



CBA Curriculum Unit

CHINA: FACTORY OF THE WORLD

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CBA TOPIC: Technology Through the Ages

LEVEL: High School

This document is entitled to assist teachers who are implementing the Technology Through the Ages CBA for high school students. It may also be useful to anyone teaching about current world issues, international relations, and related fields.

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**WASHINGTON STATE CBA (CLASSROOM-BASED ASSESSMENT):
TECHNOLOGY THROUGH THE AGES**

The Technology Through the Ages CBA states that “a responsible citizen needs to understand historical developments and their economic impacts to make informed decisions about their lives, the nation, and the world today.” Using appropriate historical research practices, you will write an analysis of how a technological change that occurred in history impacts our lives today.

What does the CBA require students to do?

- 1) Explain why a technological development was significant* by explaining the effects of this change in terms of costs and/or benefits.
- 2) Explain how technology developments require investment in human capital, citing specific examples.
- 3) Present a thesis on the significance of a technological change in a coherent presentation/paper that:
 - Is well organized,
 - Is well-supported by accurate evidence, and
 - Includes a general statement about why this technological change took place.

*“significant” implies fully explaining each effect by describing how something was done before the new technology and how it was changed after its development.

Note: The presentation may take place as an oral/multi-media presentation (e.g., PowerPoint, theater, speech, video, etc.). However, the student will also need to put his/her findings in written form (e.g., written report, article, essay, editorial, etc.).

For more information please see the following **OSPI website**:

- OSPI’s instructions for teachers and students: Washington State Social Studies CBA Technology Through the Ages
<http://www.k12.wa.us/assessment/WASL/SocialStudies/default.aspx>

The graphic organizer and scoring rubric for this CBA, which appear at the end of this document, are also available at the OSPI website.

INTRODUCTION FOR TEACHERS

Shortly after Mao Zedong's death in 1976, Deng Xiaoping and other reformers moved to grow China's economy by instituting new "reform and opening" (*gaige kaifang*) policies. After three decades of spectacular economic growth, China has emerged as the so-called factory of the world. Industry continues to expand and grow in almost every category of manufactured goods from shoes to cameras, and from bikes to semiconductors. It is now the world's largest consumer economy. With its growing capital, Chinese companies have been able to buy foreign companies, such as IBM's PC division. Foreign countries (including the U.S.) have invested more money in China in recent years than anywhere else in the world. China's economic growth has led to increased urbanization, rising prosperity (forming a growing middle class), and a vital private entrepreneurial sector. Four hundred million people have been lifted out of poverty.

Along with its spectacular growth have emerged some harsh realities. During this period, China has gone from one of the most egalitarian societies to one of the most stratified. Closing down or downsizing some of the state-owned enterprises (SOEs) has left millions unemployed. Farmers with tiny plots of land can no longer support their families as taxes, education, and health care prices increase. According to World Bank statistics, more than 128 million people still have consumption levels below one dollar a day—often without access to arable land, clean water, or adequate health and education services. As the factory of the world, it is also the world's leading emitter of CO₂. Fourteen of the world's twenty most polluted cities are located in China.

In this activity students will learn about China's current industrial revolution and explore the benefits and costs of its spectacular growth. Since this is a huge topic, this unit will guide students in breaking this topic down and choosing one aspect to research and present. Although the purpose of this unit is to guide 10th graders to complete the Social Studies CBA: Technology Through the Ages successfully, this lesson can easily be used with a corresponding grade 8-12 subject.

OBJECTIVES:

Upon completion of this activity, students will be able to:

- Explain the significance of China's post-Mao industrial revolution or a specific technological invention by explaining the effects of this change in terms of costs and/or benefits.
- Explain how technology/industrial developments require investment in human capital, citing specific examples that are related to China's industrial revolution.
- Be prepared create an organized, well-supported paper or presentation on the significance of China's industrial revolution and/or a specific technological change or innovation that includes a general statement/thesis about why this event/change took place.

TIME: 1-2 weeks

I. CHINA: FACTORY OF THE WORLD

STEP ONE: GETTING STARTED

Begin by asking students what they know about China today. Why is China called the factory of the world? You may want to break them into small groups of four students each. Ask them to brainstorm facts/thoughts about China's fast-growing economy and current industrial revolution.

What I know. What I think I know. What I would like to know more about.

STEP TWO: POP QUIZ INSPIRATION

Continue this exercise by giving them a quick quiz (**Handout #1.1 Test Your Knowledge of China Today**). This quiz could either be distributed to each group or it could be given out individually. While they will not be graded on this quiz, it should spur discussion and inspire them to ask questions and delve further. After they have taken the quiz, go over the correct answers with them. (All of the questions are true except for #6—China is now the top IT exporter—and #12. The answer to #13 is Colonel Sanders!)

- What did they learn?
- What surprised them the most?
- What would they like to know more about?

Although this quiz contains minimal information, ask them to begin thinking about these questions:

- How has China's industrial revolution impacted the lives of the Chinese and the rest of the world? Who are the winners and losers?
- What is the relationship between technological change/industrial growth and human capital?
- What is the best way for them to begin their research? What type of resources should they look for?

