

Guided Notes and Question Sheet for “Irrigation in the West”

Part I: Notes and PowerPoint

Getting Started: What does the American Southwest mean to you? (Try to come up with at least 5 ideas or concepts)

Mental Map: Draw your Mental Map of the Southwest below:

Questions 1-9 can be answered from the next few PowerPoint Slides

1. What is the definition of irrigation?

-the movement of water to arid lands, to supply dry lands with water

2. List several states in the American southwest?

-Arizona, New Mexico, Colorado, Utah, Nevada, southern California

3. In general do the cities of Phoenix, AZ and Santa Fe, NM receive more than 10 inches of rain per year or less than 10 inches of rain per year?

-less than 10 inches per year

4. How does the data you just looked at in the climate graph seem at odds with this picture?

-Answers should include the disparity between an arid landscape and the lush greenery shown in the picture. Hopefully at this point they will begin to see the role of irrigation in this region

5. Why has irrigation been necessary to the people of the American southwest?

-Irrigation is necessary because of the lack of natural occurring water. It allows people to live and farm in the region.

6. List three groups who have used irrigation in the American southwest?

-The Hohokam

- The Spanish Colonizers
- The U.S. government

7. Briefly describe the Hohokam. Who were they?

-A group indigenous to the desert southwest, they lived in the region from approximately 500 to 1300.

Historical Source Question: Read the following quote (also found on the PowerPoint) to answer the question below.

“The climate of this country and the temperature of the air is almost like that of Mexico, because it is sometimes hot and sometimes it rains. I have not yet seen it rain, however, except once when there fell a little shower with wind, such as often falls in Spain...There are no kinds of fruit or fruit trees.”

Francisco Vazquez de Coronado, 1540

What evidence does Coronado give about the aridity (dryness) of the Southwest?

- Lack of rain
- Lack of trees
- No fruit

8. When did the Spanish establish settlements in the present day American southwest?

-They began establishing settlements in the late 16th century and continued throughout the 17th and 18th centuries.

9. At what point did the U.S. government begin massive irrigation projects?

-Momentum began in the late 19th century, the programs commenced with the passage of the Reclamation Act

Part II: Wikispace

The Hohokam:

10. Using the maps on page H1 of the website to answer the following question. How much annual rainfall does this area receive?

-Less than 5 inches per year

11. What does Emil Haury believe necessary for a group of people to live in arid climate?

-In his writing Haury makes mention of the need for agriculture and irrigation to make that agriculture practical.

12. According to the article, what were the average dimensions of the Hohokam canals?

-Length- 12-20 miles

-Width- 18-26 meters

-Depth- 6 meters

13. List the legacies of Hohokam irrigation.

-Proved that people could settle in the Arid Southwest

-Evidence of primitive irrigation based agriculture

The Spanish Colonizers:

14. What are some of the landforms emphasized on this map of New Spain? Why do you think those landforms are emphasized?

-The main items for students to see are rivers. The importance of rivers cannot be overstated and this map goes to lengths to show most known waterways. These are important as trade and travel routes and for irrigation. The tie in to the Coronado quote involves his description of a lack of rain, thus making rivers more important.

15. Do you notice any technological improvements in the Spanish built (or more accurately: Spanish overseen) acequias canals compared to the Hohokam canals?

-“Acequias” irrigation consisted of canals or trenches which used gravity to force water to arid locales.
-Metal tools

16. How does the “acequias” system reflect a global convergence of irrigation practices? (Use page S3)

-The global convergence stems from the Arab influence on Colonial Spain’s irrigation methods. It may also be noted that Spanish Colonials used certain existing indigenous irrigation canals as noted in the Rivera and Glick article.

17. What are/were the benefits of the Spanish “acequias” system?

- Replenishment of the aquifer
- Improvement of groundwater
- Underground storage of water

18. How was the Spanish acequias system a community effort?

- Allocation of water
- Construction of acequias
- Maintenance of acequias

The U.S. Government

19. What were some of the reasons for this westward expansion of U.S. population?

- Gold Rush
- Post Civil War migration
- Railroads
- Homestead Act

20. What affect did the Reclamation Act have on irrigation in the American Southwest?

- Set aside Federal funds for irrigation projects
- Established the U.S. Government's role in irrigation
- Created the Bureau of Reclamation

Checking how well close you read question:

Of the money raised by the Reclamation Act, how much was set aside for educational purposes?
(Hint: Read the Act)

-5%

21. From what you have seen about the United States' government's irrigation projects, how do they differ from those of the Hohokam and Spanish colonizers?

- Size and Scope
- Creation of dedicated reservoirs to hold onto water

22. How has the population density of the American Southwest changed since the passage of the Reclamation Act?

- It has increased. Be sure to stress to students that while irrigation was a major factor in pulling population to the West, it certainly wasn't the only reason.

Environmental Impact

23. How has the ecology of the Colorado River been impacted by irrigation?

- Failure of most of its water to reach the Sea of Cortez
- Death of natural vegetation along banks

Website Reflection:

Having now gone through the wikipage please list some of your thoughts regarding irrigation in the Southwest. Why was it done? Do you see it as a positive or a negative? What is the relationship between population and irrigation?

-Student answers will vary. Review this question before moving on to the concluding PowerPoint slides.

Part III: Conclusion PowerPoint

24. List several positive results from the advances in irrigation in the Southwest.

- irrigation allowed for permanent settlement of the region
- irrigation allowed for agriculture
- increases scope allowed for population growth

25. List several negative results of irrigation practices in the Southwest.

- The damming of free flowing rivers
- The loss of water in estuaries
- Damage to plant and animal life