Name_____

Groundwater and Surface Water
Student Data Sheet

Procedure and Questions

1. Fill an aquarium or glass jar half-full with gravel and build up the gravel slightly higher on one side than the other.

2. Pour water from a watering can into the aquarium or jar to simulate rain. Pour enough water so that the gravel is saturated but not so that the water shows above the gravel.

3. Where did the "rain" go?

   _____

4. Slowly pour more water on the ground until a "lake" forms over the lower ground.

5. What stages of the water cycle have been demonstrated?

   _____

   _____

   _____

6. Insert the meat baster from the dry surface down to the water level to simulate the drilling of a well. Pump up some of the groundwater and place it in a glass or jar.

Analysis and Conclusions

7. How did the pumping of water from the well affect the lake?

   _____

8. How would pumping of water affect this well and other wells or springs that draw water from this aquifer?

   _____

9. How could you adjust your experiment to simulate a drought (less precipitation than normal)?

   _____

   _____

Name_____

Regional Water Planning Groups

Legend

- A. Panhandle
- B. Region B
- C. Region C
- D. North East Texas
- E. Far West Texas
- F. Region F
- G. Brazos G
- H. Region H
- I. East Texas
- J. Plateau
- K. Lower Colorado
- L. South Central Texas
- M. Rio Grande
- N. Coastal Bend
- O. Llano Estacado
- P. Lavaca

0 25 50 100 150 200 Miles

For use with Lesson 3, Activity H.

Name_____

Major River Basins in Texas

Legend

1. Canadian
2. Red
3. Sulphur
4. Cypress
5. Sabine
6. Neches
7. Neches Trinity
8. Trinity
9. Trinity San Jacinto
10. San Jacinto
11. San Jacinto Brazos
12. Brazos
13. Brazos Colorado
14. Colorado
15. Colorado Lavaca
16. Lavaca
17. Lavaca Guadalupe
18. Guadalupe
19. San Antonio
20. San Antonio Nueces
21. Nueces
22. Nueces Rio Grande
23. Rio Grande

For use with Lesson 4, Activity A.

Name_____

Streambed Simulation
Student Data Sheet

1. Follow the directions below to create a river basin.
   - Use the materials provided (playground area, stream table or aluminum roasting pan with diatomaceous earth, soil, rocks, bricks, or pieces of wood) to create a model streambed.
   - Model your streambed so that it will meander (curve and twist) and so that water and a floating object can travel the full length.
   - Use a floating object (cork, Ping-Pong balls or foam peanuts) to measure the rate of water flow in your streambed. Do this by measuring the length of your streambed and timing how long it takes for the floating object to travel the length of the streambed.

2. Determine the rate of flow for your streambed. Rate = distance traveled ÷ travel time. Record the rate of flow. _____meters/second

3. Sketch your streambed below.

4. Form a hypothesis as to how using different types of soil, rocks, bricks, pieces of wood, or more water force will affect the flow rate, direction of flow and streambed. Record your hypothesis below.

   _____

   _____

5. Test your hypothesis, record data, then review your hypothesis based on the data collected and describe the outcome.

   _____

   _____

6. Observe the "streambeds" created by other groups. Describe any differences between the "streambeds" and explain how these differences affect the way water flows through the basin.

   _____

   _____

Frankie the Fish Story

1. Frankie the Fish was born in a Texas state fish hatchery. He lived there in a controlled environment for months. The tank was very clean and he was well fed.

2. One day Frankie is loaded into a large truck with his friends. They are taken to a Texas river. Frankie is very happy — he has never felt so much freedom! There are also lots of new things to eat.

3. Frankie swims into a stretch of the river where there are a few cattle ranches. It begins to rain and soil and animal waste from the ranch washes into the river. Frankie has trouble breathing.

   [Pour 5 mL (one teaspoon) of soil into the water. Pour 60 mL (¼ cup) clean water into the water (rain).]

4. Frankie enters an area of the river where there are homes all along the river. Many of these homes have septic systems. Unknowingly, a few of the septic systems leak. Frankie has to deal with the extra bacteria in the water.

   [Squirt two small drops of yellow food coloring into the water.]

5. Frankie swims farther downriver past a large housing development. Many of the homeowners had put lots of fertilizer on their lawns the day before. It begins to rain, and the runoff carries large amounts of nutrient pollution into the river. Frankie has trouble breathing — there is not enough oxygen!

   [Sprinkle 5 mL (one teaspoon) brown sugar into the water. Pour 60 mL (¼ cup) clean water into the water (rain).]

6. Frankie makes it past the subdivision, and enters a stretch of the river where a city pumps water out of the river for its drinking water, and for other uses in homes. After people use the water, it is cleaned by a wastewater treatment plant and returned to the river.

   [Pour 60 mL (¼ cup) clean water into the water.]

7. Frankie realizes he is going on an adventure when he sees lots of motor boats. A few of them are leaking oil. He also sees fishermen with yummy bait trying to catch him, but he outsmarts them!

   [Pour 5 mL (one teaspoon) molasses into the water.]

8. Frankie swims farther downstream, and enters farming country. The farmers have problems with insects and have applied pesticides to their crops. As it begins to rain, Frankie deals with toxins in the water!

   [Squirt two small drops of red food coloring into the water. Pour 60 mL (¼ cup) clean water into the water (rain).]

9. Frankie swims under a highway bridge. Some of the cars traveling on the highway are leaking oil. The rain is washing this oil into the river. More pollution! Frankie feels a little weak.

   [Pour 1 mL (¼ teaspoon) molasses into the water.]

