cycle has many parts.
These are the parts I know!

The water cycle has many parts.
These are the parts I know:
Accumulation, runoff flows
and bodies of water grow!
With a puddle here, and a puddle there!
Here a puddle, there a puddle, everywhere a puddle, puddle!
The water cycle has many parts.
These are the parts I know!

The water cycle has many parts.
These are the parts I know:
Evaporation, liquid to gas.
Water rises from below!
And there’s water vapor here, and there’s water vapor there!
Water vapor, water vapor, everywhere there’s water vapor!
The water cycle has many parts.
These are the parts I know!

The water cycle has many parts.
These are the parts I know:
Condensation forms the clouds.
Droplets start to grow!
And there’s rainclouds here, and there’s rainclouds there!
Rainclouds, rainclouds, everywhere there’s rainclouds!
The water cycle has many parts.
These are the parts I know!





TITLE

AUTHOR

I LIKED THIS BOOK:

☐ YES

☐ NO

TITLE

AUTHOR

I LIKED THIS BOOK:

☐ YES

☐ NO

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AUTHOR

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☐ YES

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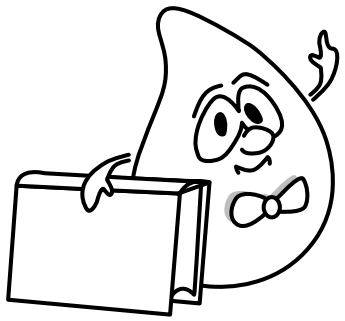
☐ YES

☐ NO

BOOK LOG



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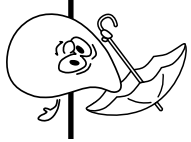


Independent and extension activities

Want to learn more about water, the water cycle, conservation or protection? Here are a few more ideas for activities with your class, family or friends.

Independent	Group and Partner Projects	
Create a water cycle in a bag. Then journal your findings. *	**Create** a song about the water cycle or erosion. *	**Create** and tell five riddles about the water cycle or soil erosion.
Read A Raindrop's Journey. Create a diagram of the water cycle, labelling the main steps, and write a paragraph about what the diagram shows.	**Perform** a soil shake *	**Investigate** soil, sand, and dirt samples. Compare and contrast them, and write a paragraph about the similarities and differences.
Read A Raindrop's Journey. What if you were a raindrop and travelled the water cycle? How would it feel, taste, look, or sound? Create a narrative about your journey.	**Find** a the name of the Ohio state soil. Then choose two more states and locate their soil names online. Record the information on the next page, and answer the final question. *	**Create** a water cycle or soil erosion puzzle.
Develop a list of ways to conserve water. *	**Complete** a soil erosion/ water cycle web quest.	**Create** a brochure or advertisement about soil erosion.

* Additional links and descriptions are available at **neorsd.org/grade3**

Independent activity: Soil types

Ohio state soil name:

What vegetation or crops grow best in this soil?

Surface layer: _____

Subsoil, upper: _____

Subsoil, lower: _____

Substratum: _____

_____ state soil name:

What vegetation or crops grow best in this soil?

Surface layer: _____

Subsoil, upper: _____

Subsoil, lower: _____

Substratum: _____

_____ state soil name:

What vegetation or crops grow best in this soil?

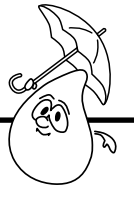
Surface layer: _____

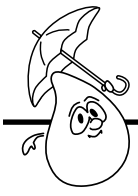
Subsoil, upper: _____

Subsoil, lower: _____

Substratum: _____

On the next page, explain problems caused by erosion.





Glossary

TERMS FROM YOUR WORKBOOK AND FOR CLASS DISCUSSION

A

B

C

COLLECTION Water that is sent to the water treatment system begins in collection.

CONDENSATION When a gas turns into a liquid.

COVER Naturally occurring particles that lie on top of the soil.

CUYAHOGA RIVER Located in Northeast Ohio in the United States. Outside of Ohio, the river is most famous for being “the river that caught fire” in 1969, helping to spur the environmental movement in the late 1960s and early 1970s. Native Americans called this winding water “Cuyahoga,” which means “crooked river” in the Iroquois language.

