

NCTA Lesson Plan on China
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Purpose: To gain an appreciation for the technological sophistication of China prior to the seventeenth century.

Rationale: Students have a tendency to assume that the current technological superiority of the West, and particularly of the United States, has always existed. It is important for students to have a bit of humility with regard to their own culture and some respect for the level of development of cultures older than their own. This lesson will take a close look at efforts to control water in China prior to the seventeenth century, particularly the development of pumps, irrigation techniques, dikes, and canals to increase agricultural output, control flooding, and ameliorate the difficulties of north-south transportation. This lesson is designed to be preceded by one or more lessons on the geography of China and to be followed by one or more lessons on current issues with respect to water, especially the Three Gorges Dam and pollution.

Materials: text: Murphey, Rhoads. *East Asia: A New History*. New York: 2004. pp. 3-7, 15-18
Temple, Robert. *The Genius That Was China*. Singapore: 1991. pp. 56-57, 181-183, 196-197

websites:

www.meshrep.com/PicOfDay/kariz/kariz.htm
[www.waterhistory.org/histories/turpan/
china.org.cn/english/kuaixun/75140.htm](http://www.waterhistory.org/histories/turpan/china.org.cn/english/kuaixun/75140.htm)
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library.thinkquest.org/20443/grandcanal.html
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www.answers.com/topic/zhengguo-canal
www.brsls.org/proceed02/science017.htm
www.findarticles.com/p/articles/mi_m1310/is_1988_Oct/ai_6955860
chinastyle.cn/essential/mechanical-inventions/machinery-in-production.htm
www.icomos.org/studies/canals2a.htm

Activities: A basic understanding of China's geography, especially arable land, rainfall, crop growing areas, rivers, and mountains, is assumed before beginning this lesson. Teacher will Xerox pages from Rhoads Murphey text. These pages will be read aloud and discussed by the class as a whole. Then the class will

be divided into groups. Each group will select one of the following technological advances: the chain pump, the contour transport canal (“The Magic Canal”), the canal pound-lock, the Grand Canal, or the Karez at Turfan. 1. Using Robert Temple’s book and the various websites listed above each group will draw a diagram of the particular advance, make one or more overhead transparencies of the diagram, and be ready to explain to the rest of the class how it worked. 2. Then each group will research the impetus behind the technology as well as what difference it made in practice to Chinese agriculture (or even Chinese life in general). 3. A final part of the project is to look at a comparable Western development. To what extent was the Western development borrowed, directly or indirectly (can a path of influence be traced?), to what extent was it developed separately? Students should look closely at the comparative dates of both Chinese and Western advances. What conclusions can be drawn from these comparisons?

Assessment: All the members of each group will jointly present to the rest of the class an explanation of the chosen advance, using its overhead transparency, will discuss the consequences the advance had for China, and then will make a comparison between the Chinese advance and the comparable Western development.

The teacher will circulate among the groups, assisting, challenging with questions, and encouraging group cooperation. Grading will be based partly on the presentation (using a rubric), but also partly on how well each group was able to work together.

Extension: Students can read about Chinese technological developments in sailing, such as the rudder and water-tight compartments in ships in Temple’s book, pp. 185-197. How and when were THESE inventions transferred to the West. Students might then get interested in Zheng He’s expeditions and Menzies’s recent hypothesis that the Chinese may have discovered America. Another interesting line of inquiry would be to investigate when China began to fall behind the West technologically and to speculate as to what kept China from maintaining its technological superiority.

Grade Adaptation:

- Target gifted grades 6-7
- Younger students could:
 - Look at the inventions, their consequences, and timeline comparisons with the West (shown in the back of Temple’s book), but without being expected to understand the specifics of the

technology.

- **Older students could:**
 - **Consider how the control of water been essential to Chinese development in the past, and how it continues to be essential in the present.**
 - **What about when water gets out of control? It would be important to study historical problems of drought and flooding and current problems of pollution.**
 - **Debate the benefits and costs of the Three Gorges Dam while reading John Hersey's book *A Single Pebble*, a fascinating novel about an American engineer who takes a trip up the Yangtze River in 1927 to locate a potential site for a dam. Even though he speaks fluent Chinese, the trip is full of cultural misunderstandings between him and the Chinese with whom he travels.**