10. Frankie swims past a state park. Some holiday picnickers did not properly dispose of their trash, and the wind is blowing it into the river. Other campers are bathing and washing their clothes in the river. Frankie has trouble seeing through the bubbles, and he struggles to get free from some plastic netting. He feels a little better when it starts to rain.

    [Drop small pieces of shredded paper and 5 mL (one teaspoon) detergent into the water. Pour 60 mL (¼ cup) clean water into the water (rain).]

11. Frankie is almost all the way down the river. He passes by several factories. One of the factories has a pipe flowing into the river that is releasing toxic chemicals into the river. Frankie is feeling queasy and light-headed. Another factory further downstream is discharging clean water into the river, following state regulations designed to keep industrial sites from polluting the river. Frankie feels a little better. Even farther downstream, a power plant discharges warm water into a cooling pond before it is released into the river. Phew, Frankie and other aquatic life could have been hurt by that warm water. Even small changes in water temperature can affect aquatic life.

    [Pour 1 mL (¼ teaspoon) molasses into the water. Pour 60 mL (¼ cup) clean water into the water. Pour an additional 60 mL (¼ cup) clean water into the water.]

12. Frankie swims down the pleasant river living a healthy life.

Name_____

Frankie the Fish Data and Observation Sheet

Step	Visibility Depth (cm)	Pollution Source	Check Pollution Type		Description and Effect on Frankie
			Point Source	Nonpoint-Source	
1-2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

Based upon your observations, do you agree or disagree with the statement in step 12? Explain your answer with supporting information. (Use the back of this sheet to write your answer.)

Name_____

Water Treatment Laboratory Worksheet

Directions

1. Aeration — Observe the bottle labeled "Source Water" or "Surface Water." Stir water vigorously for two minutes. Pour water into two-liter bottle cut in half marked "Aeration." Slowly pour back and forth from "Aeration" bottle into "Coagulation" bottle for two minutes. Leave water in bottle marked "Coagulation." Record changes on the lab worksheet.

2. Coagulation — Add 15 mL (one tablespoon) of alum to water in "Coagulation" bottle. Stir for one minute. Observe, record changes on the lab worksheet and discuss changes.

3. Sedimentation — Allow the water to stand undisturbed in the bottle (Do not move or shake the bottle). Measure the amount of sediment in centimeters at four intervals and record your observations of the water. Begin timing and measuring as soon as you stop the stirring process in Coagulation (step 2) (0 minutes on the worksheet). Continue timing and measure again at three-, six-, nine-, and 12-minute intervals. Describe any changes on your lab worksheet. While you are waiting, make the filter.

   To make a filter: take the cut-off top of a two-liter bottle, turn it upside down and put a piece of stocking over the mouth. Use rubber band to secure stocking. Put the upside down top into the bottom of the bottle marked "Filtration." Slowly pour gravel into the filter. Slowly pour sand on top of the gravel.

4. Filtration — After the sedimentation step is finished, slowly pour water into the filter. Observe and record changes in the water on your worksheet.

5. Disinfection — We will not perform this step, as it would involve using a hazardous chemical, like chlorine. Discuss how the water treatment plants add a small bit of chlorine or another chemical to the water as it leaves the plant. The reason for this is to kill any bacteria that may still be in the water.

Directions

1. Describe the source water or surface water your group has been provided for the lab.

   _____

   _____

   _____

2. Aeration: Describe any changes you observe after you have aerated the water.

   _____

   _____

   _____

3. Coagulation: Describe any changes after you added the alum.

   _____

   _____

   _____

4. Sedimentation: Record the depth of sedimentation in centimeters and describe observations of the water at intervals of zero, three, six, nine and 12 minutes.

Time	Depth (cm)	Observations
0 minutes		
3 minutes		
6 minutes		
9 minutes		
12 minutes		

5. Filtration: After you have completed the treatment process by filtering the water, compare the treated water to the untreated water ("source water" or "surface water" — the water you started with). Record your observations.

   _____

   _____

   _____

Name_____

Don't Be Clueless Worksheet

Today you get to be Detective WaterWise. Detective WaterWise is a keen observer and excellent problem solver. As Detective WaterWise, you will investigate the school grounds to identify possible sources of water wastefulness, and create solutions for a more water-efficient landscape.

Below is a list of things that can save water in a landscape:

- Covering soil with 5 to 10 centimeters (2 to 4 inches) of mulch in flower beds keeps soil moist longer so plants can be watered less often.
- Having at least 15 to 20 centimeters (6 to 8 inches) of soil under grass and plants holds more water so plants can be watered less often.
- Shade trees help keep soil cooler and moist so plants can be watered less often.
- Planting native plants can use 25 to 40-percent less water than other plants.
- Watering between dusk and dawn when the sun and wind are less likely to cause evaporation.
- Fixing any leaking pipes, faucets or irrigation equipment (like sprinkler heads).

Use your investigative skills and this form to evaluate your school for water-saving practices in the landscape:

Is there mulch on the ground around the plants? If so, what type (such as bark, chips or recycled phone books)? _____

If mulch is present, determine if it is deep enough. The optimal depth of mulch is 5 to 10 centimeters (two to four inches). To determine the depth, push a metric ruler down through the mulch to the bottom of the layer. Record the depth in centimeters. Repeat this step in four other locations, then average the five depths.

First site _____ Second site _____ Third site _____ Fourth site _____ Fifth site _____

Average depth of mulch _____ Do you recommend adding more mulch? _____

With help from your teacher, find a place to push a shovel in the ground. Mark the back of the shovel at the soil line, and remove it to measure how deep the shovel went.

