



### **3. Exchange of Goods and Ideas Along The Silk Roads**

#### **Unit J**

EAST-WEST EXCHANGE: SILK, PAPER, PORCELAIN

#### **Unit K**

WEST-EAST EXCHANGE: ASTRONOMY

#### **Unit L**

THE SILK ROADS YESTERDAY, TODAY, AND TOMORROW

#### **Unit M**

TWO LEGENDARY TRAVELERS: MARCO POLO AND IBN BATTUTA



---

## Unit J

### EAST-WEST EXCHANGE: SILK, PAPER, PORCELAIN

---

**Essential Question:** How did the exchange of technology from China along the Silk Roads affect Persia, the Middle East, and Europe?

**Anticipatory Set:** Looking around you, what things would make your life different if you had to live without them? How different would your life be, for instance, without paper?

**Learning Experience:** What was the importance of East-West cultural exchange? Paper, silk, and porcelain were all invented in China and exported to the West. Students will evaluate the importance of these three products as elements in cultural diffusion along the Silk Roads

**Context:** Over the centuries, the Silk Roads were an important conduit for the diffusion of products and technologies from China to the West. Silk, paper, and porcelain were three of the most sophisticated products of pre-modern technology. Silk and porcelain were luxuries whose beauty delighted people all over the world; paper was a material that changed the world.

#### PAPER

Before the invention of paper, the Chinese wrote on carefully prepared strips of wood and pieces of silk. They used brushes made of animal hair and ink made from pine soot.

Paper came into use as early as the second and first centuries BCE, at the same time that the Chinese bureaucratic state was expanding and maturing under the Han dynasty (206 BCE-220C CE). Paper was an ideal medium for the large numbers of documents produced by China's government. In 105 CE, the invention of paper was officially reported to the Chinese throne. In reality, it had been in use long before that.

Centuries later, paper reached western Asia and Europe. Even today, in a world increasingly dominated by electronic/digital technology, it's almost impossible to live without paper.

#### SILK

By the Shang dynasty (c. 1550-1050 BCE) sericulture—the raising of silkworms and the production of silk—had developed to a very high degree. The silkworm had become a true domestic animal, bred for a variety of desirable characteristics; the typical Chinese farmstead included not only fields for grain and vegetables, but also a grove of mulberry trees, the leaves of which are the sole food of the silkworm caterpillar. Ordinary peasant women were expert in the special techniques associated with silk weaving; silk was produced in quantity and worn, at least on some occasions, by a wide range of people, not just the aristocracy (Steele 1999: 21-22).

The silks that came from China amazed the upper classes of the Roman Empire. They came to call China “Serica,” the “land of silk.” Not everyone, however, approved of the beautiful fabric:





The sensuous, expensive material predictably aroused the ire of moralists. Seneca,<sup>1</sup> for example, was disgusted by the gauze-like transparency of fashionable silk textiles: “I see silken clothes, if you can call them clothes at all, that in no degree afford protection either to the body or to the modesty of the wearer, and clad in which no woman could honestly swear she is not naked” (Steele 1999: 71).

It was only in the early Middle Ages that silk began to be manufactured in the West.<sup>2</sup>

## PORCELAIN

The Chinese also invented porcelain. For centuries, it was exported by sea and by land to Asia and Europe:

The Central Asians, the Persians, and the peoples of the Middle East prized Ming [1368-1644 CE] porcelains . . . The Persian ruler Shah Abbas (r. 1587-1629) constructed a China house for his magnificent Chinese wares. The Topkapi museum in Istanbul houses over eight thousand Song [960-1279 CE] and Ming porcelains. Some of the Central Asian tribes believed that Chinese porcelains possessed supernatural powers. In Persian miniature paintings of the fifteenth century, “there is hardly a manuscript in which [Chinese] blue and white vessels are not depicted” (Rossabi 1975: 77).

Chinese porcelain became so common in European homes that “china” became the generic name for all fine ceramics.

