

May 1, 2020
Upper School Packet



Celebration of Water 2020!

The Cortland County Soil and Water Conservation District, in conjunction with City, County and other municipal and private participants, usually celebrates the importance of WATER with our Water Festival on the first Saturday in June. Because of COVID-19, our celebration will be online this year. In three separate collections, we have identified and/or gathered activities for elementary school, middle school and high school students and their families. These materials educate about water and promote the importance of water and its protection. Hopefully they are fun as well!

Please contact us if you have any questions. Enjoy!

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Water Fun Facts !

- There is the same amount of water on Earth as there was when the Earth was formed. The water from your faucet could contain molecules that dinosaurs drank.
- Water is composed of two elements, Hydrogen and Oxygen. $2 \text{ Hydrogen} + 1 \text{ Oxygen} = \text{H}_2\text{O}$.
- Nearly 97% of the world's water is salty or otherwise undrinkable. Another 2% is locked in ice caps and glaciers. That leaves just 1% for all of humanity's needs — all its agricultural, residential, manufacturing, community, and personal needs.
- Water regulates the Earth's temperature. It also regulates the temperature of the human body, carries nutrients and oxygen to cells, cushions joints, protects organs and tissues, and removes wastes.
- 75% of the human brain is water and 75% of a living tree is water.
- A person can live about a month without food, but only about a week without water.
- Water is part of a deeply interconnected system. What we pour on the ground ends up in our water, and what we spew into the sky ends up in our water.
- The average total home water use for each person in the U.S. is about 50 gallons a day.
- The average cost for water supplied to a home in the U.S. is about \$2.00 for 1,000 gallons, which equals about 5 gallons for a penny.
- Water expands by 9% when it freezes. Frozen water (ice) is lighter than water, which is why ice floats in water.

Videos:

1) **The Water Cycle** – NBC Learn, 7 minutes

<https://www.youtube.com/watch?v=al-do-HGulk>

2) **Save that Drop (The Importance of Water Conservation)** - TedTalk TEDxYouth@Bologna, 10 minutes

