11

U.S. History
History-Social
Science Standard
11.9.7.

Teacher's Masters

California Education and the Environment Initiative

The United States and Mexico: Working Together

California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

Key Leadership for the Education and Environment Initiative:

Linda Adams, Secretary, California Environmental Protection Agency
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Andrea Lewis, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency
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Key Partners:

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None required for this lesson.

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None required for this lesson.

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Border Environment Cooperation Commission (BECC) (Group 1)

As part of the North American Free Trade Agreement, Mexico and the United States created the BECC in 1993. Its purpose is to "help preserve, protect and enhance the environment of the border region in order to advance the well-being of the people of the U.S. and Mexico." To do this, the BECC assists states and local agencies in developing projects to increase infrastructure in the border region, analyze environmental projects, and evaluate the social and economic benefits of the projects. It is a binational group with headquarters in Ciudad Juárez and El Paso. The BECC has been responsible for numerous infrastructure projects—from wastewater treatment plants to sewage upgrades.

As a member of the BECC, you are very concerned about the storm sewer network in the city of Nuevo Laredo, Tamaulipas. The current system contains pipes that have deteriorated. Serious flooding occurs during rain storms. When the roads flood, the storm water runs into the sanitary sewer. Untreated sewage then flows into the Rio Grande. As a result, the people of Nuevo Laredo face increased risk of getting sick from dirty water. The sewage continues downstream, affecting hundreds of thousands of other people and ecosystems. Your hope is to get the money for the project, and to generate support from local people, organizations, and federal agencies. The project will need a lot of financial support, as well as patience.

Santa Fe Environmental Group (Group 2)

You are members of a Santa Fe environmental group that has filed a lawsuit against the U.S. government. Your group blames the government for the plight of the Rio Grande silvery minnow. The Endangered Species Act protects that fish, one of five native species of fish left in the Rio Grande. Yet it is in danger of becoming extinct—and you believe it is the government's fault.

The Rio Grande silvery minnow was once one of the most abundant species of fish in the Rio Grande watershed. Due to drought, dam construction, water extraction, and poor water quality, the minnow has disappeared from 95% of its habitat. Most of the water in the Rio Grande is allocated to municipal, industrial, and federal use. There just is not enough water in the Rio Grande to support the silvery minnow. A Conservation Water Agreement between New Mexico and the federal government required 100,000 acre-feet of water to be set aside for endangered species. However, because of the severe drought over the past 10 years, the federal government had to use water that was supposed to be set aside for endangered species. The silvery minnow population has continued to decline.

Many environmentalists think of the silvery minnow as "the canary in a coal mine" for the Rio Grande. The health of the silvery minnow foretells the health of the river. Your group believes that the death of the silvery minnow in the wild means the death of the larger Rio Grande ecosystem.

U.S. Fish and Wildlife Service (Group 3)

You work for the Fish and Wildlife Service, an agency of the U.S. government. You are concerned about freshwater ecosystems in Texas. These ecosystems contribute to the natural and human systems. Freshwater in Texas is an economic source for tourism, agriculture, and urban development. It also is home to many endangered aquatic species. More than 20 of the 170 freshwater species found in Texas are endangered. Environmental changes like dam construction, irrigation, salinization, nonnative species, and pollution all influence the fish and wildlife that inhabit the streams.

These environmental changes influence the natural systems and the freshwater species, in some cases changing the entire ecosystem. Monitoring the ecosystems and evaluating the human effect on the streams is important to you, as is understanding the relationships between human activities and natural systems. Your studies provide a guide to how human activities influence the natural systems and what changes must occur in order to preserve natural habitats. Fish are good indicators of the environmental health of a stream. Studies show that humans have introduced over a dozen nonnative species to Texas and that at least 20% of fish species need conservation efforts, as does the aquatic environment.

Residents of Ciudad Juárez, Mexico (Group 4)

You live in Ciudad Juárez, the largest border city along the Río Bravo. Domestic water use is one of the major issues for the city. Agriculture uses all of the water Ciudad Juárez receives from the Río Bravo. The residents must draw from the Hueco Bolson aquifer, a large underground reservoir, for household use. However, humans take water in the aquifer at a faster rate than it recharges. Therefore, many residents in the city must use one of the 145 wells located in the city. The city should close some of these wells because the water is polluted due to the lack of wastewater treatment facilities. The problem is especially serious in the downtown area.