**Rationale:** Using cooperative learning groups, students will research the history and development of silk, paper, and porcelain.

**Time:** One forty-minute lesson.

**Instructional Resources:** Documents on paper, silk, and porcelain.

Some documents are primary sources and some are secondary materials selected from various books and articles. Primary sources are marked with an asterisk. \*

**Procedure:** The class is divided up into six merchant/adviser groups. Students have been selected by the emperor of China to conduct trade with the West via a Silk Roads caravan. Each group will consist of a chief merchant and his assistants. There will be two groups for porcelain, two for silk, and two for paper.

Using the resource materials below, each assistant will specialize in one aspect of the product. He or she will prepare a script to advise the chief merchant in the marketplace. Topics to be addressed are (1) origin of the product; (2) its uses; (3) its importance; (4) how it is made; (5) how it can be advertised; and, (6) desirability of ownership.

**Whole Group Reflection:** After research and “advising” is complete, the chief merchants will present their wares and purchases in the classroom marketplace during a debriefing session.

The discussion should generate a set of notes on the blackboard. Students will consider the value of China’s contributions.

<sup>1</sup> Leading Roman statesman and playwright of the first century CE.

<sup>2</sup> For a brief “History of Silk,” see: <http://www.silk-road.com/toc/index.html>.





**Instructional Modification:** Consideration should be taken regarding academic levels in choosing group members and resource materials. Also, the lesson may be expanded into two sessions: groups may devote one day to research and preparation of materials, and one day to present and discuss them in class.

### Make Your Own Paper

The basics of the papermaking process are rather simple. Using the instructions on either of these websites, students can make their own paper.

<http://www.wipapercouncil.org/makepaper.htm>

<http://www.bowater.com/paper.html>

**Application:** Describe one scientific or technological innovation of the past year that you have used. Why do you value this item?





## DOCUMENT 1: WHAT WAS USED BEFORE PAPER?

---

Pre-modern cultures that possessed writing used different materials to record information. Compared to paper, what are the disadvantages of these earlier materials?

- The Sumerians wrote on clay tablets with a pointed wooden stylus.
- The ancient Egyptians used marsh grass called papyrus. Its stem provided thin strips that could be layered and pounded into thin sheets. These were polished smooth with a stone, bone, or shell. Lightweight and portable, papyrus became the writing medium of choice for the ancient Egyptians, Greeks, and Romans.
- Parchment—made from the skins of sheep, goats, and calves—was the favored writing material in medieval Europe until paper was introduced around the twelfth century. A finer, more pliable kind of parchment was called “vellum.”

Although parchment was expensive to make, compared to papyrus it was a better writing material since it was much easier to write on, both sides could be used, and mistakes could be scraped off.

- In India and Southeast Asia the leaves of special trees were used to record religious texts, biographical information, and literature. The leaves were trimmed, flattened, and polished smooth with sand to provide a workable surface.
- Tree bark was a favored material in some regions: In the Himalayas and the Americas, people used it in sheets and rolls while Pacific cultures made a cloth from it.
- Before the invention of paper, the Chinese wrote on thin strips of wood as well as rolls of silk. They used brushes made of animal hair and ink made from pine soot.





## DOCUMENT 2: PAPER AND PAPERMAKING IN CHINA

UNIT  
3 - J

### *A Paper Fragment from the Eastern Han Dynasty (25-220 CE)*



(Source: Cultural Relics Publishing House, Chinese Graphic Arts News  
<http://www.cgan.com/english/english/cpg/engcp06.htm>)

Although 105 CE is the traditional date given for the invention of paper by a man named Cai Lun, there is archeological and literary evidence for its use several centuries earlier. A Chinese story from about 100 BCE records the use of ancient “Kleenex tissue”: a guardsman suggests to a prince that he cover his nose with a thin piece of paper. Archeologists have also found fragments of paper dating from the second and first centuries BCE. Because silk was expensive and bamboo was heavy, paper became the preferred writing material (Bloom 2001: 32, 33).