Discuss with students the need for multiple perspectives and points of view. What resources would provide alternative points of view? Encourage students to consider technological change/industrial growth from the perspective of a worker and an employer, an urban resident and a rural migrant, or a producer and a consumer.

STEP THREE: EXAMINING DATA

Pass out **Handout #1.2 The Economy of China Fact Sheet**. Since there is a lot of information on this two-page handout, you may want allow 20 minutes in class or ask the students to take this home to read. Ask them to highlight or underline facts that interest and/or confuse them. When they have finished this (either at home or in class), lead a discussion of their findings. You may want to start by going over a few definitions, for example:

- **Bbl/day** stands for barrels of oil per day
- **OECD** is an acronym for Organization for Economic Co-operation and Development

Gross Domestic Product (GDP)

Value of all final goods and services produced within a nation in a given year.

GDP (official exchange rates)

The home-currency-denominated annual GDP figure divided by the bilateral average US exchange rate with that country in that year.

GDP (purchasing power parity)

The sum value of all goods and services produced in the country valued at prices prevailing in the United States. This is the measure most economists prefer when looking at per-capita welfare and when comparing living conditions or use of resources across countries.

Other points worth discussing and further information:

- China has the second-largest economy in the world, yet its annual income per capita (\$5,300) is just a fraction of that of the U.S. (\$46,000).
- Compare 43% of China's 803 million labor force to 0.6% of the United States' 153 million labor force engaged in agriculture and the resulting continuing rural migration trend into the urban areas.
- Annual foreign direct investment in China in 2007 rose to \$75 billion. By the end of 2007, more than 5,000 domestic Chinese enterprises had also established direct investments in 172 countries and regions around the world.
- The Chinese government seeks to add energy production capacity from sources other than coal and oil as its double-digit economic growth increases demand. Chinese energy officials in 2007 agreed to purchase five third-generation nuclear reactors from Western companies.
- The economic development challenges facing the Chinese government are: (a) to sustain adequate job growth for migrants, tens of millions of workers laid off from state-owned enterprises, and new entrants to the work force; (b) to reduce corruption and other economic crimes; and (c) to contain environmental damage and social strife related to the economy's rapid transformation.
- Economic development has been more rapid in coastal provinces than in the interior, and approximately 200 million rural laborers have relocated to urban areas to find work.
- One demographic consequence of the one child policy is that China is now one of the most rapidly aging countries in the world.

STEP FOUR: GRAPPLING WITH A HUGE TOPIC AND PONDERING KEY QUESTIONS

Since China's industrial revolution is such a huge and dynamic topic, the students will need to spend some time grappling with the complex big picture and then whittling it down a more manageable topic to research and analyze. You may want to hold a large brainstorming session with the entire class or break them into smaller groups. Below are some questions that address the impact of China's industrial revolution from different perspectives. You may want to see what they come up with first or you may want to immediately share this same list compiled in **Handout #1.3 Essential Questions** for a large or small group discussion. Note that the first

three fit more with the OSPI's Technology Through the Ages guidelines. The others are included to illustrate that China's Industrial Revolution is a complex and exciting topic. Ask them to add some of their own ideas. Teachers may want to guide students to choose one specific technological achievement such as the Three Gorges Dam.

- Shortly after Mao Zedong's death in 1976, Deng Xiaoping and other reformers moved to grow China's economy, instituting new "reform and opening" (*gaige kaifang*) policies. With China's move from a planned economy toward a market economy, large work force, increasing advances in technology and growth of industries, and encouragement for the population "to get rich quick," China (after three decades of spectacular growth) has emerged as the factory of the world. As it undergoes its "industrial revolution," what are the human costs and benefits of the world's fastest growing economy? In other words, who have been the winners and losers? What human capital was/is still required?
- The Three Gorges Dam is the most powerful dam in the world, channeling energy to fuel China's continuing rise as a great economic world power. Discuss in more detail the significance of this technological achievement. Who have been the winners and losers in this ambitious endeavor? Discuss the investment of human capital necessary for this massive project.
- With China's intense economic development, huge population, and rising energy consumption, it now faces many serious environmental challenges. Some would say that China's greatest industrial achievement has now caused China's biggest environmental headache. Discuss the country's environmental challenges. How is Beijing successfully approaching them? How have they failed? How has China's industrial revolution affected the global environment?
- As China's demand for energy continues to rise and it searches the world for long-term energy supplies and raw materials, how does this impact the rest of the world? How does it positively and negatively affect its relationship with countries in Africa, the Mideast, and Latin America? Japan? India? Russia?
- As China moves from a socialist to a capitalist economy, a vital entrepreneurial sector is growing and a new civil society is emerging. Discuss China's zigzag path as the Chinese people enjoy comparatively much more freedom than they did twenty or thirty years ago, yet at the same time bump up against unyielding government control. Explore this impact on their lives as their speeding industrial revolution pushes forward a slower social revolution. Discuss the social benefits and challenges for both the Chinese population and the Chinese leadership.
- The communist government supports capitalist endeavors spearheaded by local and provincial leaders while it grapples with keeping them in line with central government policies. What are the political costs and benefits from the State's perspective?
- Chinese leaders deny that China's rise as an economic superpower will lead to a desire to expand its "empire." Rather, their stated goal is to combat the growing disparity between the haves and have-nots, and consequently, to spread the wealth more evenly across