How deep were you able to push the shovel into the soil? _____

Is this deep enough for healthy plants? _____

In addition to saving water, WaterWise gardening and landscaping can save energy. Properly placed trees provide shade that can significantly reduce cooling bills in the summer.

How many shade trees do you count on your school grounds? _____

Are there places that you think might benefit from planting a shade tree? _____

If so, where?_____

Work with your teacher to find out when the grounds keepers water the landscape at your school. Is this the best time to water? _____

Are there any leaking pipes or faucets, or sprinklers at your school? _____

Now design a native plant garden for your school. Use plant information from www.wildflower.org and http://urbanlandscapeguide.tamu.edu/ to find plants that are native or adapted to your area.

List 10 native or adapted plants that you would like to use in your design:

Plant Common Name	Plant Botanical Name	Type (Tree, Shrub, Flower)	Size (Height and Width)	Flower Color and Bloom Season

Use graph paper to draw your garden design. Each square equals 1 square foot on the ground. (A plant that grows to be 3 feet wide would take up nine squares on the graph paper.)

You have done a great job investigating your school landscape. List at least three main recommendations to help your school improve in conserving water.

1. _____

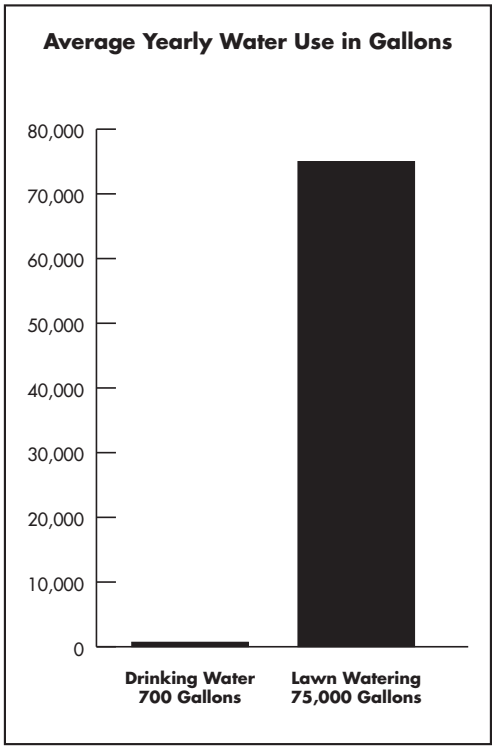
2. _____

3. _____

Group _____ Timer _____ Observer _____ Recorder _____

Lawn Watering Lab Worksheet

The population of Texas is growing, with more people using water every year. There is a limited amount of water for us to use for our daily needs. When each of us uses a little less water, there is more water available for everyone. Outdoor water use can add an additional 50 to 80 percent to home water use during the summer months. It doesn't take a very deep layer of water on your yard to add up to a lot of gallons. One inch of water spread over a typical 4,000-square-foot yard is about 2,500 gallons of water. That means, if you water 1 inch per week during the warmer months, you use about 75,000 gallons a year just on your yard. That is about 1,300 bathtubs full! Your whole family only drinks about 700 gallons of water per year. This is why watering the yard is considered a high water use.



Indoor Exercise

1. The average lawn is 4,000 square feet or about 1/10 of an acre. To help us understand this number, let's calculate the area of a 10-foot-by-10-foot section of lawn. In a straight-sided object, the area is equal to the length multiplied by width. For a 10-foot-by-10-foot section of lawn, the area is:

Area = length times width
= 10 ft. x 10 ft.
= 100 sq. ft.

If a 10-foot-by-10-foot section of lawn is 100 square feet, how many 10-foot-by-10-foot areas would you need to fill in a whole 4,000-square-foot lawn?

Number of 10-foot-by-10-foot sections needed to fill a 4,000-square-foot lawn = $\frac{4{,}000 \text{ sq. ft.}}{100 \text{ sq. ft.}} = 40$

It would take _____ 10-foot-by-10-foot sections of lawn to equal the same area as a 4,000-square-foot lawn.

2. Calculate the area of the bottom of each container for this activity. First, measure the length and width of the container in inches. Then, multiply the length times the width to calculate the area of the container.

Area of large container = _____ (in) length x _____ (in) width = _____ sq. in.

Area of medium container = _____ (in) length x _____ (in) width = _____ sq. in.

Area of small container = _____ (in) length x _____ (in) width = _____ sq. in.

3. If you use a 9-inch-by-13-inch baking pan as your container, what is the area? _____ sq. in.

Note: It would take about 5,000 9-inch-by-13-inch baking pans to cover an area of 4,000 square feet.

Outdoor Laboratory

4. Predict which container (small, medium or large) will collect the largest volume (amount) of water in 15 minutes of watering. _____

5. Try your best to place each container around the sprinkler where you think they each have an equal chance of capturing water. On a separate piece of paper, draw a diagram which shows the placement of your sprinkler and the large, medium and small containers. While the sprinkler is running, record your observations about the type of sprinkler, the environmental conditions (temperature, wind speed, humidity, cloud cover, etc.) and any other observations that you think may affect the results of this experiment below:

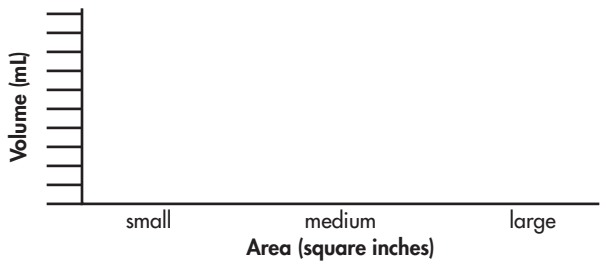
_____ Temperature (F) _____Humidity (%) _____ Wind speed (mph)

Type of sprinkler: _____ Other observations: _____

6. Measure the water depth in both inches and centimeters. Measure the water volume in mL with a large graduated cylinder. Write your results in the data table below.