It was said that Cai Lun thought of using tree bark, hemp, rags, and old fish nets to replace bamboo and silk. Experimenting with a variety of materials, he refined the process of pulverizing plant fibers until each filament was completely separate. These individual fibers were mixed with water in a large vat. Next, a screen was submerged in the vat and lifted up through the water, catching the fibers on its surface. When dry, this layer of intertwined fibers became a sheet of paper. Although today’s manufacture of paper is totally mechanized, the basic process remains the same.

Paper came into use around the same time that the Chinese imperial state was expanding and developing. It was an ideal medium for the large numbers of documents produced by China’s bureaucratic government.

## DOCUMENT 3: PAPER SPREADS WESTWARD

Some Arabic sources say that after an Arab army defeated the Chinese at the battle of the Talas River in 751, captured artisans transmitted their papermaking skills to the Arabs. Like the story of Cai Lun and the invention of paper (above), this story is more legend than history. Papermaking would have been practiced throughout Central Asia by the eighth century CE. Well before the Muslim conquest, Buddhist monks brought papermaking to the region.

Papermaking spread to Baghdad in modern day Iraq in the eighth century. From there it reached Syria, Egypt, and Morocco by the tenth century CE. It took nearly five hundred years for papermaking to reach Europe from Central Asia.

Paper was exported from the Middle East to Byzantium and other parts of Europe beginning in the tenth and eleventh centuries. It reached Spain in the twelfth century. At first, paper wasn’t accepted in the Christian world because it came from Islam. In 1221, the Holy Roman Emperor decreed that all official documents on paper were invalid. Perhaps the interests of wealthy landowners, who raised sheep and cattle for parchment and vellum, played a role in this decree.

By the fourteenth century, a number of European countries had paper mills. The invention of the printing press in the mid-1400s increased the demand for paper in Europe.





## DOCUMENT 4: SILK AND SERICULTURE

---

No one really knows the origins of silk. It is said that around 2700 BCE, China's mythical Yellow Emperor directed his wife to examine the silkworm and test the practicality of using its thread. She not only discovered how to raise silkworms, but also how to reel the thread from their cocoons and make silk clothing.

Sericulture in China, however, is older than this legendary account. Archeological evidence suggests that the Chinese made silk as early as the fifth or fourth millennium CE.

By the Shang dynasty (c. 1550-1050 BCE), sericulture—the raising of silkworms and the production of silk—had developed to a very high degree. The silkworm had become a true domestic animal, bred for a variety of desirable characteristics; the typical Chinese farmstead included not only fields for grain and vegetables, but also a grove of mulberry trees, the leaves of which are the sole food of the silkworm caterpillar. Ordinary peasant women were expert in the special techniques associated with silk weaving; silk was produced in quantity and worn, at least on some occasions, by a wide range of people, not just the aristocracy (Steele 1999: 21-22).

The Silk Roads get its name from trade that began as early as the second century BCE, when caravans carried Chinese silk across Central Asia. Some of it eventually reached the Mediterranean, where its jewel-like shine delighted wealthy people in ancient Rome.

The sensuous, expensive material predictably aroused the anger of moralists. Seneca,<sup>3</sup> for example, was disgusted by the gauze-like transparency of fashionable silk textiles: “I see silken clothes, if you can call them clothes at all, that in no degree afford protection either to the body or to the modesty of the wearer, and clad in which no woman could honestly swear she is not naked” (Adapted from Steele 1999: 71).

Eventually the Chinese lost their monopoly on silk production. Korea and Japan were making silk around 200 CE. Sericulture also traveled westward to India around 300 CE.

It is said that strong demand for local supplies of raw silk encouraged the Byzantine Emperor Justinian I (r. 527-565) to persuade Persian monks to go to China and smuggle out silkworms. Legend has it that the monks brought them back to Constantinople in the hollows of their bamboo canes.

