

Texas Ecoregion Puzzle



Grades: 4-8, Biology, Environmental Systems, Aquatic Science

TEKS:

- 4: 1A & C-G, 3A-C, 5A & D & F-G, 11A-B, 13A
- 5: 1A & C-G, 3A-C, 5A & D & F-G, 11, 12A & C, 13A
- 6: 1A & C-G, 3A-C, 5A & D & F-G, 11A & B
- 7: 1A & C-G, 3A-C, 5A & D & F-G, 11B
- 8: 1A & C-G, 3A-C, 5A & D & F-G, 12C
- BIO: 1A & C-G, 3A-C, 4A, 13D
- ES: 1A & C-G, 3A-C, 4A, 5A, 11A-B
- AS: 1A & C-G, 3A-C, 4A, 10A, 14D

Topics:

- Adaptations
- Biodiversity
- Agriculture
- Habitats and Ecosystems
- Human Activity/Environmental Impacts
- Landforms
- Natural Resources
- Plants
- Renewable/Non-renewable
- Soil
- Wildlife

Methodologies:

- Poster/Visual Aid
- Research

Setting: Classroom

Activity Time: 45-60 minutes

Additional Subjects: Art, ELAR, Social Studies

Objective:

Students will identify animals, plants, and habitats that exist among the ecoregions of Texas. Ecoregion biodiversity will provide reasons for making good choices regarding stewardship practices.

Materials:

Provided

- Gould Ecoregions of Texas* map
- Ecoregion Cutouts (10)
- Ecoregion Fact Sheets (10)
- C.A.R.E. Acronym page

Not Provided

- Pencils
- Crayons or markers
- Research materials

Vocabulary:

adaptation, caretaker, conservation, biodiversity, ecoregion, ecosystem, habitat, native, non-renewable, renewable



Texas Ecosystem Puzzle

Background:

Texas is divided into 10 natural ecoregions that provide great biodiversity throughout the state, with each ecoregion having its own distinctive characteristics. An ecoregion consists of a recurring pattern of ecosystems associated with combinations of landforms, wildlife, and plants that characterize that region. Each ecosystem is made up of living (biotic) and nonliving (abiotic) things in an area. Through researching and studying similarities and differences between each ecoregion, students can discover how nature and human impact have shaped our state.

Texas is quite unique from most states because of its size and geographic location. Covering 266,807 square miles, its large land area has major differences in rainfall, climate, and habitat biodiversity. Southern habitats are subtropical whereas those to the north are temperate. Rainfall varies from an average of 8 inches in West Texas to about 56 inches per year in East Texas. In addition, our state has vast topographical biodiversity with 91 mountain peaks that average a mile or more in height.

Texas' ecoregions are the Pineywoods, the Gulf Prairies and Marshes, the Post Oak Savannah, the Blackland Prairies, the Cross Timbers, the South Texas Plains, the Edwards Plateau, the Rolling Plains, the High Plains, and the Trans-Pecos.

Activity Preparation:

- Make one copy of each of the provided *Ecoregion Cutouts* (10 in total).
- Post the provided *Ecoregions of Texas* map in the classroom or project it onto a screen or wall.
- Post the provided C.A.R.E. Stewardship Acronym page.

Procedure:

Discussion

1. Engage students by telling them to think of the posted map of Texas as a giant puzzle. Provide some information from the background section and explain that watching the following video will help them understand how diverse the ecoregions of Texas are. This YouTube video explores the last “wild” places in Texas and why they must be preserved, as it briefly discusses regions of Texas. [Keep Texas Wild: Introduction - Texas Parks and Wildlife](#) (2:54)
2. Discuss how the video talked about the importance of conserving and protecting our wildlife and their habitats. Introduce or review the term “steward” as a person who is responsible for taking care of or protecting something.
3. Post the provided stewardship acronym, C.A.R.E. Go over each letter to give students examples of actions we can all do to be good land stewards.
 - C Care for the protection of wildlife and their habitats.
 - A Act to become a caretaker or steward of water, land, and animals.
 - R Represent stewardship by being a positive role model for others.
 - E Educate others about stewardship and conservation.