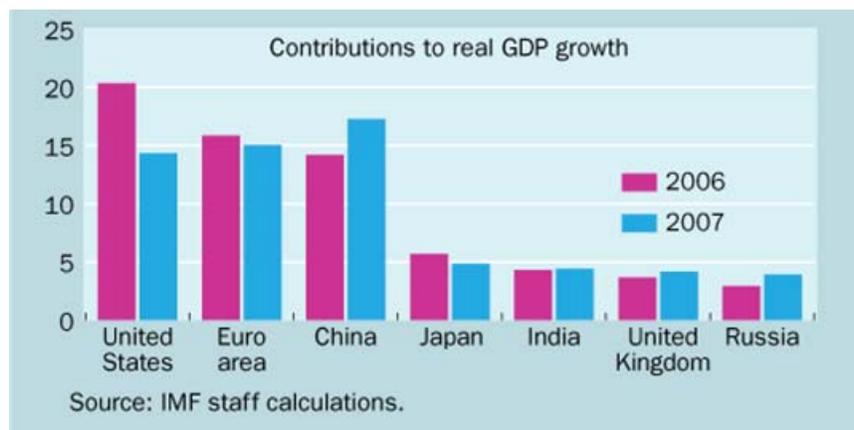
China. What challenges does the current leadership face in trying to make this a reality? China's disparities cannot be limited to just a rural-urban divide. In addition to location, discuss the significance of class, ethnicity, gender, generation, and education, as the government embarks on spreading the wealth. How might Chinese Communist Party history affect Beijing's actions?

- Some would say that the glue/social controls of Confucianism and Mao Zedong Thought ("Serve the people") are being pulled apart by China's new "get rich quick" mentality. Discuss the material costs and benefits vis-a-vis a growing spiritual vacuum. Students may want to approach this by investigating urban youth culture and how their lives today in a modern and industrial society may affect China and the world tomorrow.
- With China's large work force, sustained high economic growth rates, increasing advances in technology, and an expanding, modernizing military, China is emerging as a major global power. In other words, China's recent advancements are significantly altering 21st century global economics and politics. Some would say that the relationship between the U.S. and China is the most crucial relationship in the world today. Are the U.S. and China fated to become enemies or partners in friendship? How will they balance growing economic interdependence with mutual distrust? Does or should the rise of China pose a threat to the U.S.? How can different national priorities lead to tension if not outright conflict? In what ways can the U.S. and China build a peaceful and mutually beneficial relationship?
- How do contemporary Chinese art, film, fiction, and design reflect the spectacular economic changes that have occurred in the last three decades? Discuss the positive and negative impacts on Chinese culture.

China's Economic Supremacy

For almost 2000 years (up until the 1800s), China was considered to have the largest economy in the world.

China's economy is again projected to take the lead by the middle of the 21st century.



II. WRITING YOUR CLASSROOM-BASED ASSESSMENT

STEP ONE: CHOOSING YOUR TOPIC

Now it is time for students to sift through what they have learned and what has piqued their interest for further research and analysis. Ask students to choose a topic from their brainstorming list or one from above (**Handout#1.3 Essential Questions**). As mentioned earlier, you may want to encourage them to consider a specific invention or technological innovation such as the Three Gorges Dam, the world's largest hydropower station on the Yangtze River.

See **Handout #1.4 Broad Example** and **Handout #1.5 Specific Example**

After they have chosen a topic, students will need to research and analyze why China's current industrial revolution or a specific technological development is significant. Again, it is important for them to consider some of the questions noted earlier. Reviewing some of these key questions again may bring up some new ideas.

KEY QUESTIONS

- How has China's industrial revolution affected the lives of the Chinese and the rest of the world? Who are the winners and losers? Encourage students to consider technological change or industrial growth from the perspective of a worker and an employer or an urban and rural migrant worker. They may also want to consider this from the perspective of China as a major exporting nation and the U.S. as China's main importer. What other perspectives could they consider?
- What is the relationship between technological change/industrial growth and human capital?
- How is China's ongoing industrial revolution shaping China and the world today (and consequently Chinese and world history)? Ask students to think about this question from the following social science perspectives: geographic, political, cultural, economic, sociological, and psychological. What do these changes mean for the different stakeholders: the Chinese government, entrepreneurs, workers, students, migrant workers, and the rest of the world?
- Encourage students to discuss: China's future is under construction. Imagine China's place in world history. If you are a historian twenty years from now, how might you look back at China's social, economic, political, and geographic circumstances during the early 21st century?

STEP TWO: COLLECTING INFORMATION

Here you may incorporate whichever research methods your school/district teaches (Big Six, QUEST, etc.). Your school librarian may be able to support you and your students in this section.