One solution to the city's water issue is to clean the water in the Río Bravo so residents could use it. Then, farmers could tap into alternative water supplies like the Mesilla Bolson and Bismarck Aquifers. The main issue is how to restore and clean the water in the Río Bravo. Some have suggested building a water treatment plant on the Mexican side of the border to clean the incoming water from upstream. However, such a plant is expensive, and the Mexican government has not allocated enough money to build a plant. Your group would like to see the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADB) support this project. Building a treatment plant on the Río Bravo would allow the residents of Ciudad Juárez to use the river as a source for drinking water. Residents would no longer have to walk to one of the wells, gather the water, and carry it back to their homes. It would also give the citizens of the city hope for the future: they would know that clean, potable water would be available for years to come.

City Planners in Brownsville, Texas (Group 5)

As a member of the city planners in Brownsville, Texas, you want to allow for growth in the region. But, you are also concerned about biodiversity. Developers have begun to drain the resacas to provide land for housing developments. Resacas are former channels of the Rio Grande that have been cut off from the river due to land development and construction of levees and dams. Brownsville has over 3,500 acres of resaca habitat. The water used to empty into the Rio Grande during times of flooding, but with development, the water remains stagnant. There is a lot of wildlife found in these wetland areas and the water today is used for drinking water, residential use, and agriculture. The condition of the resacas has been deteriorating due to the low flow. The shallow water contains high levels of heavy metals, automotive oil, sewage, and pesticides. Recent studies of fish in the resacas have found high levels of heavy metals in the fish tissue.

Draining the resacas seems like a good idea because Brownsville needs more land for the growing population; however, the resacas still provide aquatic habitats for a variety of fish, reptiles, and birds. The pollution in the resacas is beginning to affect the wildlife and plants, and if the city continues to use the water for drinking, then the area needs to be restored. While it is important to all members of the city planners to preserve the ecosystem, financially the city would benefit from having more housing, and financial resources are scarce.

Maquiladora Owners (Group 6)

You are some of the many maquiladora owners in the U.S.–Mexico border region. Maquiladoras exist in many parts of Mexico, but there are more in the border region than anywhere else. Many residents view the maquiladoras in the border region as the source of environmental problems, including poor water quality and contaminants in the soil. However, every story has at least two sides.

The maquiladoras you own have brought jobs to the border region. Very few factories break any of the environmental laws set out by the U.S. and Mexican governments. The maquiladoras must return any waste produced in the factories to their country of origin for disposal. Many owners, such as you, do just this. As for those who break the law, you believe that the Mexican government needs to do its part in enforcing the environmental laws. The water quality in the Rio Grande is declining, but that is not just from maquiladoras. Population growth in the area is the real issue.

The ecosystem in the area is fragile, and the increase in population in the region influences the natural systems. However, the maquiladoras are improving the economy in the area, and thus providing more money for solving environmental problems. The maquiladoras employ over 1 million workers. As maquiladora owners, you believe that both the services you provide and environmental protection are important. Communities and local government officials are responsible for taking care of the environment.

Farmers in Northern Mexico (Group 7)

You are members of a group of sugar cane farmers who live in Northern Mexico. Your families have lived on the land for generations. Your fathers and grandfathers produced cotton using water from the Río Bravo. You began your farming careers growing cotton too, but in the past 20 years water quality and quantity have declined. Because of this, you have had to switch from growing cotton to raising sugar cane. Sugar cane does not require as much water as cotton. Years of drought have forced you to stop farming all of your land because you do not have enough water. Farming less land meant you grew less sugar cane and made less money for your family.

The type of irrigation system you use is not efficient, but you do not have the money to switch irrigation methods. Because irrigated agriculture accounts for a large portion of water use in the region, governments encourage farmers to use more efficient irrigation systems. The Mexican government would like farmers to start using more efficient systems, like the drip system, but the government does not have money allocated to help the farmers do this.

Some government officials have discussed raising the price of water. Higher prices would force farmers to change irrigation systems or start planting crops that are not as water-intensive. But, this idea faces challenges. Sugar cane is a perennial crop that comes back every year. To change crops now, after already investing money in sugar cane, would be difficult financially. While the environment is important to you, as it is, your family can barely get by. Changing the irrigation system or crops would not be possible unless the government provides financial and technical assistance.