Container Size	Water depth (inches)	Water depth (cm)	Water volume (mL)
large			
medium			
small			

7. In the space below, construct a graph showing the relationship between the size of the bottom of the container (area) and the amount or volume of water that you collected by running the sprinkler 15 minutes.



8. Explain what the graph above tells you about the relationship between the size of the bottom of the container (area) and the volume (amount) of water collected. _____

9. Many communities in Texas recommend watering lawns with no more than 1 inch of water per week during the summer months. Major Rivers and Aquifer have been trying to calculate how many minutes they should run their sprinkler in order to apply 1 inch of water a week. They measured the amount of water that their sprinkler put out on their lawn. Their sprinkler spread ½ inch of water over their 4,000-square-foot lawn in 15 minutes using 1,250 gallons of water.

   A) How many minutes should Major Rivers run his sprinkler in order to put 1 inch of water on his lawn? _____ minutes.

   B) How many gallons of water will Major Rivers use if he puts 1 inch of water over his entire 4,000-square-foot lawn? _____ gallons.

10. From what you have learned in this activity, what are three things you could change to use less water outdoors every year?

1. _____

2. _____

3. _____

Wa-Ter Your Choices?
Sidewalk Sudsing
Characters: Ann and Keith

Ann and Keith have just come back from a day at the lake. As they start to carry their bag of toys into the house, their dad tells them, "Clean those before bringing them inside." Ann looks at Keith and says, "Okay, Keith, lay everything out on the sidewalk and we'll hose them off." What does Keith say or do?

Possible choices:
Keith tells Ann that washing everything on the sidewalk with the hose running wastes water. They could wash things off in a bucket of water, or they could put everything on the lawn to wash them off so the water doesn't run down the gutter but waters the grass.

Wa-Ter Your Choices?
Clean Carrots
Characters: Marguarita and Antonio

It's Marguarita's turn to set the table and Antonio's turn to peel the carrots. As Marguarita is getting the dishes for the table, she notices that Antonio has the water running all the time in the sink as he washes and peels each carrot. What does Marguarita say or do?

Possible choices:
Marguarita tells Antonio that he is wasting water by just letting it run down the drain. He should peel the carrots, then wash them in a sink partly filled with water; or he can peel them, then rinse them all at once, capturing the rinse water to water some house plants.

Wa-Ter Your Choices?
Twice as Clean
Characters: Christopher and Marcia

Christopher is taking a bath. Marcia is waiting for him to finish so she can take a shower. She hears the water draining out of the bathtub, so she gets her towel and bathrobe. As she stands outside the bathroom door, she hears the bathtub filling with water again. "Christopher!" she yells, "What are you doing?" "The water got cold," says Christopher, "so I'm filling up the bathtub again." What does Marcia say or do?

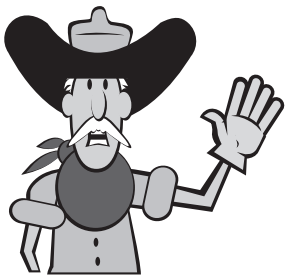
Possible choices:
Marcia explains to Christopher that filling the bathtub again is wasting water and money. Not only is there a limited supply of water, but it also costs money to get the water and to heat it. She tells him that he can get quite clean with just one shallow bath, or she can tell him that he can take a five-minute shower that will use less water than a bath. He will still get quite clean.

Wa-Ter Your Choices?
Flushed Away
Characters: Rosie and Raul

Rose and Raul are sitting on the floor cutting out paper dolls and snowflakes. Scraps of paper are scattered all over the rug. When they are finished, Raul says, "We'd better pick up all these little scraps of paper." Rosie picks up a few scraps of paper, runs into the bathroom, and flushes them down the toilet. She comes back, picks up a few more scraps, and heads toward the bathroom with them again. What does Raul say or do?

Possible choices:
Raul tells Rosie that every flush of the toilet uses between 1 and 5 gallons of water, so she is wasting water by flushing the scraps of paper down the toilet. She should put the scraps of paper in the trash. He could point out that the toilet could get clogged up with all that paper, then overflow, which would waste even more water.

Name _____



PRETEST

MAJOR RIVERS
TEXAS WATER EDUCATION PROGRAM

PART A: The Water Cycle

Directions: Circle the letter of the word that best completes each sentence.

1. Water falls to earth as either rain or snow. This is called _____.
   a) surface runoff b) infiltration c) precipitation

2. Some water on the ground flows into rivers, lakes and oceans. This is called _____.
   a) condensation b) evaporation c) surface runoff

3. Some water soaks into the ground. This is called _____.
   a) infiltration b) precipitation c) condensation

4. The sun heats water on the ground and changes it into vapor. The vapor rises into the sky. This is called _____.
   a) evaporation b) precipitation c) infiltration

5. Vapor cools, forms clouds and changes back into water. This is called _____.
   a) infiltration b) condensation c) precipitation

PART B: Texas Water Supply

Directions: Circle the letter of the word that best completes each sentence.