- Distribute a copy of the **Handout #1.6 Technology Through the Ages Graphic Organizer**.
- Ask each student to choose an aspect of the Chinese Industrial Revolution or a specific technological advancement that most interests them.
- Students who choose similar topics could work in small groups to develop an annotated bibliography of articles, websites, graphs, photos, and statistics related to the topic. (You may want to provide them with a sample annotated bibliography.) Students may want to use some resources listed below in Handout #1.7. For other excellent, up-to-date resources, encourage your students to visit the World Affairs Council website: <http://www.world-affairs.org/globalclassroom/profdev/default.htm#packets>. Go to Links, and then to Descriptions: New in 2007-2008: and click on “Fueling the Future: China.”
- If students are independently finding their own resources, remind them to consider the reliability of the sources they are consulting. Review criteria for evaluating websites. The following site from Valparaiso University provides a helpful list of criteria (note particularly the second on “purpose/point of view”) as well as links to more information on analyzing websites. <http://www.valpo.edu/library/user/evaluation.html#criteria>
- You may want to query and discuss with your students: How should you begin? What would be the most effective way to compile your research? What is the best way to gather primary sources to study these issues? Discuss with students the need for multiple perspectives and points of view. What resources would provide alternative points of view? What sources do you think would be the most reliable?
- In the middle of the research process, allow some time for groups to share some of their most relevant and best resources with other groups, to ensure that every group will be successful in finding relevant documents. What sources were the easiest to understand? What sources contained the most relevant information? Compare and contrast the resources that you have used.
- Remind students to make notes in the graphic organizer. If the topic you have chosen seems too broad, consider how you would go about narrowing it down.

STEP THREE: ANALYSIS

- Students work independently or in their groups to analyze the information they have found. Students should be encouraged to fill out the graphic organizer completely. This will ensure successful completion of tasks and sub-tasks required in the CBA.
- Some students may discover that they lack information for one piece or another. You might allow more time in class for research or ask students to do this for homework.

STEP FOUR: CULMINATION

Students should begin their individual writing work.

- Explain the significance of China's post-Mao industrial revolution or a specific technological invention by explaining the effects of this change in terms of costs and/or benefits.
- Explain how technology/industrial developments require investment in human capital, citing specific examples.
- Prepare an organized, well-supported paper or presentation* on the significance of China's industrial revolution and/or a specific technological change or innovation that includes a general statement about why this event/change took place.

* However, they will also need to put their findings in written form (e.g., written report, article, essay, editorial, etc.)

HANDOUT #1.1 Test Your Knowledge of China Today (True/False)

My name is _____

1. _____ China is the fastest-growing economy in the world, with per capita incomes more than quadrupling since 1978, achieving in less than three decades what took other countries centuries.
2. _____ China is the world's most populous country and the second largest energy consumer.
3. _____ The construction of the Three Gorges Dam (the world's largest capacity hydroelectric plant) along with plans to build two new nuclear power stations every year (until 2020) is part of China's plan to lessen its dependence on coal, which today accounts for approximately 3/4 of China's energy needs.
4. _____ Foreign countries have invested more money in China in recent years than anywhere else in the world. Over 130 million migrant workers make up much of China's industrial workforce.
5. _____ China is the largest consumer of steel and cement.
6. _____ The U.S. remains the world's number one exporter of information technology.
7. _____ China is the world's second largest car manufacturer (after the U.S.).
8. _____ In 1992, the largest McDonald's in the world (with 700 seats and 27 cash registers) opened in Beijing; it served 40,000 customers on its first day of business.
9. _____ More than 128 million Chinese (equivalent to more than 1/3 of the U.S. population) have consumption levels below one dollar a day.
10. _____ In just a few decades, China has gone from one of the most egalitarian societies to one of the most stratified.

Extra credit:

11. _____ The idea for McDonald's 2003 successful "I'm lovin' it" global commercial campaign came from several young Chinese who worked for the McDonald's marketing division in China.
12. _____ Given that China is a country of tea drinkers, Starbucks has not entered the China market.
13. . . . omnipresent amid all the frenzy of Shanghai is that famous portrait, that modern icon. The faintly smiling, bland, yet somehow threatening visage appears in brilliant red hues on placards and posters, and is painted huge on the sides of buildings. Some call him a genius. Others blame him for the death of millions. There are those who say his military reputation was inflated, yet he conquered the mainland in short order. Name this person _____
14. Field trip! If you were to visit your local Target store to check item labels, what percentage would contain "Made in China" tags?

HANDOUT #1.2 The Economy of China Fact Sheet

	CHINA	UNITED STATES
Land area	9,326,410 sq km	9,161,923 sq km
Arable land	14.86%	18.01%
Population	1.3 billion	299.0 million
Life expectancy at birth	71.8 years (2005)	77.7 years (2005)
Literacy rate of peoples ages 15 +	90.9%	99%
GDP (purchasing power parity)	\$7.043 trillion (2007 est.)	\$13.86 trillion (2007 est.)
GDP real growth rate	11.4% (official data) (2007 est.)	2.2% (2007 est.)
GDP per capita (PPP)	\$5,300 (2007 est.)	\$46,000 (2007 est.)
GDP composition by sector	Agriculture: 11%; industry (including construction): 49.5%; services: 39.5% (2007 est.)	Agriculture: 0.9%; industry: 20.6% services: 78.5% (2007 est.)
Labor force	803.3 million (2007 est)	153.1 million (includes unemployed) (2007 est.)
Labor force by occupation	Agriculture: 43%; industry: 25%; services 32%	Farming, forestry, and fishing 0.6%, manufacturing, extraction, transportation, and crafts 22.6%, managerial, professional, and technical 35.5%, sales and office 24.8%, other services 16.5%
Agricultural products	Rice, wheat, potatoes, corn, peanuts, tea, millet, barley, apples, cotton, oilseed; pork; fish	Wheat, corn, other grains, fruits, vegetables, cotton; beef, pork, poultry, dairy products; fish; forest products
Industries	Mining and ore processing, iron, steel, aluminum, and other metals, coal; machine building; armaments; textiles and apparel; petroleum; cement; chemicals; fertilizers; consumer products, including footwear, toys, and electronics; food processing; transportation equipment, including automobiles, rail cars and locomotives, ships, and aircraft; telecommunications equipment, commercial space launch vehicles, satellites	Leading industrial power in the world, highly diversified and technologically advanced; petroleum, steel, motor vehicles, aerospace, telecommunications, chemicals, electronics, food processing, consumer goods, lumber, mining
Industrial production growth rate	12.9% (2007 est.)	0.5% (2007 est.)
Oil production	3.71 million bbl/day	8.322 million bbl/day (2005 est.)
Oil consumption	7 million bbl/day	20.8 million bbl/day (2005 est.)