<https://www.youtube.com/watch?v=n84KV1scsQY>

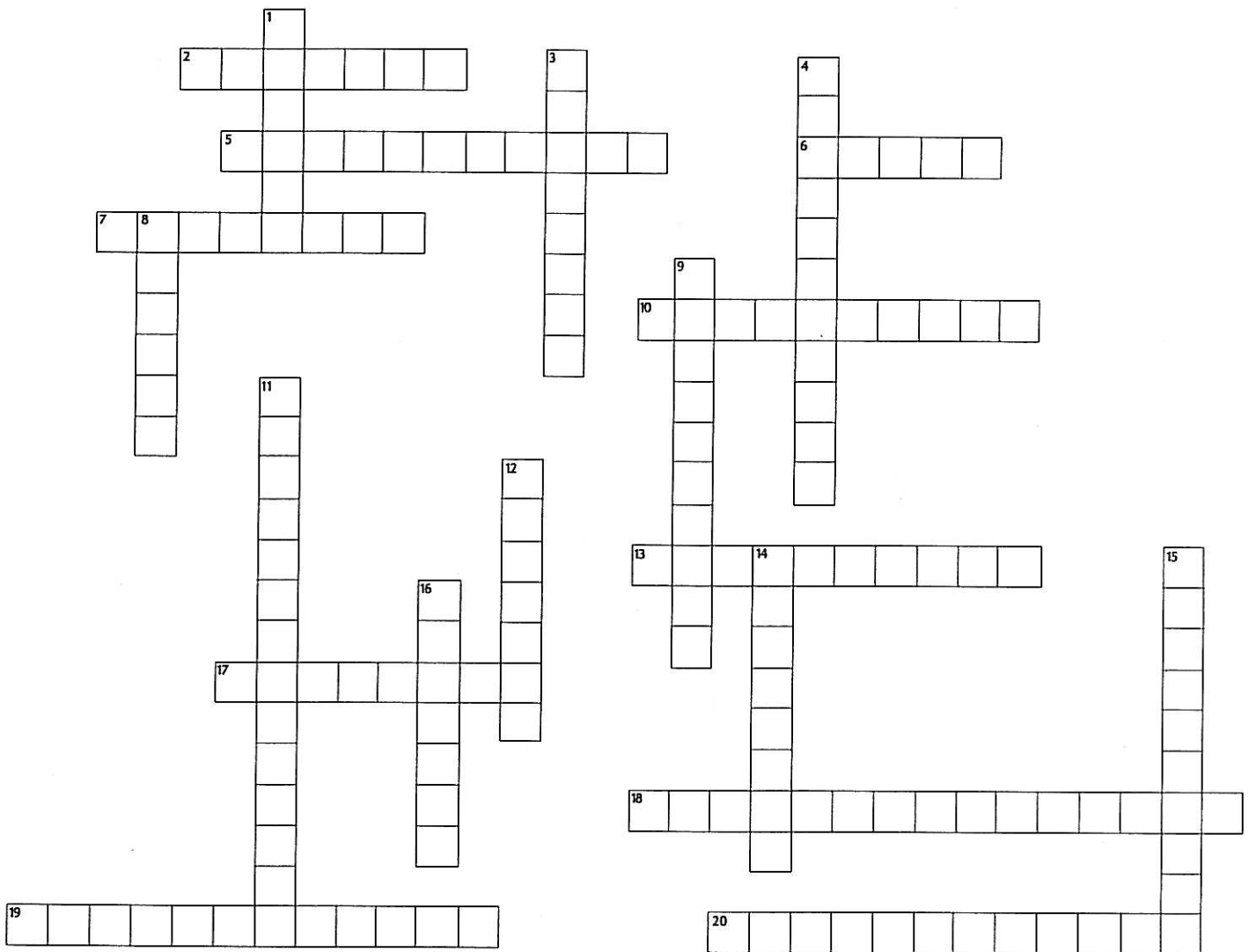
3) **Invisible water, the hidden virtual water market** TEDxNaperville, 15 minutes

<https://www.youtube.com/watch?v=h23IHDOKhZc>

A Collection of Materials:

<https://thewaterproject.org/community/student-resources/water-related-education-materials-for-high-school/>