4. Ask students how they could be stewards toward the wildlife, such as the deer, bird, prairie dog, or even the plants they saw in the video. Point out that wildlife consists of plants or animals that live in nature and do not have caretakers.

What might they do to help others understand why it is important to be a steward?

Activity

1. Arrange students into 10 groups, one group for each ecoregion.
2. Assign each group an ecoregion and give each the provided *Ecoregion Cutout* of their region. Students are to think of the cutout as a piece of a puzzle that fits on the posted map of Texas.

Grades 4-8 – Provide each group with the aligning Fact Sheet for their ecoregion.

3. Students will illustrate their cutout, by identifying characteristics that exist with each ecoregion. Allow each group to select 3-6 items from the list below to include and illustrate on their ecoregion cutouts, or select the preferred information ahead of time.

Grades 4-8 – Each group will use the provided fact sheet for reference.

High School – Each group will conduct its own research.

- Average rainfall, temperature, and elevation
- One plant and animal that is native to Texas, including their habitats and adaptations needed to survive within that ecoregion
- Soil types
- Agricultural crops
- Rivers, lakes, mountains, valleys, woods, swamps, canyons, marshes, plains, deltas, sand dunes, prairies, wetlands, etc.
- Renewable and nonrenewable resources

4. Give each group enough time to prepare their cutout and to plan a presentation to share with the class, including why it is important to act as stewards for their specific ecoregion.

If desired, the following Texas Parks and Wildlife YouTube videos can be viewed by individual groups or as a class to discover more about ecoregions. Note: Not all Texas Ecoregions have a corresponding video.

- [Keep Texas Wild: Pineywoods - Texas Parks and Wildlife](#) (8:23)
- [Keep Texas Wild: Gulf Coast - Texas Parks and Wildlife](#) (6:05)
- [Keep Texas Wild: Blackland Prairie - Texas Parks and Wildlife](#) (5:23)
- [Keep Texas Wild: Edwards Plateau - Texas Parks and Wildlife](#) (8:47)
- [Keep Texas Wild: South TX Plains - Texas Parks and Wildlife](#) (7:52)
- [Keep Texas Wild: Panhandle - Texas Parks and Wildlife](#) (7:43)
- [Keep Texas Wild: Trans-Pecos - Texas Parks and Wildlife](#) (6:46)

5. As each group presents its cutout, one group member will place their ecoregion piece amongst the others on the wall to create a complete Texas ecoregion map. Once complete, have students identify the ecoregion where their school is located.

6. Introduce or review the term “biodiversity” as the variety of life in the world or in a particular habitat or ecosystem. Ask students the following questions:
- How does your cutout provide an example of biodiversity?
 - How does your cutout serve as an example of the stability and health of the biotic and abiotic things within the ecosystem?
 - Can you predict how the effects of human activity, such as building highways, housing developments, and shopping centers have caused changes in these ecoregions, regarding urban development and the future of native wildlife?
 - a. How might these activities impact water bodies that eventually empty into the Gulf of Mexico?
 - b. What might animals (biotic) be forced to compete for with other animals to survive? What abiotic factor might the same animals be forced to compete for to survive?

High School – If desired, ask students to evaluate the effects human activities have had on their assigned ecoregion by assigning at least one of the following topics to each group. Allow time for further research and for student findings.

Question: How have these activities changed the environment, including native wildlife?

- Habitat restoration projects
- Species preservation efforts
- Nature conservancy groups
- Hunting
- Fishing
- Ecotourism
- All-terrain vehicles
- Small personal watercraft

Wrap-up

After the last group has presented, show the following YouTube video to students as a conclusion to the lesson. It briefly describes the statewide Conservation Action Plan for the future mentioned in the introductory video.

[Keep Texas Wild: Conclusion – Texas Parks and Wildlife](#) (2:00)

After the video, facilitate a discussion about good stewardship within our ecoregions. Ask students to talk among themselves and to share with the class things they could do as good acts of stewardship, regardless of the ecoregion they live in.

Extension:

Instruct groups that chose a native plant or animal to briefly compare theirs to an animal from another group.