6. Most large cities in Texas are in the _____ half of the state where there is more water.
   a) eastern b) northern c) western

7. The river that supplies Austin, our capital city, is the _____.
   a) Sabine b) Colorado c) Trinity

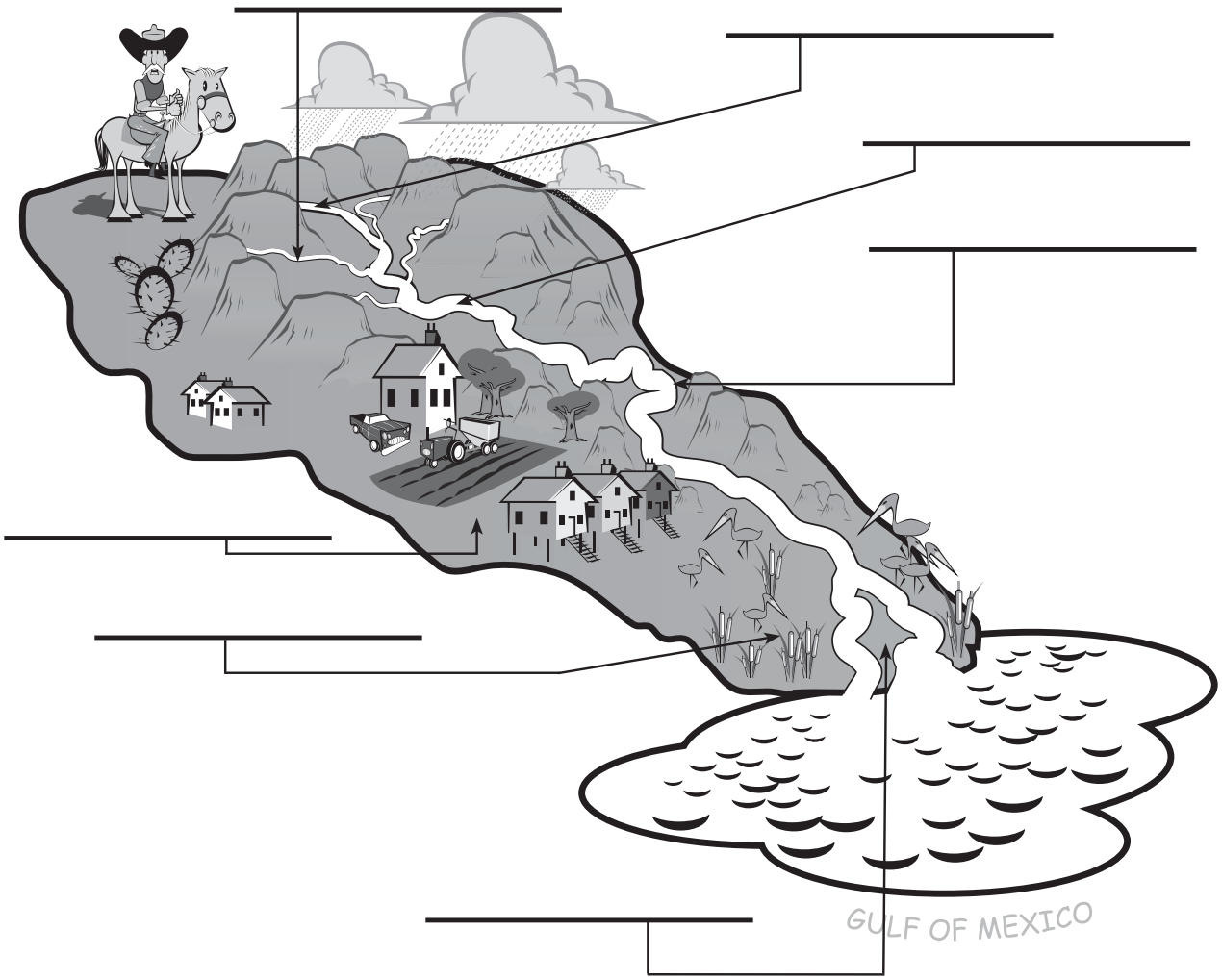
8. An underground layer of gravel, sand or rocks that is filled with water is called _____.
   a) reservoir b) an aquifer c) a lake

9. The river between Texas and Mexico is the _____.
   a) Red b) Brazos c) Rio Grande

10. More than half of the water used in Texas comes from _____.
    a) the ocean b) rivers c) aquifers

PART C: What is a Watershed?

Directions: Put the following words in the correct blank to label the watershed: tributary, floodplain, meander, headwaters, wetland, delta, main channel. Color the tributaries that flow into the main river blue. Place an arrow showing the direction of the river's flow.



PART D: Water Treatment and Distribution

Directions: *Match the words on the left with their definitions on the right. Write the correct letter in the blank space.*

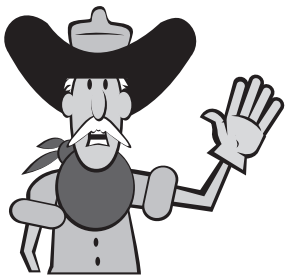
_____ water treatment plant	a) place where surface water is stored
_____ wastewater treatment plant	b) place where sewage is cleaned
_____ recycled water	c) carries water to homes and businesses
_____ pipeline	d) place where water is cleaned and made safe to drink
_____ reservoir	e) wastewater that is cleaned and reused

PART E: Using Water Efficiently

Directions: *Look at each group of activities that use water. Place an X next to the activity in each group that uses the most water in a year.*

_____ flushing the toilet	_____ using the faucet	_____ washing clothes	_____ using the faucet
_____ washing dishes	_____ watering the lawn	_____ watering the lawn	_____ flushing the toilet
_____ drinking water	_____ taking a shower	_____ drinking water	_____ washing the car

Name _____



POSTTEST

MAJOR RIVERS
TEXAS WATER EDUCATION PROGRAM

PART A: The Water Cycle

Directions: Circle the letter of the word that best completes each sentence.