WATER PUZZLE



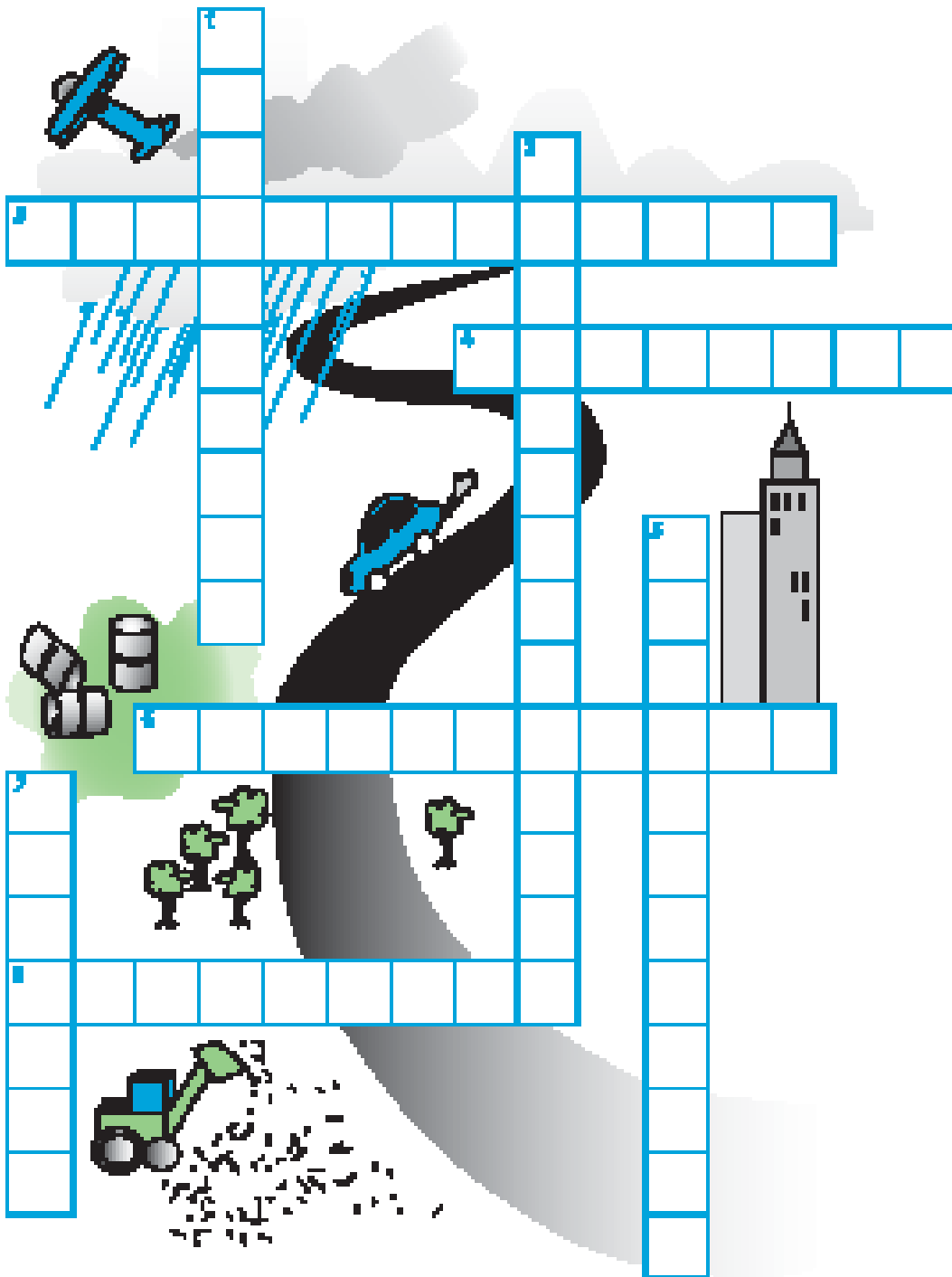
ACROSS

2. An underground layer of rocks, sediment, or soil.
5. An impurity in air, soil, or water.
6. River channels that curve.
7. The amount of water needed to cover 1 acre to a depth of 1 foot.
10. Where a river starts.
13. The upper surface of the saturation zone.
17. Increases groundwater storage.
18. The natural recycling process of water.
19. Water that is not underground.
20. The use of water saving methods.

DOWN

1. Precipitation that runs over land to surface water.
3. A bend in the river that is usually U-shaped.
4. Water contained under the earth's surface.
8. Channel created when a river erodes its bed.
9. Underground tank that stores human waste.
11. Ridge that separates drainage basins.
12. The bottom and either side of a river/stream.
14. Near the mouth of a river where water mixes.
15. Flat area that water covers during a flood.
16. The flow of a river.

Contamination Crossword



Across

3. Groundwater _____ occurs when man-made products like gasoline, oil, and road salts get into the groundwater making it unsafe for human use.