The Kikapu (Group 8)

The Kikapu are American Indians who originated in the Great Lakes area. Today, they live in Kansas and Oklahoma, as well as along the Rio Grande in Northern Mexico and southern Texas. As a Kikapu, you graze cattle on the land and also grow wheat and other crops. Much of the land was under the *ejido* system, meaning that the government owned the land where your group lived communally. However, in 1991, Mexico eliminated the system. The government sold much of the land to corporations and some farmers. Because of the poverty rate among most indigenous groups, including yours, you can not afford to buy the land you farm. You also have little access to services like telephone, mail, and health care.

Historically, in some parts of the nation, large-scale water rights have not included American Indians. In California, however, Indian tribes have water rights. For example, the tribes have a significant influence on the management of the Klamath River. Nor do many of these groups have sufficient legal representation to help them maintain rights to the water. In the 1940s, the American Smelting and Refining Company (Asarco) pumped out excessive amounts of groundwater, leaving your community unable to support yourselves. Today you must use channeled or diverted water to irrigate your crops. In the desert environment where you live, droughts and issues with water quantity and quality greatly affect your community. The emissions from power plants located in Coahuila, Mexico, and Eagle Pass, Texas, directly affect the air, water, and soil where you live. Many members of your community have complained of sickness and eye irritation from the quality of water in the Rio Grande.

Name: _____

Part 1

Instructions: Select the best answer and circle the correct letter. (2 points each)

1. One of the biggest environmental issues in the border region influencing relations between United States and Mexico is _____.
   a. construction of new housing along the border
   b. availability of potable water
   c. transportation of goods across the border
   d. All of the above.

2. What is the main reason population is growing so quickly in the border region?
   a. cheap land
   b. immigration
   c. natural resources
   d. pollution

3. Which of these is not an environmental issue for border cities in both the United States and Mexico?
   a. median household income
   b. air quality
   c. availability of potable water
   d. industrial growth

4. The Colorado River is an important natural resource for both countries because _____.
   a. pesticides used in surrounding agricultural production are dumped in the river
   b. it is the only source for irrigation water
   c. the river water is important for industry, agriculture, and municipal use
   d. All of the above.

5. The Border 2012 Program provides a way for _____.
   a. stakeholders in the border region to work on environmental issues together
   b. federal agencies to control and manage the Mexico's natural resources
   c. the U.S. government to clean up the border immediately
   d. None of the above.

Name: _____

6. The main goal of the La Paz Agreement is to _____.
   a. pay for environmental projects in local communities
   b. enforce international environmental laws
   c. cooperate in addressing environmental issues in the border region
   d. increase the size of communities along the border

7. One of NAFTA's goals is to _____.
   a. encourage population growth by increasing free trade
   b. enforce Mexican and U.S. environmental laws
   c. manage natural resources and national parks in both countries
   d. address environmental concerns related to industry in the border region

8. The Tijuana River watershed is an area in which there is binational cooperation on environmental issues because _____.
   a. the water in the river is running out
   b. the health of the river affects both the United States and Mexico
   c. industries on both sides of the border influence the river
   d. cities on both sides of the border use the water in the river to drink

9. Which of the following is not a factor that **directly** influences government decisions about natural resources in the border region?
   a. immigration
   b. the economy
   c. federal tax laws
   d. public health

10. Which of the following will most likely have the greatest effect on the resources of the border region in the future?
    a. industrialization
    b. agriculture
    c. soil salinity
    d. population growth

Name: _____

Part 2

Instructions: In one or more paragraphs, answer each of the following questions. (10 points each)

11. Describe one specific environmental issue in the border region, explain a problem related to that issue, and discuss how that problem influences relations between the United States and Mexico.

Name: _____

12. Choose two stakeholders in the border region who have different views on how to manage the natural resources in the region. Discuss the ways each stakeholder assesses and balances social, economic, and environmental factors when setting its goals.

Name: _____

13. Describe a particular treaty or agreement between the United States and Mexico related to improving the environment. Explain how the treaty or agreement influences life in the border region.

Environmental Issue Concept Map

Alternative Unit Assessment Master

Name: _____

Instructions: Using all of your notes and assignments from the unit, create a concept map for one environmental issue—involving water, air, or land/soil—in the border region. Be sure to use specific examples. (10 points per circle)

What are the problems?

1: _____

2. _____

3. _____

What are some proposed solutions?

1: _____

2. _____

3. _____

Who is involved and how?

1: _____

2. _____

3. _____

Issue:

How does this affect U.S.–Mexico relations?

1: _____

2. _____

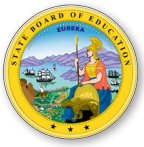
3. _____

Who/what do the problems affect?

1: _____

2. _____

3. _____



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