HANDOUT #1.2 The Economy of China Fact Sheet (continued)

	CHINA	UNITED STATES
Oil exports	375,800 bbl/day	1.048 million bbl/day (2004)
Oil imports	3.646 million bbl/day	13.15 million bbl/day (2004)
Oil proved reserves	16.3 billion bbl	21.76 billion bbl
Natural resources	Coal, iron ore, petroleum, natural gas, mercury, tin, tungsten, antimony, manganese, molybdenum, vanadium, magnetite, aluminum, lead, zinc, uranium, hydropower potential (world's largest)	Coal, copper, lead, molybdenum, phosphates, uranium, bauxite, gold, iron, mercury, nickel, potash, silver, tungsten, zinc, petroleum, natural gas, timber
Exports	\$1.221 trillion f.o.b. (2007 est.) machinery, electrical products, data processing equipment, apparel, textiles, steel, mobile phones	\$1.14 trillion f.o.b. (2007 est.) agricultural products (soybeans, fruit, corn) 9.2%, industrial supplies (organic chemicals) 26.8%, capital goods (transistors, aircraft, motor vehicle parts, computers, telecommunications equipment) 49.0%, consumer goods (automobiles, medicines) 15.0% (2003)
Exports - partners	US 21%, Hong Kong 16%, Japan 9.5%, South Korea 4.6%, Germany 4.2%	Canada 22.2%, Mexico 12.9%, Japan 5.8%, China 5.3%, UK 4.4%
Imports	\$917.4 billion f.o.b. (2007 est.) machinery and equipment, oil and mineral fuels, plastics, LED screens, data processing equipment, optical and medical equipment, organic chemicals, steel, copper	\$1.987 trillion f.o.b. (2007 est.) agricultural products 4.9%, industrial supplies 32.9% (crude oil 8.2%), capital goods 30.4% (computers, telecommunications equipment, motor vehicle parts, office machines, electric power machinery), consumer goods 31.8% (automobiles, clothing, medicines, furniture, toys) (2003)
Imports - partners	Japan 14.6%, South Korea 11.3%, Taiwan 10.9%, US 7.5%, Germany 4.8%	Canada 16%, China 15.9%, Mexico 10.4%, Japan 7.9%, Germany 4.8%
Reserves of foreign exchange and gold	\$1.493 trillion (31 December 2007 est.)	\$65.89 billion (2006 est.)
Internet users	162 million (2007)	208 million
Stock of direct foreign investment at home	\$699.5 billion (2006 est.)	\$2.306 trillion (2006 est.)

CIA World Factbook <https://www.cia.gov/library/publications/the-world-factbook/index.html>

World Bank <http://www.worldbank.org/>

2006 statistics unless noted

HANDOUT #1.2 The Economy of China (Part 2)

<https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html#Econ>

China's economy during the last quarter century has changed from a centrally planned system that was largely closed to international trade to a more market-oriented economy that has a rapidly growing private sector and is a major player in the global economy. Reforms started in the late 1970s with the phasing out of collectivized agriculture, and expanded to include the gradual liberalization of prices, fiscal decentralization, increased autonomy for state enterprises, the foundation of a diversified banking system, the development of stock markets, the rapid growth of the non-state sector, and the opening to foreign trade and investment. China has generally implemented reforms in a gradualist or piecemeal fashion, including the sale of minority shares in four of China's largest state banks to foreign investors and refinements in foreign exchange and bond markets in 2005.

The restructuring of the economy and resulting efficiency gains have contributed to a more than tenfold increase in GDP since 1978. Measured on a purchasing power parity (PPP) basis, China in 2007 stood as the second-largest economy in the world after the US, although in per capita terms the country is still lower middle-income. Annual inflows of foreign direct investment in 2007 rose to \$75 billion. By the end of 2007, more than 5,000 domestic Chinese enterprises had established direct investments in 172 countries and regions around the world.

The Chinese government faces several economic development challenges: (a) to sustain adequate job growth for tens of millions of workers laid off from state-owned enterprises, migrants, and new entrants to the work force; (b) to reduce corruption and other economic crimes; and (c) to contain environmental damage and social strife related to the economy's rapid transformation. Economic development has been more rapid in coastal provinces than in the interior, and approximately 200 million rural laborers have relocated to urban areas to find work. One demographic consequence of the "one child" policy is that China is now one of the most rapidly aging countries in the world.