4. A low area of land that is filled in with layers of garbage and soil.

6. Water that is located underground in the cracks and spaces between soil and rocks.

8. Any chemical used to kill insects and other pests.

Down

1. A chemical that is used to improve the soil and promote plant growth.

2. In the U.S. today there are over 20,000 known _____ sites.

5. Located underground and designed to store and dispose of human waste.

7. To leak from landfills or storage tanks.



Crossword Puzzle Key

Across

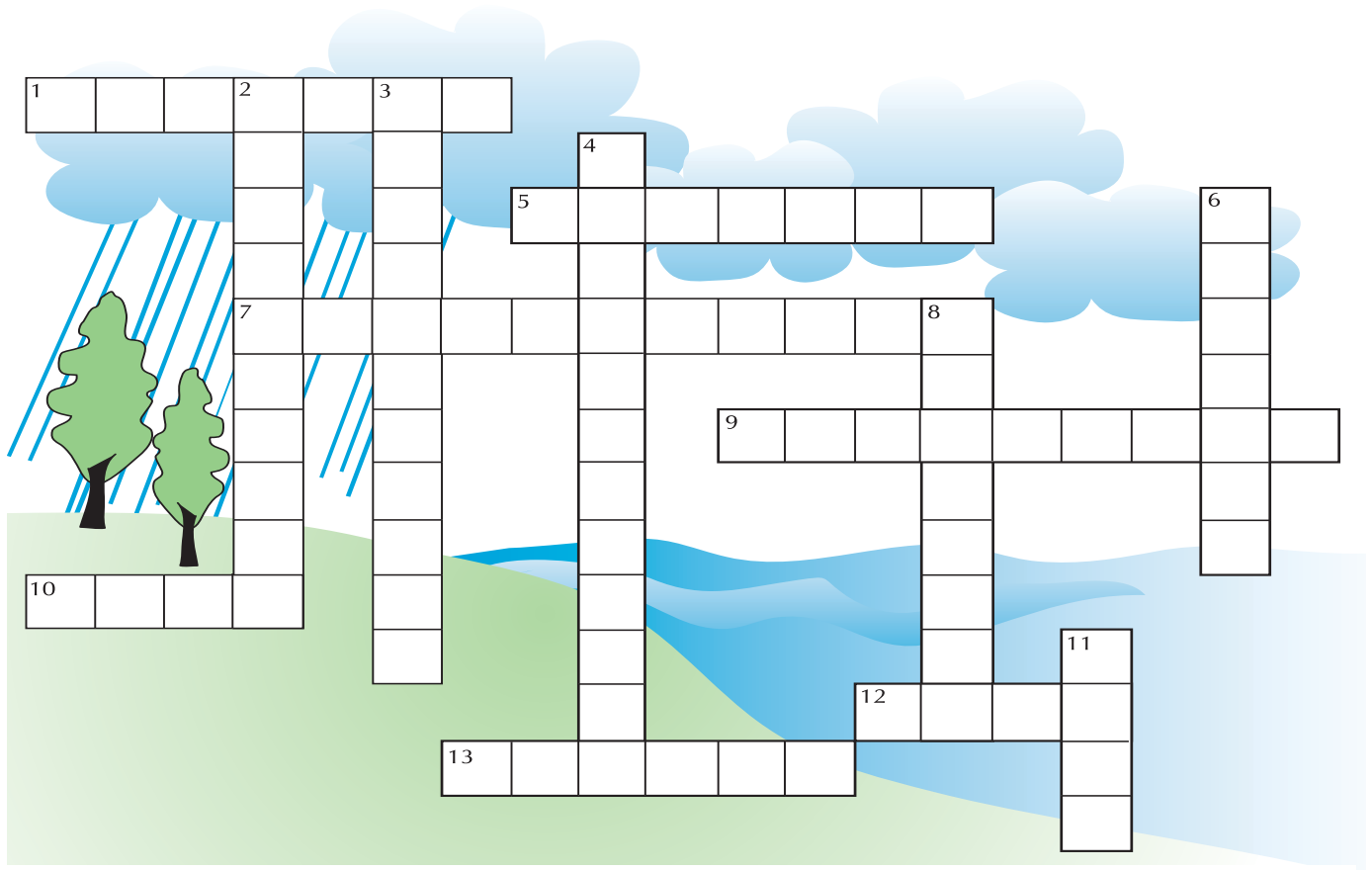
3. Groundwater **CONTAMINATION** occurs when man-made products like gasoline, oil, and road salts get into the groundwater making it unsafe for human use.
4. A low area of land that is filled in with layers of garbage and soil. **LANDFILL**
6. Water that is located underground in the cracks and spaces between soil and rocks. **GROUNDWATER**
8. Any chemical used to kill insects and other pests. **PESTICIDE**