1. Water falls to earth as either rain or snow. This is called _____.
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2. Some water on the ground flows into rivers, lakes and oceans. This is called _____.
   a) condensation b) evaporation c) surface runoff

3. Some water soaks into the ground. This is called _____.
   a) infiltration b) precipitation c) condensation

4. The sun heats water on the ground and changes it into vapor. The vapor rises into the sky. This is called _____.
   a) evaporation b) precipitation c) infiltration

5. Vapor cools, forms clouds and changes back into water. This is called _____.
   a) infiltration b) condensation c) precipitation

PART B: Texas Water Supply

Directions: Circle the letter of the word that best completes each sentence.

6. Most large cities in Texas are in the _____ half of the state where there is more water.
   a) eastern b) northern c) western

7. The river that supplies Austin, our capital city, is the _____.
   a) Sabine b) Colorado c) Trinity

8. An underground layer of gravel, sand or rocks that is filled with water is called _____.
   a) reservoir b) an aquifer c) a lake

9. The river between Texas and Mexico is the _____.
   a) Red b) Brazos c) Rio Grande

10. More than half of the water used in Texas comes from _____.
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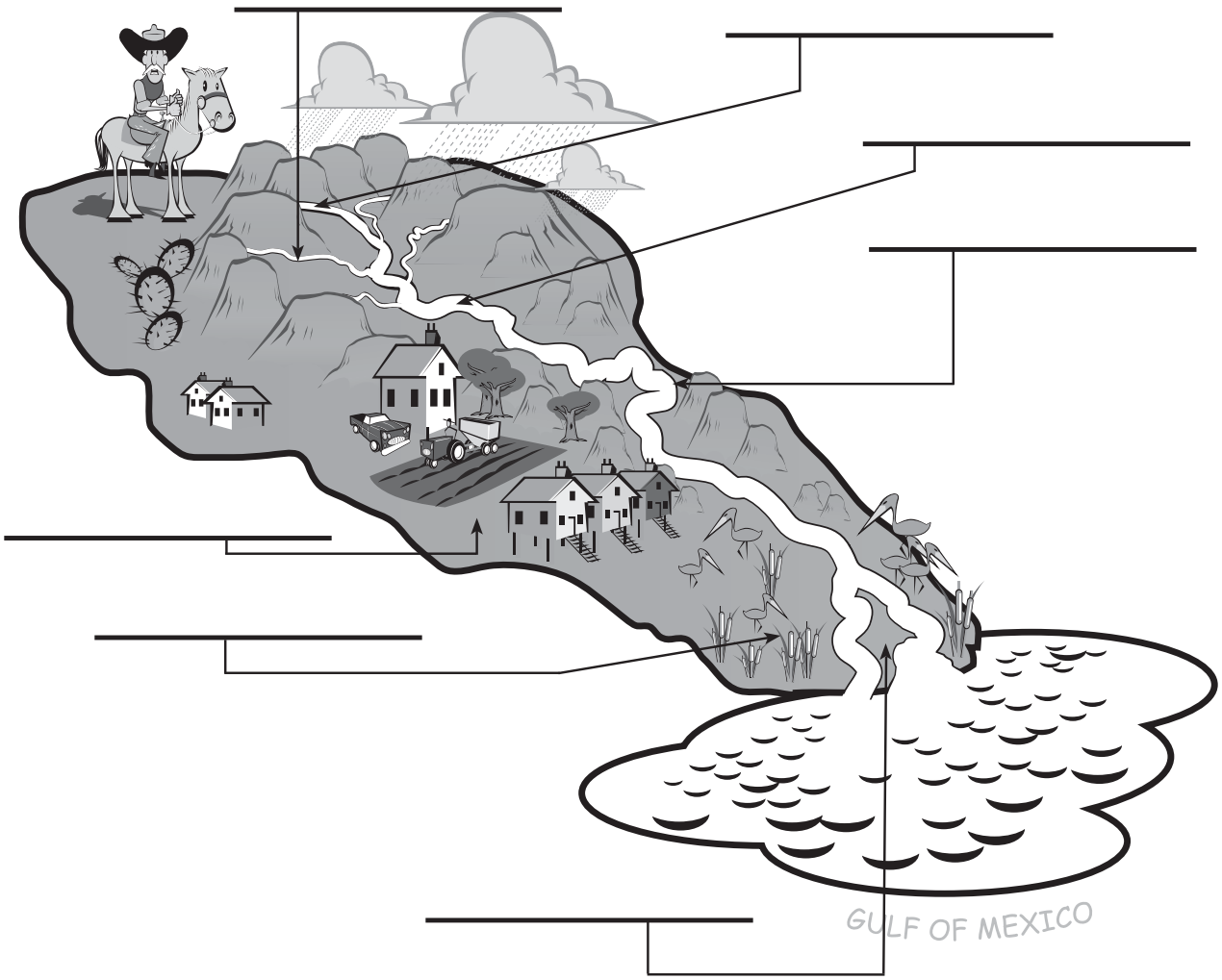
PART C: What is a Watershed?

Directions: Put the following words in the correct blank to label the watershed: tributary, floodplain, meander, headwaters, wetland, delta, main channel. Color the tributaries that flow into the main river blue. Place an arrow showing the direction of the river's flow.