Deterioration in the environment—notably air pollution, soil erosion, and the steady fall of the water table, especially in the north—is another long-term problem. China continues to lose arable land because of erosion and economic development. In 2007 China intensified government efforts to improve environmental conditions, tying the evaluation of local officials to environmental targets, publishing a national climate change policy, and establishing a high level leading group on climate change, headed by Premier Wen Jiabao. The Chinese government seeks to add energy production capacity from sources other than coal and oil as its double-digit economic growth increases demand. Chinese energy officials in 2007 agreed to purchase five third-generation nuclear reactors from Western companies. More power generating capacity came on line in 2006 as large scale investments—including the Three Gorges Dam across the Yangtze River—were completed.

Quick Facts from The World Bank (<http://www.worldbank.org/>)

- In 1985 average income in China was \$293; in 2006 the average income is \$2,025.
- China achieved 14 percent of the world economy on purchasing power parity basis in 2005 (second to the United States).
- China contributed one-third of global economic growth in 2004.
- In 2004, China accounted for half of global growth in metals demand, and one-third of global growth in oil demand.
- China's economy has a high energy intensity. The country uses 20-100 percent more energy than OECD countries for many industrial processes. Automobile standards lag behind European standards by ten years. And China has 20 of the world's 30 most polluted cities, largely due to high coal use and motorization.
- Foreign exchange reserves exceed \$1000 billion (exceed Japan), and are growing at about \$200 billion a year.
- About 20 percent of China's exports go to the United States.
- In 1950, the urban population represented less than 13% of the total—it is now about 40% and is expected to reach 60% by 2030.
- Growth of about 9.7 percent per annum since the late 1970s has helped to lift several hundred million people out of absolute poverty, with the result that China alone accounted for over 75 percent of poverty reduction in the developing world over the last 20 years. Nonetheless, more than 128 million Chinese, many in remote and resource-poor areas in the western and interior regions, still have consumption levels below a dollar per day, often without access to clean water, arable land, or adequate health and education services.

HANDOUT #1.3: Essential Questions

- Shortly after Mao Zedong's death in 1976, Deng Xiaoping and other reformers moved to grow China's economy, instituting new "reform and opening" (*gaige kaifang*) policies. With China's move from a planned economy toward a market economy, large work force, increasing advances in technology and growth of industries, and encouragement for the population "to get rich quick," China (after three decades of spectacular growth) has emerged as the factory of the world. As it undergoes its "industrial revolution," what are the human costs and benefits of the world's fastest growing economy? In other words, who have been the winners and losers? What human capital was/is still required?
- The Three Gorges Dam is the most powerful dam in the world, channeling energy to fuel China's continuing rise as a great economic world power. Discuss in more detail the significance of this technological achievement. Who have been the winners and losers in this ambitious endeavor? Discuss the investment of human capital necessary for this massive project.
- With China's intense economic development, huge population, and rising energy consumption, it now faces many serious environmental challenges. Some would say that China's greatest industrial achievement has now caused China's biggest environmental headache. Discuss the country's environmental challenges. How is Beijing successfully approaching them? How have they failed? How has China's industrial revolution affected the global environment?
- As China's demand for energy continues to rise and it searches the world for long-term energy supplies and raw materials, how does this impact the rest of the world? How does it positively and negatively affect its relationship with countries in Africa, the Mideast, and Latin America? Japan? India? Russia?
- As China moves from a socialist to a capitalist economy, a vital entrepreneurial sector is growing and a new civil society is emerging. Discuss China's zigzag path as the Chinese people enjoy comparatively much more freedom than they did twenty or thirty years ago, yet at the same time bump up against unyielding government control. Explore this impact on their lives as their speeding industrial revolution pushes forward a slower social revolution. Discuss the social benefits and challenges for both the Chinese population and the Chinese leadership.
- The communist government supports capitalist endeavors spearheaded by local and provincial leaders while it grapples with keeping them in line with central government policies. What are the political costs and benefits from the State's perspective?

HANDOUT #1.3: Essential Questions (continued)

- Chinese leaders deny that China’s rise as an economic superpower will lead to a desire to expand its “empire.” Rather, their stated goal is to combat the growing disparity between the haves and have-nots and consequently to spread the wealth more evenly across China. What challenges does the current leadership face in trying to make this a reality? China’s disparities cannot be limited to just a rural-urban divide. In addition to location, discuss the significance of class, ethnicity, gender, generation, and education, as the government embarks on spreading the wealth. How might Chinese Communist Party history affect Beijing’s actions?
- Some would say that the glue/social controls of Confucianism and Mao Zedong Thought (“Serve the people”) are being pulled apart by China’s new “get rich quick” mentality. Discuss the material costs and benefits vis-à-vis a growing spiritual vacuum. Students may want to approach this by investigating urban youth culture and how their lives today in a modern and industrial society may affect China and the world tomorrow.
- With China’s large work force, sustained high economic growth rates, increasing advances in technology, and an expanding, modernizing military, China is emerging as a major global power. In other words, China’s recent advancements are significantly altering 21st century global economics and politics. Some would say that the relationship between the U.S. and China is the most crucial relationship in the world today. Are the U.S. and China fated to become enemies or partners in friendship? How will they balance growing economic interdependence with mutual distrust? Does or should the rise of China pose a threat to the U.S.? How can different national priorities lead to tension if not outright conflict? In what ways can the U.S. and China build a peaceful and mutually beneficial relationship?
- How do contemporary Chinese art, film, fiction, and design reflect the spectacular economic changes that have occurred in the last three decades? Discuss the positive and negative impacts on Chinese culture.