Down

1. A chemical that is used to improve the soil and promote plant growth. **FERTILIZER**
2. In the U.S. today there are over 20,000 known **HAZARDOUS WASTE** sites.
5. Located underground and designed to store and dispose of human waste. **SEPTIC SYSTEM**
7. To leak from landfills or storage tanks. **SEEPAGE**



Water Cycle Crossword



Across

1. Layers of soil, sand, and rocks that store groundwater.
5. To contaminate, to become unclean.
7. Water that is found underground in the cracks and spaces in the soil, sand, and rocks.
9. Groundwater leaves the ground and enters a lake or stream in a _____ area.
10. An example of precipitation.
12. A pipe in the ground that is used to remove water from an aquifer.
13. Water on the earth's surface which moves into a lake or stream without absorbing into the soil.

Down

2. The largest use for groundwater is _____.
3. The stage of the water cycle when water changes from a liquid to a vapor.
4. Clouds are an example of this.
6. A long period of dry weather could cause a _____.
8. In the water cycle, when water soaks into the soil.
11. The movement of water underground is called groundwater _____.



Crossword Puzzle Key

Across

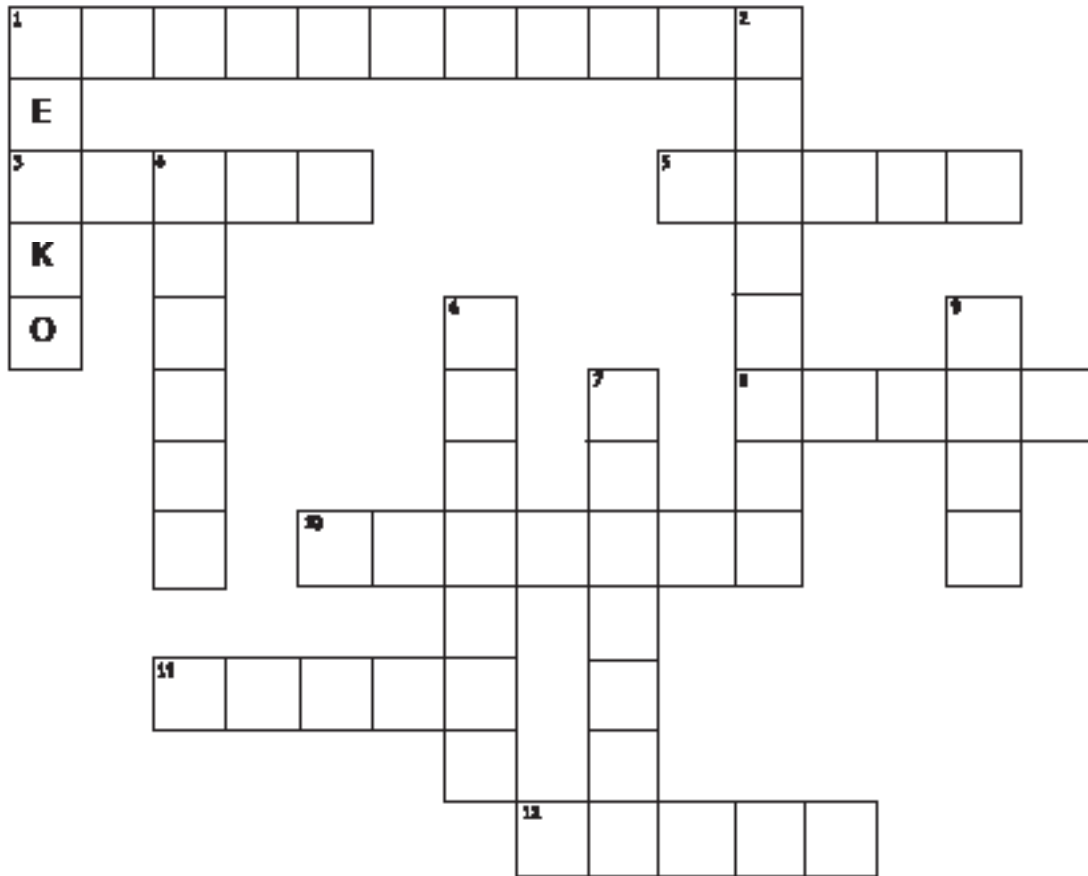
1. Layers of soil, sand, and rocks that store groundwater. **AQUIFER**
5. To contaminate, to become unclean. **POLLUTE**
7. Water that is found underground in the cracks and spaces in the soil, sand, and rocks. **GROUNDWATER**
9. Groundwater leaves the ground and enters a lake or stream in a **DISCHARGE** area.
10. An example of precipitation. **RAIN**
12. A pipe in the ground that is used to remove water from an aquifer. **WELL**
13. Water on the earth's surface which moves into a lake or stream without absorbing into the soil. **RUNOFF**