PART D: Water Treatment and Distribution

Directions: *Match the words on the left with their definitions on the right. Write the correct letter in the blank space.*

_____ water treatment plant	a) place where surface water is stored
_____ wastewater treatment plant	b) place where sewage is cleaned
_____ recycled water	c) carries water to homes and businesses
_____ pipeline	d) place where water is cleaned and made safe to drink
_____ reservoir	e) wastewater that is cleaned and reused

PART E: Using Water Efficiently

Directions: *Look at each group of activities that use water. Place an X next to the activity in each group that uses the most water in a year.*

_____ flushing the toilet	_____ using the faucet	_____ washing clothes	_____ using the faucet
_____ washing dishes	_____ watering the lawn	_____ watering the lawn	_____ flushing the toilet
_____ drinking water	_____ taking a shower	_____ drinking water	_____ washing the car

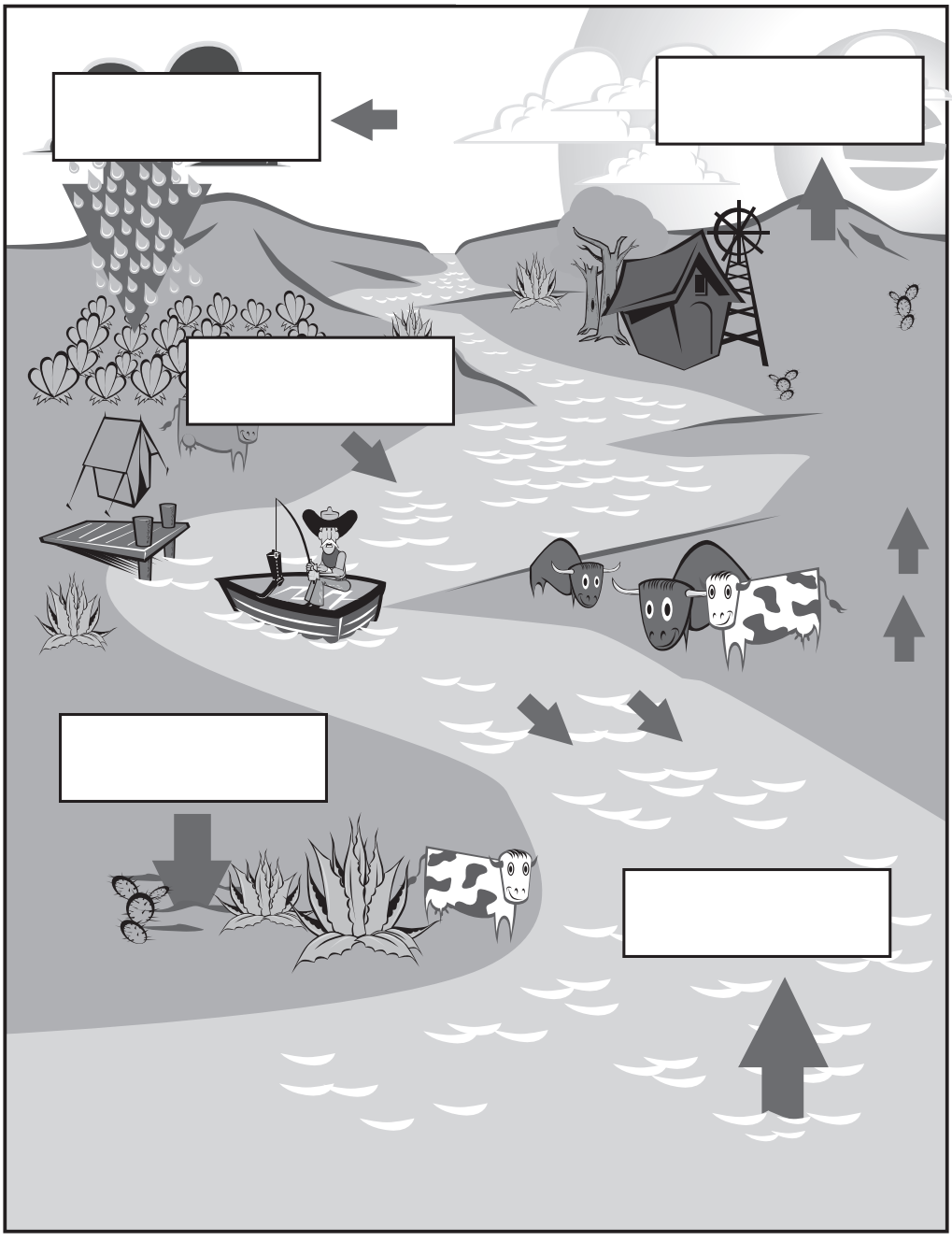
Name_____

REVIEW WORKSHEET

Part A. The Water Cycle

Directions: The picture below shows the cycle of water. Fill in the blank spaces on the diagram with the words below.

condensation	infiltration	surface runoff
evaporation	precipitation	



Name_____

REVIEW WORKSHEET

PART B. Water Supply
Directions: Fill in the crossword puzzle by completing each sentence.

Across:

2._____ supply almost half of the water for Texas.

4.The _____River supplies water to our capital city.

7._____ supply more than half the water for Texas.

9.The west side of Texas gets very little ____.

Down:

1.The _____ River forms the border between Texas and Mexico.

