

## WET, DRY, AND WILD RIVERS OF TEXAS

### Purpose

- To identify major rivers of Texas
- To follow the flow of the river from source to mouth
- To identify the river basins of major rivers
- To correlate the amount of rainfall in areas of the river basin with the amount of water at different points along the river's journey to the sea
- To recognize the range of activities that might occur along the river's banks

### TEKS Standards

#### *Grades 4 Social Studies*

(8) Geography. The student understands the location and patterns of settlement and the geographic factors that influence where people live. The student is expected to (C) explain the geographic factors such as landforms and climate that influence patterns of settlement and the distribution of population in Texas, past and present.

#### *Grade 7 Social Studies*

(9) Geography. The student understands the location and characteristics of places and regions of Texas. The student is expected to (A) locate the Mountains and Basins, Great Plains, North Central Plains, and Coastal Plains regions and places of importance in Texas during the 19th, 20th, and 21st centuries such as major cities, rivers, natural and historic landmarks, political and cultural regions, and local points of interest; (B) compare places and regions of Texas in terms of physical and human characteristics; and (C) analyze the effects of physical and human factors such as climate, weather, landforms, irrigation, transportation, and communication on major events in Texas.

**Grade Levels:** 4<sup>th</sup> - 7<sup>th</sup>

**Suggested Time:** 1-2 class periods

**Materials:** Giant Traveling Map, chains, blue chips, vinyl spots, aerial photos of Red River, River Basin Map of Texas, Data Recording Sheet: Rivers of Texas; Visual/Spatial Assessment

### Instructional Material:

Rivers selected for this lesson are the longest ones in Texas and all flow into the Gulf of Mexico. Some important rivers, such as the Pecos, flow into other rivers. Some are *intermittent streams* that do not have surface water in some seasons. Teachers should emphasize the patterns on the landscape with attention to rivers and their tributaries flowing from higher to lower elevations. The mountains of New Mexico and Colorado are the sources of several Texas Rivers. Note also that water moves faster in steeper places and cuts a narrower channel. Rivers flowing across flat plains areas are slower moving and broader. The aerial photo in this lesson shows the Red River meandering across the western plains near Childress after heavy rains. The river picked up iron sediment in the soil on its journey downstream making the river look quite red. Use examples of rivers and tributaries in your local region to enrich this lesson. Vocabulary: *tributary, source, mouth, headwaters, river basin* (watershed).

See resource images and map at end of lesson.

### Student Activity/Assessment

1. In small groups (3-4 students), use plastic chains to trace major rivers in Texas. Each group selects one of the following rivers in the chart below. These are the longest rivers in Texas.
2. Begin by placing a vinyl spot at the mouth of the river in the Gulf of Mexico. The mouth is in lowland (green). Then, carefully follow the main river up to its source in the higher elevations (tan). Put a marker (small vinyl pieces) at its source. If the source is beyond the borders of Texas, put the star in the area where it enters Texas.
3. Find all the small rivers (tributaries) that flow into the main river. Look carefully. Some may be close to one river but flow into a different river. Why might that happen?
4. When the river is marked, the group will sit on the map beside the river. Record information about the river in the chart for the class to see (use SmartBoard or other projection device).
5. The leader will then simulate rainfall across Texas by dropping small bingo chips onto the map. Beginning in the west, drop a few raindrops in the 10-20 inches of annual rainfall region. Be sure at least a couple of drops are in each of the river basins (see River Basin Map of Texas).
6. Move across the map to the east, increasing the amount of rain to areas near the mouths of the Sabine and Neches Rivers.
7. Students closest to the source of each river begin gently moving the “raindrops” along the tributaries and in the river basin to the main channel. The next student along the river’s channel continues moving the “water” from the river basin downstream. As tributaries join with the main river channel, note the increasing amounts of “water” in the river as it flows to its mouth at the Gulf of Mexico.
8. When all teams have recorded the data, each team, or each person, can complete the following data sheet before drawing conclusions about rivers.

### Extension

Using the data in the chart and the experiences on the map, write three big ideas (conclusions) about rivers. A big idea (concept) is true about most of the rivers in Texas and will probably be true about rivers in other places. Clues: a) conclusions about high places and rivers; b) conclusions about changing amounts of water in the river basin; c) conclusions about climate and rivers, and d) conclusions about a river’s path over time.

### Assessment

Visual/Spatial assessment: Draw a sketch map of the flow of a Texas river from its source to its mouth. Add three things that are near the river on its journey to the sea (such as vegetation, animals, and/or cities). What is one more important question you want to ask? It should be a really hard question. It should be a question that other people will not ask.

Name: \_\_\_\_\_

*Data Recording Sheet: Rivers Basins of Texas*

Rivers	Mouth – nearest town	Source – nearest landmark	Amount of Rainfall at source (inches)	Elevation at source/mouth	Length of river in Texas
Rio Grande					1250 miles
Brazos					840 miles
Colorado					600 miles
Red					680 miles
Trinity					550 miles
Neches					416 miles
Sabine					360 miles
Nueces					315 miles
Guadalupe					250 miles

Lessons to Support the *Giant Traveling Map of Texas*

Three things that might be found along the banks of the river (How do you know they might be there?)

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

My really hard question: \_\_\_\_\_

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This is a sketch map of the \_\_\_\_\_ River.

(S = source; M = mouth)

## Resources

#1 Aerial photo of the Red River looking west near Childress, TX after heavy rains in spring/summer



#2 Aerial photo of the Red River looking west near Childress, TX after heavy rains in spring/summer. Note the patterns of farmed fields and other streams.