---

<sup>3</sup> Leading Roman statesman and playwright of the first century CE.





## DOCUMENT 5: SERICULTURE—THE MAKING OF SILK

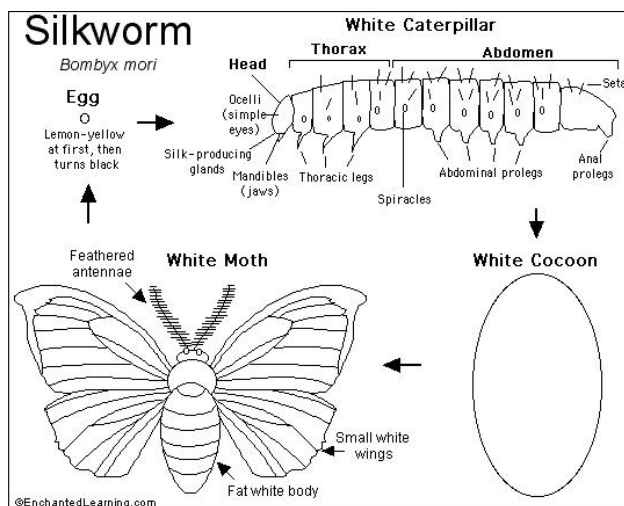
UNIT  
3 - J

Raw silk thread, called a “filament,” is drawn from the cocoons of several moth species. The caterpillars that spin the cocoons are commonly called “silkworms.”

Silk production involves growing mulberry trees to provide food for the silkworms, which eat more than fifty thousand times their weight in mulberry leaves. It also involves caring for the silkworm as an egg, a caterpillar, and as a chrysalis within a cocoon. The chrysalis is the final stage before the silkworm emerges as an adult moth.

The female moth lays hundreds of eggs, each about the size of a pinhead, before dying almost immediately after. The eggs are stored through the winter and allowed to hatch only the following spring.

***The Silkworm (*Bombyx mori*) Is Not a “Worm” At All.***  
***This Figure Shows the Caterpillar of a Moth Whose Cocoon is Used to Make Silk***



(Source: <http://www.enchantedlearning.com/subjects/butterfly/activities/printouts/silkworm.shtml>)

About four to six weeks after hatching, the caterpillars reach maximum size and begin to spin their cocoons. This takes about four days. Glands on the caterpillar’s head secrete a liquid that becomes the silk filament. Each cocoon is made of a single filament, two to three thousand feet long.

In order to kill the chrysalises, the finished cocoons are either steamed, put in jars layered with salt, or boiled. The caterpillars have to be prevented from becoming full-grown moths in order to preserve the cocoon and its thread. The only moths allowed to live are those selected as breeding stock for future generations of silkworms.

Each cocoon is made of a single filament two or three thousand feet long. This is called “floss,” which is twisted to make silk thread.

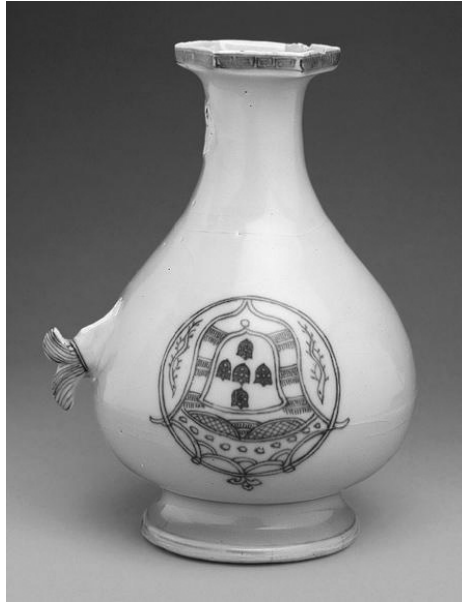
Although the Chinese used other raw materials such as hemp to make cloth, silk was the most useful and valued fabric for many centuries. It was only with the spread of cotton production in the fourteenth and fifteenth centuries that silk was eclipsed as a fabric for daily use.