Down

2. The largest use for groundwater is **IRRIGATION**.
3. The stage of the water cycle when water changes from a liquid to a vapor. **EVAPORATION**
4. Clouds are an example of this. **CONDENSATION**
6. A long period of dry weather could cause a **DROUGHT**.
8. In the water cycle, when water soaks into the soil. **RECHARGE**
11. The movement of water underground is called groundwater **FLOW**.



Water Crossword



ACROSS

1. water beneath the earth's surface
3. evaporation, transpiration, precipitation and infiltration make up the water _____.
5. large body of salt water
8. like a stream
10. to contaminate
11. not dirty
12. to consume or "eat" water

DOWN

1. the Awesome Aquifer Club mascot is named G.W. _____.
2. to add water to an aquifer
4. vapor in the atmosphere forms _____.
6. marshy area
7. water holding formation
9. a "tube" used to pump groundwater.



Crossword Puzzle Key

ACROSS

1. water beneath the earth's surface **GROUNDWATER**
3. evaporation, trasnpiration, precipitation and infiltration make up the water **CYCLE**.
5. large body of salt water **OCEAN**
8. like a stream **RIVER**
10. to contaminate **POLLUTE**
11. not dirty **CLEAN**
12. to consume or "eat" water **DRINK**

DOWN

1. the Awesome Aquifer Club mascot is named G.W. **GECKO**
2. to add water to an aquifer **RECHARGE**
4. vapor in the atmosphere forms **CLOUDS**
6. marshy area **WETLANDS**
7. water holding formation **AQUIFER**
9. a "tube" used to pump groundwater **WELL**



WATER WORD HUNT

Directions

Below is a list of words and phrases that all have something to do with water. These words can be found forward, backward, up, down, or diagonally!

Words

acre foot, aquifer, conservation, contamination, delta, depletion, drainage basin, erosion, estuary, floodplain, groundwater, headwaters, hydrologic cycle, infiltration, pollutant, quality, quantity, recharge, river, runoff, saturation zone, surface water, tributary, watershed, water table

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

Wet Word Search

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

abandoned well
biodegradable
chemical
clean
conservation
depletion
drinking

environment
glass
irrigation
metal
paper
plastic
quality

recharge
recycle
reduce
toxic
vinegar
water
yard waste



Can You Find These Words? (*Circle each one*)

Nonpoint Source

Runoff

Watershed

Monitoring

Conservation

Environment

Water

Pollution

Low Impact

Rain Gardens

Nutrients

Sediment

Pesticide

Fertilizer

Xeriscape

Riparian

Erosion

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