D

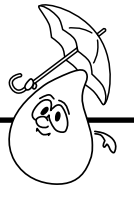
E

EROSION The process by which the surface of the earth is worn away by the action of water, glaciers, winds, waves, etc.

EVAPORATION The process by which water is changed to gas or vapor; occurs directly from water surfaces and from the soil.

F

FILTRATION Process by which water seeps into to ground.



G

GAS Matter that is neither liquid nor solid and expands or contracts rapidly and uniformly with temperature changes.

H

I

IMPERVIOUS SURFACE An artificial structure, like pavement or rooftop, that cannot infiltrate or hold water.

IMPURITY Something that makes something impure, not clean.

INFILTRATION The process by which water on the ground surface enters the soil.

INVESTIGATION A thorough inquiry intended to develop facts.

J

K

L

LAKE Water body of freshwater and considerable size, surrounded by land.

LAKE ERIE Forms Cleveland's northern boundary and is the shallowest and the southernmost of the five Great Lakes. A freshwater lake that provides transportation, employment, food, and recreation to residents of and visitors to northeast Ohio

LIQUID Consisting of molecules that move easily, unlike those of a solid, but tend not to separate, as do those of a gas.

M

N

NATURAL ENVIRONMENT Encompasses all living and non-living things occurring naturally on earth.

O

P

PERVIOUS SURFACE A natural surface, such as grass and soil, that allows the passage of water; permeable.

POND A body of water smaller than a lake, sometimes artificially formed, as by damming a stream

PRECIPITATION Liquid or solid water that falls to earth.

PURIFY To clean.

Q

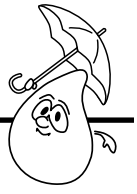
R

RECYCLE To go through a cycle again.

RESERVOIR A place where water is stored.

RIVER A natural stream of water of fairly large size flowing in a definite course or channel or series of diverging and converging channels.

RUNOFF That part of precipitation or snow melt that appears in streams or surface-water bodies.



S

SATURATION A state in which something is completely soaked with liquid (water)

SEDIMENTATION The deposition or accumulation of sediments

SLOPE To incline or slant upwards or downwards, as a hill.

SOIL The uppermost layer of the earth's surface; dirt.

SOIL TEXTURE Grain size of the soil particles.

SOLID Firm and substantial; not liquid or gaseous.

STORMWATER Water during precipitation.

STREAM A steady current in water flowing in a channel or watercourse.

T

TRANSPIRATION The process of giving off wastes from the surface in the form of vapor, as plants do.

U

V

W

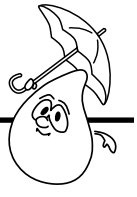
WATER CYCLE The continuous movement of water on, above and below the surface of the Earth, including precipitation, condensation/ transpiration, evaporation and collection.

WATERSHED The area of land that drains into a body of water.

WATER VAPOR Water in the form of invisible gas.

WASTEWATER The sanitary sewage from homes and businesses that is conveyed to the wastewater treatment plant for cleaning.

WETLAND A marsh, swamp, or other area of land where the soil near the surface is saturated or covered with water, especially one that forms a habitat for wildlife

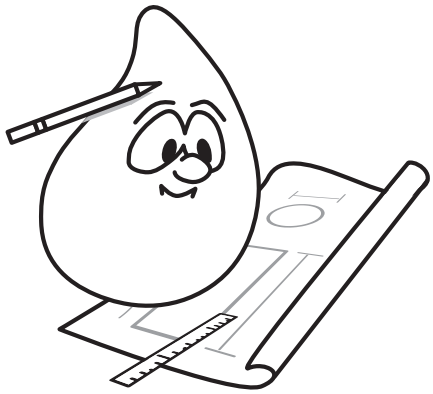


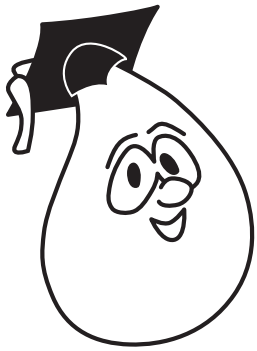
NOTES

NOTES

JUST FOR FUN

Color Wally Waterdrop or draw a Wally of your own!