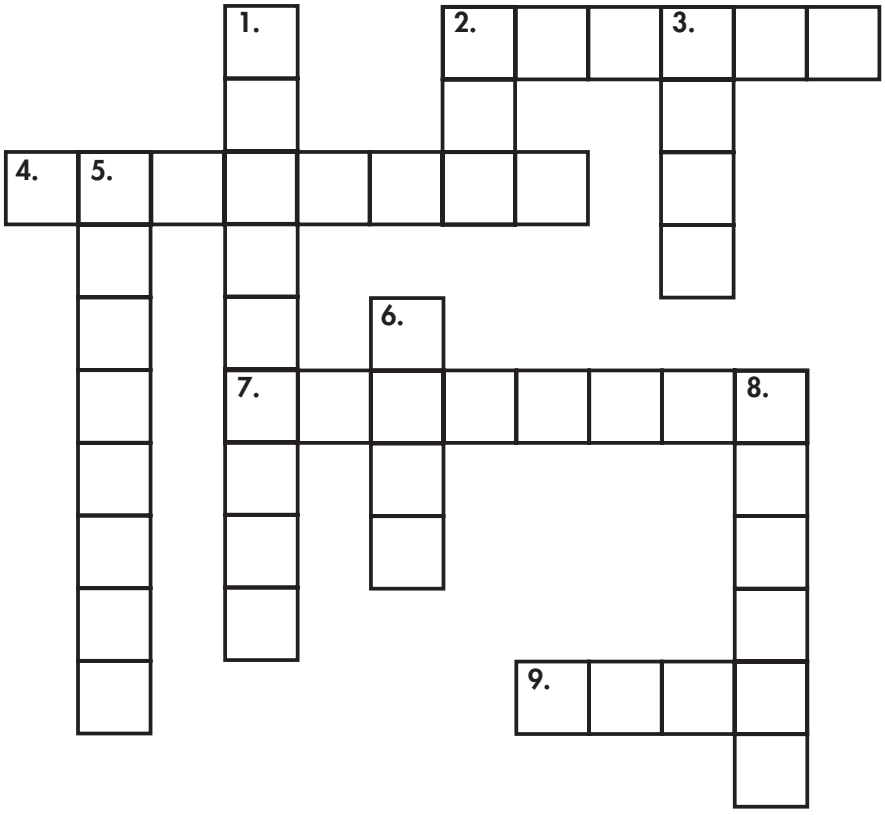
2.The _____ River runs between Texas and Oklahoma.

3.The_____ side of Texas gets the most rain.

5.The _____Aquifer supplies water to the Panhandle.

6.Most rivers in Texas empty into the_____ of Mexico.

8.The _____ River separates Texas and Louisiana.

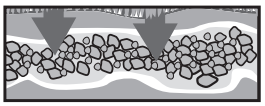
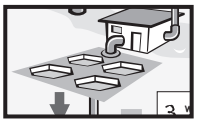
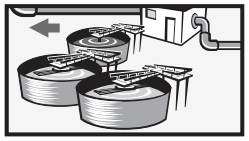
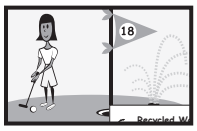


Name_____

REVIEW WORKSHEET

Part C. Water Distribution

Directions: Fill in the blank spaces to complete each sentence.

Texas has 80,000 miles of rivers and streams, and 221 large lakes and reservoirs. This water we can see on top of the ground is called  _____. Texas also uses water from under the ground. This water is called  _____. Most of the water from rivers, reservoirs and aquifers is sent to a  _____ _____ to be cleaned. Then the water travels through  _____ to our homes and businesses. After we use the water, it goes to a  _____. Sometimes, wastewater can be used to irrigate some crops and to water parks. This water is called  _____.

PART D. Water Use

Directions: Fill in the chart showing which uses of water are high, medium and low.

bathing	drinking	washing clothes
brushing teeth	flushing toilet	washing dishes
using the faucet	washing car	watering lawn

HIGH	MEDIUM	LOW
_____	_____	_____
_____	_____	_____
_____	_____	_____

Name_____

WATER MATH

Directions: Solve the problems and then use the key to make a sentence about water in Texas.

130 = many	484 = Texas	864 = water
165 = flows	494 = of	855 = into
216 = The	544 = rivers	901 = Gulf
315 = in	700 = Mexico	976 = the

18	**36**	**15**	**10**	**22**	**17**
x 12	**x 24**	**x 21**	**x 13**	**x 22**	**x 32**
____	____	____	____	____	____
____	____	____	____	____	____
11	**45**	**61**	**17**	**19**	**14**
x 15	**x 19**	**x 16**	**x 53**	**x 26**	**x 50**
____	____	____	____	____	____
____	____	____	____	____	____

Name_____

A WATER CYCLE PUZZLE

Directions: Complete each statement by filling in the blanks. When you have finished, there will be a word spelled in the arrow. Choose the correct words from the list.

snow	surface	water	cycle	taste
Texas	ice	fog	rain	
infiltrates	rivers	vapor	evaporates	

1. Water goes into the air when it ___ ___ ___ ___ ___ ___ ___ ___ ___ ___.
2. Water ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ into the soil.
3. Water conservation is important in ___ ___ ___ ___ ___.
4. The water ___ ___ ___ ___ ___ never stops.
5. Frozen water is called ___ ___ ___.
6. Water in the air is called ___ ___ ___ ___ ___.
7. ___ ___ ___ ___ falls from the clouds.
8. All living things need ___ ___ ___ ___ ___.
9. Water on the ground is ___ ___ ___ ___ ___ ___ ___ water.
10. Water has no odor, color or ___ ___ ___ ___ ___.
11. Water flows in ___ ___ ___ ___ ___ ___.
12. ___ ___ ___ is a cloud close to the ground.
13. In cold places, ___ ___ ___ ___ falls from the clouds.

Name_____

WATERY WORD SEARCH

Directions: Find and circle the water words in this puzzle. The words go down and across.

Word List:

AQUIFER	GROUNDWATER	IRRIGATION	RESERVOIR
CONDENSATION	GULF	LAKE	RIVER
DAM	ICE	PRECIPITATION	SNOW
EVAPORATE	INFILTRATE	RAIN	WELL

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