Environment of Texas

- The Physical State of Texas
- Physical Regions
- Geology and Soils
- Major Rivers, Aquifers, Lakes, Reservoirs
- Plant Life and Forest Resources
- National Forests and Grasslands
- Texas State Forests

INSTRUCTIONAL SUGGESTIONS

1. **GRAPHIC ORGANIZER:** Students will use “The Physical State of Texas” section to fill in the Physical State of Texas Graphic Organizer on the Student Activity Sheet.

2. **COLLAGE:** In small groups, students will create a collage reflecting each of the four physical regions of Texas. A Texas outline map (Appendix) will be divided into the four regions. Students will illustrate the regions using magazine pictures or their own drawings. They will use the “Physical Regions” section and include, for example, geographical features, natural vegetation, and other resources.

3. **COMPARISON ESSAY:** Using “Physical Regions,” students will select two principal regions of Texas, one of which should be the region in which they live. They should write a five-paragraph essay that compares the two regions. Comparisons may include boundaries, climates, and geography.

Loblolly pines stand tall in the Davy Crockett National Forest in Houston County. Photo by Ron Billings; Texas A&M Forest Service.
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4. GEOLoGY MAP: Students will use “Geology of Texas” to color and make a key showing the geology of Texas on the Texas geology map outline (Appendix).

ESSAY OR CARTOON: Students will select the geological area in which their town is located and write an essay describing their area or create a cartoon that describes their area.

5. SOILs CHART: Students will use “Soils of Texas” to create a Soils of Texas Chart. They will choose 10 soil subdivisions for the vertical column on their chart; one must be the region in which they live. The horizontal columns should be titled:

<table>
<thead>
<tr>
<th>TYPE OF SOIL</th>
<th>SIZE IN ACRES</th>
<th>ECONOMIC ACTIVITY</th>
<th>SOIL CONCERNS</th>
</tr>
</thead>
</table>

6. MAGIC PUZZLE: Using the “Water Resources” section, students will complete the Water Resources Magic Puzzle. Read each clue and find the answer to each clue in the puzzle. Write the number of the clue in the correct puzzle picture. Students will be able to check their answers by adding the numbers in each column (vertically) and each row (horizontally); the totals will be the same for each column and row. This is the MAGIC NUMBER; write in the number.

7. RIVERS MAP: Students will use the “Principal Rivers” map and their textbook to locate and label the rivers of Texas on the “Texas Rivers” map (Appendix).

NAME THAT RIVER: Students will complete Name That River Student Activity Sheet using the “Major Rivers of Texas” section.

CREATE A PUZZLE: Using the information from this activity and a blank graph grid (Appendix), students will work with a partner to create their own puzzle, including the across and down clues. Upon completion, students will exchange and solve the puzzles.

CROSSWORD PUZZLE: Students will complete the Rivers of Texas Crossword Puzzle using the “Major Rivers of Texas” section.

8. LAKEs & RESERVOIRS PICTOGRAPH: Students will create a pictograph to show the storage capacity of Amistad Reservoir, Lake Meredith, Lake Palestine, and two additional lakes or reservoirs of their choice, using the “Artificial Lakes and Reservoirs” section. They will design their own symbols.

9. PLANT LIFE POSTCARDS: Students will pretend that they have been commissioned by their local Chamber of Commerce to create a postcard on plant life areas, using the “Texas Plant Life” section. On one side of an index card, they will illustrate the area of their choice and on the other side they will write an explanation of their drawing.

10. TIMBER PRODUCTION: Using “Total Timber Production and Value by County in Texas,” students will do the following:
   a. On a Texas Counties Map (Appendix), locate the county in which you live and color it. Make a legend (key) indicating the name of your county and the color designation.
   b. Locate the counties with the largest, 2nd largest, and 3rd largest pine timber production in cubic feet. Indicate the county names and choose different colors to represent each category on the map and key.
   c. Locate and color the counties with the largest, 2nd largest, and 3rd largest hardwood timber production in cubic feet. Indicate the county names and choose different colors to represent each category on the map and key.
   d. Locate and color the county with the smallest pine production. Add the county name...
and color to the legend.
e. Locate and color the county with the **smallest hardwood production** (*other than zero*). Add the county name and color to the legend.
f. Lightly shade the **remaining** 35 top timber-producing counties the same color. Add “Top Timber Producing Counties” and the shading color to the legend.
g. Refer to the section “Physical Regions of Texas” to answer the question: In what **region** do the top timber-producing counties lie? Write the question and answer on the back of the map.
h. Carefully study your completed map. Write the following questions and answers on the back of the map:
   - What relationship do you find between the top pine-producing county location and the smallest?
   - What conclusion can you make concerning the area in which the top hardwood-producing counties and the top pine-producing counties are located?
   - What future economic value, in terms of employment, tax base, school resources, retail stores, and recreational opportunities, can be placed on “Total Stumpage Value” (trees not cut) to the entire state of Texas, and how should future timber production continue?
   - If your county lies within the shaded area, ask your students to forecast future economic value to your district.