- _____

- _____

HANDOUT #1.4: Broad Example

Technological/Industrial Development

Shortly after Mao Zedong's death in 1976, Deng Xiaoping and other reformers moved to grow China's economy by instituting new "reform and opening" (*gaige kaifang*) policies. After three decades of spectacular economic growth, China has emerged as the so-called factory of the world.

What: Economic giant: factory of the world	Who: The Chinese
Where: China	When: Over the past three decades

Significance of Technological/Industrial Development

(Note: These two list are not parallel—this is a very rough brainstorming list. Each column is not meant to correspond with the other.)

Benefits:	Costs:
Growing middle class	Rising income gap
Increase in consumer goods available to Chinese	Growing number of migrant workers who are treated like second-class citizens
Growth of foreign trade	Underemployment in the countryside
Inflow of foreign direct investment	Social unrest due to low pay, inadequate health care and education, land seizures, corruption, poor work, and living conditions
Approximately 400 million lifted out of poverty	Diminishing arable land due to growing industrialization and urbanization
Growing educational and employment opportunities	Growing power and water shortages
Global power	Serious environmental degradation; world's largest emitter of CO ₂
CIA predicts that by the middle of the 21 st century, the Chinese economy will surpass the US economy in overall size	China has gone from one of the most egalitarian societies to one of the most stratified

Investments in Human Capital Specific Examples (this is just a beginning list):

1. Growing force of entrepreneurs who are running urban and rural factories.
2. Migrant workers now form the country's main industrial workforce (sustaining those back at home, but often working under harsh conditions without health benefits or educational opportunities for their children).

Position/Thesis on the Significance of the Technological/Industrial Development (include a general statement about why this technological/industrial development occurred):

Shortly after Mao Zedong's death in 1976, Deng Xiaoping and other reformers moved to grow China's economy by instituting new "reform and opening" (*gaige kaifang*) policies. After three decades of spectacular economic growth, China has emerged as the factory of the world. China's astonishing growth is due to a number of reasons including: China's move from a planned economy toward a market economy, including government encouragement and incentives for the population to work hard and "get rich quick;" a large (cheap) work force; growing advances in education and technology; and consequent growth of rural and urban industries.

**HANDOUT #1.5: Specific Example
BACKGROUND ON THREE GORGES DAM**

Technological/Industrial Development:

It has been said that the building of the Three Gorges Dam was the most ambitious project since the building of the Great Wall 2000 years ago. It is the most powerful dam in the world channeling energy to fuel China’s rise as a great economic world power.

What: The Three Gorges Dam	Who: Chinese engineers and workers
Where: China’s Yangtze River	When: Begun in 1994; to be completed in 2008

Significance of Technological/Industrial Development

(Note: These two lists are not parallel—this is a very rough brainstorming list. Each column is not meant to correspond with the other.)

Benefits:	Costs:
Generate electricity to help solve energy shortage	1.4 people relocated; an estimated 4 million more will be displaced
Reduce consumption of coal and carbon dioxide emissions	Sedimentation will hinder electrical generation and fill Chongqing’s deep harbor
Some more thought given to new dam projects/ lessons learned	Thousands of unexcavated archaeological sites submerged
Irrigation systems expanded	Social unrest due to unsatisfactory compensation of home and livelihood
Navigation and shipping enhanced to allow larger ships to journey as far as Chongqing	Diminishing arable land due to rising waters
Still a scenic river trip; more tributaries open to explore by boat	The once-gorgeous Three Gorges is no longer as spectacular in high water
Some archeological sites were moved and new archeological finds were unearthed and saved	Pollution caused by abandoned factory effluents/ raw sewage will create a 350-mile long polluted lake
Flood protection	Earthquake safety issues

Investments in Human Capital Specific Examples (this is just a beginning list):

1. Education and training of engineers and workers.
2. More than five million may have to be relocated to new homes and jobs.

Position/Thesis on the Significance of the Technological/Industrial Development

(include a general statement about why this technological/industrial development occurred):

Seeking to produce clean energy and control floods, China embarked on the building of a huge engineering feat in 1994. Now, more than a dozen years later, the world’s most powerful dam is successfully channeling the Yangtze’s raw energy into hydroelectric power and fueling China’s great industrial revolution and irrigating her central breadbasket. With the economy in high gear, China needs all of the power it can get, and this dam today generates a yearly energy production capacity of 84.7 billion kWh, the equivalent generating capacity of 50 M tons of coal (or 18 nuclear plants).

HANDOUT #1.6: Technology Through the Ages Graphic Organizer
Background on Technological Development/Industrial Development

Technological/Industrial Development

What:	Who:
Where:	When:

Significance of Technological/Industrial Development

Benefits:	Costs:

Technological/Industrial Development and Investments in Human Capital

Specific Examples:

- 1.
- 2.