In his *Spring Silkworms*, the twentieth century writer Mao Dun (1896-1981) refers to the time when silkworms incubate as the “sacred season.” His characters call the cocoons “little darlings.” This shows not only how dependent silk farmers were on the life cycle of the silkworm, but also gives a sense of how difficult and complicated it was to raise them successfully.





***Made in China for Export to Europe,  
This Sixteenth-Century Porcelain Has  
the Royal Portuguese Coat of Arms Painted on It Upside Down***



(Source: The Metropolitan Museum of Art, Helena Woolworth McCann Collection, Purchase, Winfield Foundation Gift, 1961 [61.196]  
Photograph, all rights reserved, The Metropolitan Museum of Art)  
[http://www.metmuseum.org/toah/nd/ewpor/hob\\_61.196.htm](http://www.metmuseum.org/toah/nd/ewpor/hob_61.196.htm)

*Ewer*

Ming dynasty (1368-1644), Zhengde period (1506-21), ca. 1520

Chinese for the Portuguese market

Hard paste; H. 7 3/8 in. (18.7 cm)

Apocryphal mark of the Xuande period (1426-35)

Helena Woolworth McCann Collection,

Purchase, Winfield Foundation Gift, 1961 (61.196)

They have pottery of excellent quality, of which bowls are made as fine as glass drinking cups; the sparkle of water can be seen through it, although it is pottery.

So wrote an Arab merchant in the ninth century CE about early Chinese porcelain—“a hard, translucent ware fused at high temperature with the aid of feldspar [a crystalline mineral], causing it to ring when struck” (Sullivan 1984: 137). True porcelain was fired at 2,200-2,500° F, a temperature high enough that the feldspar melts around the particles of clay, producing a glassy surface.

Chinese porcelain became famous all over Asia and, eventually, throughout the world. As early as the ninth century, great quantities of porcelain were exported to Persia and the Middle East. In Europe, China became so closely identified with porcelain that all fine ceramics came to be called “china.” European potters tried to imitate porcelain for centuries, but it wasn’t until 1575 that the Italians made the first European porcelain.

The word “porcelain” comes from the Italian word “porcellana,” a type of shell with a hard, beautifully colored surface. In the thirteenth century CE, Marco Polo used it to describe the pottery he saw in China.





## DOCUMENT 6: PORCELAIN

---

(continued from the previous page.)

The Chinese made porcelain in a rainbow of colors, as well as in pure white. There were many decorative techniques: patterns could be painted over a surface glaze, the surface could be molded to create raised designs, or designs could be engraved into the surface.

Many traditional decorative patterns are used over and over again. A fungus called *lingzhi* is a symbol for long life. Bats symbolize happiness, because the Chinese character for “happiness” and for “bat” have the same sound, *fu*. Five red bats symbolize the Five Blessings—longevity, riches, health, love of virtue, and a good end to one’s life.

Porcelain was made into bowls, plates, vases, perfume holders, pipes, snuff bottles, wrist rests (for writing), water pots, paste boxes, cups, teapots, and flasks. It was also used to make images of important Buddhist, Daoist, mythological, literary, and historical figures.

Although porcelain was a major part of China’s high volume maritime trade with the rest of Asia (particularly from the Song dynasty on, 960-1279 CE), the Silk Roads also served as a means of exporting fine ceramics.

The Central Asians, the Persians, and the peoples of the Middle East prized Ming [1368-1644 CE] porcelains . . . The Persian ruler Shah Abbas (r. 1587-1629) constructed a China house for his magnificent Chinese wares. The Topkapi museum in Istanbul houses over eight thousand Song [960-1279 CE] and Ming porcelains. Some of the Central Asian tribes believed that Chinese porcelains possessed supernatural powers. In Persian miniature paintings of the fifteenth century, “there is hardly a manuscript in which [Chinese] blue and white vessels are not depicted” (Rossabi 1975: 77).