Your Sewer District...

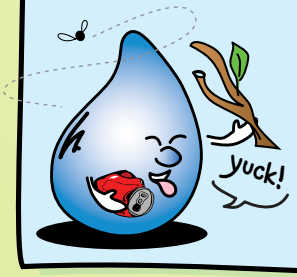
Keeping our Great Lake great.

HOW DOES DIRTY WATER GET CLEAN?

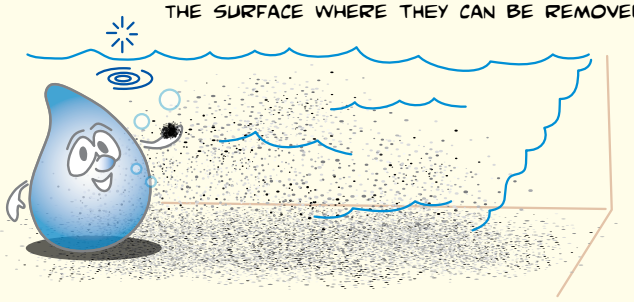
STARRING WALLY WATERDROP

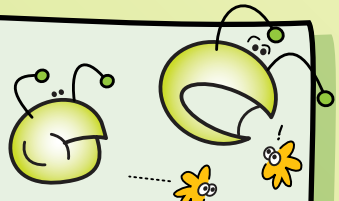
A WASTEWATER TREATMENT PLANT CLEANS DIRTY WATER, AND IT TAKES MANY STEPS TO CLEAN OUR WATER SAFELY!

PRELIMINARY TREATMENT REMOVES LARGE DEBRIS LIKE CANS, LEAVES, AND ROCKS FROM THE WATER.

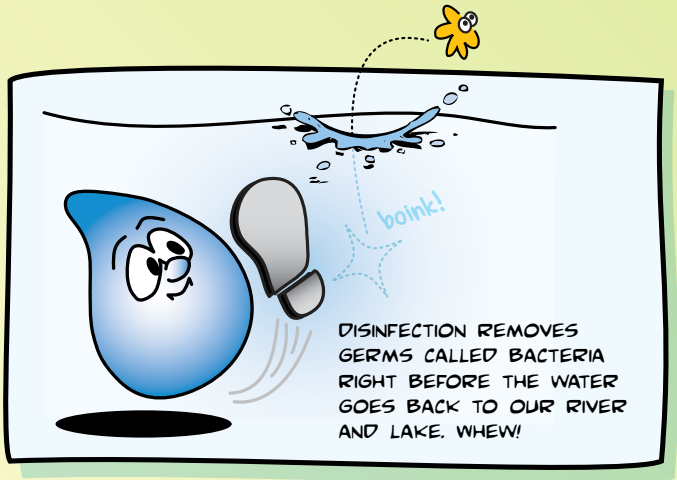


PRIMARY TREATMENT SLOWS THE WATER DOWN TO LET SOLIDS SINK TO THE BOTTOM AND GREASE FLOAT TO THE SURFACE WHERE THEY CAN BE REMOVED.





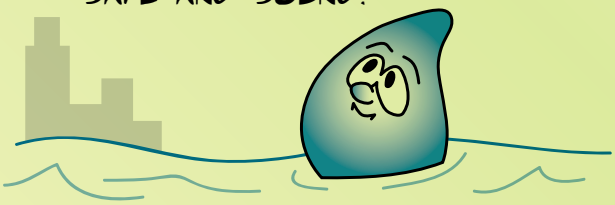
DURING SECONDARY TREATMENT, TINY HELPERS CALLED MICROORGANISMS EAT WASTE THAT HAS BEEN DISSOLVED IN THE WATER.



DISINFECTION REMOVES GERMS CALLED BACTERIA RIGHT BEFORE THE WATER GOES BACK TO OUR RIVER AND LAKE. WHEW!

WALLY MADE IT!

BACK TO LAKE ERIE, SAFE AND SOUND!



FOR ADDITIONAL INFORMATION: Call Communications & Community Relations (216) 881-6600 or visit **wheredoesitgo.org**