Position/Thesis on the Significance of the Technological/Industrial Development (include a general statement about why this technological/industrial development occurred):

HANDOUT #1.7: Resources

General Resources

The Economist Country Briefing - China

<http://www.economist.com/countries/China/>

BBC Country Profile and Key News Stories - China

http://news.bbc.co.uk/1/hi/world/asia-pacific/country_profiles/1287798.stm

The US-China Business Council - Reports, Analysis, and Statistics

<http://www.uschina.org/info/>

The Xinhua News Agency is the official press agency of the Chinese government

See China Business: <http://www.chinaview.cn/china/business.htm>

See China Science and Technology: <http://www.chinaview.cn/china/sci.htm>

Caijing Magazine is an independent Chinese bi-monthly business and financial news magazine

See Energy & Environment:

<http://www.caijing.com.cn/English/energy&environment/>

See Finance & Economy: <http://www.caijing.com.cn/English/finance&economy/>

See industry & Companies <http://www.caijing.com.cn/English/industry&companies/>

Impact on the Environment

“Choking on Growth: Series on Pollution in China”

Series of six articles and multimedia published in the *New York Times* in late 2007

http://www.nytimes.com/interactive/2007/08/26/world/asia/choking_on_growth.html

“China's Three Gorges: Assessing the Impact”

NPR series of articles and audio pieces, January 2008

<http://www.npr.org/templates/story/story.php?storyId=17784497>

“One Dam Thing after Another: | Trouble at the Three Gorges Dam”

The Economist, November 1, 2007

http://www.economist.com/displayStory.cfm?story_id=10064467

“China Three Gorges Project” (official web site)

http://www.ctgpc.com/introduction/introduction_a.php

“Three Fragile Gorges”

Caijing Magazine, February 1, 2008

<http://www.caijing.com.cn/newcn/English/Cover/2008-02-01/47371.shtml>

HANDOUT #1.8: Technology Through the Ages CBA Rubric

	4 Excellent	3 Proficient	2 Partial	1 Minimal
<p>5.4.1 Evaluates and interprets other points of view on an issue within a paper or presentation.</p> <p>4.2.3 Analyzes and evaluates how technology and ideas have shaped world history (1450-present).</p>	<p>States a position on a historical question about the effects of a significant idea or technological development that outlines a reason(s) in support of the position.</p> <p>States why studying this historical question helps us to understand current issues and events.</p>	<p>States a position on a historical question about the effects of a significant idea or technological development that outlines a reason(s) in support of the position.</p>	<p>Develops a historical question about the effects of a significant idea or technological development WITH-OUT stating a position OR States a position on a historical question that is unclear or vague.</p>	<p>Describes events or presents ideas related to a significant idea or technological development.</p>
<p>4.3.2 Analyzes the multiple causal factors of conflicts in world history (1450 – present).</p> <p>4.2.3 Analyzes and evaluates how technology and ideas have shaped world history (1450-present).</p>	<p>Provides evidence for the position using three or more of the following social science perspectives:</p> <ul style="list-style-type: none"> • geographic • political • cultural • economic • sociological • psychological. 	<p>Provides evidence for the position using two of the following social science perspectives:</p> <ul style="list-style-type: none"> • geographic • political • cultural • economic • sociological • psychological. 	<p>Provides evidence for the position using one of the following social science perspectives:</p> <ul style="list-style-type: none"> • geographic • political • cultural • economic • sociological • psychological. 	<p>Develops a historical question about the effects of a significant idea or technological development and provides background on the historical question without using any specific social science perspectives.</p>
<p>5.2.2 Evaluates the validity, reliability and credibility of sources when researching an issue or historical event in the United States.</p> <p>4.3.1 Analyzes differing interpretations of events in US history (1890 – present).</p>	<p>Provides one or more reasons for the position supported by evidence.</p> <p>The evidence includes: An evaluation of how well four sources support the reasons including primary AND secondary sources.</p>	<p>Provides one or more reasons for the position supported by evidence.</p> <p>The evidence includes: An evaluation of how well three sources support the reasons including primary AND secondary sources.</p>	<p>Provides one or more reasons for the position supported by evidence.</p> <p>The evidence includes: An evaluation of how well two sources support the reasons including primary OR secondary sources.</p>	<p>Provides reasons for the position without evaluating primary and secondary sources.</p>
<p>5.2.2. Evaluates the validity, reliability, and credibility of sources when researching an issue or event. (11th Grade) (EALR 5.2. Uses inquiry-based research.)</p> <p>5.4.2. Creates strategies to avoid plagiarism and respects intellectual property when developing a paper or presentation. (10th Grade) (EALR 5.4. Creates a product...)</p>	<p>Makes explicit references within the paper or presentation to four or more credible sources that provide relevant information.</p> <p>The credibility of sources should be established within the paper, presentation, or bibliography.</p>	<p>Makes explicit references within the paper or presentation to three credible sources that provide relevant information.</p> <p>The credibility of sources should be established within the paper, presentation, or bibliography.</p>	<p>Makes explicit references within the paper or presentation to two sources that provide relevant information.</p>	<p>Makes explicit references within the paper or presentation to one source that provides relevant information.</p>