11. **FORESTS & GRASSLANDS BAR GRAPH:** On a blank graph grid (Appendix), students will create a bar graph using three different colors and the “Texas State Forests” and “National Forests and Grasslands in Texas” sections.
   - The first color will represent the total size of the five state forests.
   - The second color will represent the total size of the four national forests.
   - The third color will represent the total acreage in **Texas counties** of the five national grasslands (*do not include land in Oklahoma*).
   - Inside each of the bars, students will create symbols to represent recreational activities in each of the three categories; some might be the same, i.e. picnicking.
   - Students will create a legend or key, label the x and y axis, and title the bar graph.

*The Pecos River creates the border between Loving and Reeves counties. Photo by Robert Plocheck.*
Physical State of Texas Graphic Organizer

1. Area total square miles: ___________________
   Land total sq. mi.: ___________________
   Water total sq. mi.: ___________________

2. Latitude: ___________________ N. Lat.
   Longitude: ___________________ W. Long.

3. Highest point: ____________________
   Lowest point: ____________________

4. Highest town: ____________________
   Highest railway point: ____________

5. Texas Boundary Lines: ____________ miles
   Rio Grande: ____________ miles
   Coastline: ____________ miles

6. East to west: __________________ miles
   North to south: ____________ miles
   Geographic center: ____________________

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Water Resources Magic Puzzle

1. It is responsible for the development of water resources and financing facilities for that development.

2. More than three-quarters of Texas ground water is used for this.

3. The Ogallala Aquifer is located in this part of Texas.

4. Heavy use of its water has caused land-surface subsidence in the Houston-Galveston area.

5. San Antonio relies on it for much of its municipal water supply.

6. The Carrizo–Wilcox Aquifer provides water for public and industrial uses in these parts of Texas.

7. Extensive development of the Trinity Aquifer in these areas has resulted in a decline of several hundred feet in the water level.

8. This area of Texas gets its water from the Edwards-Trinity Plateau Aquifer.

9. Irrigation pumpage accounted for 93 to 94 percent of its total use.

10. This city receives its drinking water from the Hueco-Mesilla Bolson Aquifers.

11. This area gets water from the Pecos Valley Aquifer.

12. It provides water to parts of Arkansas and Louisiana.

13. Around 95 to 97 percent of its water is used for irrigation.

14. Since the mid-1970s, less of its water has been used for irrigation.

15. Created in 1993, it regulates the amount of water pumped from Uvalde County through portions of Hays County.

16. It occurs in the southern portion of the Trinity Aquifer.
Water Resources Magic Puzzle

THE MAGIC NUMBER: ________
Name That River

1. The river that is the longest river wholly in Texas and gets its name from a Spanish word meaning “reddish”: ________________

2. The river whose name comes from the Spanish word for cypress and is considered Texas’ eastern boundary line: ________________

3. The river that has the largest volume of any river in Texas and along which were the early settlements of San Felipe de Austin and Washington-on-the-Brazos: ________________

4. The river whose waters carve the Palo Duro Canyon and form the boundary between Texas and Oklahoma: ________________

5. The river that the Spanish named for the numerous bison they found in its area: ________________

6. The river that is the longest Texas river and the second-longest river within or bordering the United States: ________________

7. The river that has its source within and near the city limits of San Antonio: ________________

8. The river that runs to the Gulf of Mexico through Galveston Bay: ________________

9. The river that starts in New Mexico, crosses the Texas Panhandle into Oklahoma, and flows into the Arkansas River: ________________

10. The river in the Piney Woods of East Texas named by Spanish explorers for Indians living along its banks: ________________

11. The river Alonso de León named in 1689: ________________

12. The river that starts as a spring-fed stream and has power generation at Canyon Lake: ________________

13. The river that has more large cities, greater population, and more industrial development than any other in Texas: ________________
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STUDENT ACTIVITY

Rivers of Texas Crossword Puzzle

ACROSS CLUES
1. The ____________ River has the largest cities, people, and industries.
4. The ____________ River flows through the Panhandle.
7. The ____________ River is located in East Texas and was named for a group of Indians.
9. The tributaries of this river are the San Marcos, San Antonio, and Comal rivers ____________________
11. Its original Spanish name means “Arms of God”: __________________
12. The ____________ River begins in the Balcones Escarpment.
13. Many Mexicans in the Valley use this name for the Rio Grande: ________________

DOWN CLUES
2. The ____________ River forms part of the northern boundary of Texas.
3. The ____________ River helps form part of the eastern boundary of Texas.
5. The ____________ ____________ is Texas’ longest river.
6. This river flows into the Guadalupe River near the Gulf Coast: ________ ____________
8. On April 21, 1836, a battle of the Texas Revolution was fought on the banks of this river: __________ ____________
10. The ____________ River is the largest river wholly within Texas.
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RIVER BASINS

Texas River Basins

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

Sulphur and Cypress are sometimes included in the Red River basin. See Sulphur River and [Big] Cypress [Creek] in the Secondary Streams of Texas.

Sources: Bureau of Economic Geology of the University of Texas at Austin and the U.S. Geological Survey.
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PLANT LIFE

Vegetational Areas of Texas

1. Pinny Woods
2. Gulf Prairies and Marshes
3. Post Oak Savannah
4. Blackland Prairies
5. Cross Timbers and Prairies
6. South Texas Plains
7. Edwards Plateau
8. Rolling Plains
9. High Plains
10. Trans-Pecos