---

## Unit K

### WEST-EAST EXCHANGE: ASTRONOMY

---

**Essential Questions:** What was the importance of astronomy to the pre-modern Chinese state and people? How did the West-East exchange of scientific information along the Silk Roads affect China?

**Anticipatory Set:** What role does astronomy play in your everyday life?<sup>1</sup> In pre-modern times, emperors, kings, and common people thought the movements of the sun, moon, stars, and planets were related to events on earth. Because of this, they wanted to be sure that what they did—from sending armies marching to taking a bath—was in harmony with the heavens. Has this belief totally disappeared from the modern world? (Has anyone ever asked you: “Hey, what’s your sign?”).

**Learning Experience:** Students will study pre-modern Chinese ideas on the relation of the cosmos to everyday life and the political importance of astronomy. They will look at phenomena such as eclipses and supernovae through both (modern) Western and (pre-modern) Chinese eyes.

**Context:** Science and medicine in Islam and China were born from very different roots. Chinese science was more than a thousand years old by the time Islam spread through the Middles East in the century after Muhammad’s death (632 CE). Scientific knowledge in Islam was largely based on that of the ancient Greeks: during the eighth and ninth centuries, most important Greek scientific and medical texts had been translated into Arabic (Saliba 1994: 51). Although neither Islam nor China changed their basic understanding of the world by absorbing each other’s scientific theories, the Silk Roads allowed for exchanges of ideas and techniques. For China’s imperial government, such exchange, particularly in the field of astronomy, was important to the survival of the state.

The movement of Arab, as well as Indian and European mathematical and astronomical knowledge to China reached only a limited audience, the emperor’s astronomy officials. Foreign techniques and data were welcome because the Chinese could use it to check their own calculations. This was politically important because

It was an urgent matter of national security, as we would put it today, for the Imperial Directorate of Astronomy to be able to predict solar eclipses and other celestial events. This was because if not predicted they were ominous; that is to say, they could be interpreted (and exploited by prospective rebels) as warnings from Heaven that the virtue of the ruling house was failing (<http://ccat.sas.upenn.edu/~nsivin/cop.html>).

Thus, skill in predicting heavenly phenomena was related to the emperor’s ability to remain in possession of the “Mandate of Heaven”:

Chinese astronomers tried to reduce to rule as many astronomical phenomena as possible, with the ultimate aim of predicting everything predictable. If, for instance, the occurrence of a lunar eclipse could be predicted, its significance as a portent [something that foreshadows a coming event] was much reduced. More positively, the image of the emperor as successful preserver of the cosmic order was inevitably enhanced if his government was seen to comprehend the subtlest motion of the heavens (Cullen 1996: 5-6).

---

<sup>1</sup> Astronomy is one of the most popular hobbies in the United States. A website teachers and students might find interesting is “Zoom Astronomy” (<http://www.enchantedlearning.com/subjects/astronomy/>). It is a “comprehensive on-line hypertext book about astronomy. It’s designed for students of all ages and levels of comprehension. It was created with a simple structure that allows the reader to start at a basic level for each topic, and progress to more advanced information when and if it is desired” (<http://www.allaboutsace.com/subjects/astronomy>). Also, the web site of the Hubble Space Telescope has spectacular photos and commentary (<http://hubblesite.org>).





The annual publication of the calendar was one of the most important activities of government astronomers. This was the ruling dynasty's proclamation of legitimacy.<sup>2</sup> On the first day of winter, the director of the Astronomical Bureau submitted the coming year's calendar to the emperor. Included was a list of activities such as worship, making sacrificial offerings, giving out favors and awards, marriage ceremonies, adding new staff or servants, bathing, receiving beauty treatments, etc. (see Document 3, below), and the correct (i.e., auspicious) days on which they could be done. Why?

A standard calendar in late imperial China included a large section given over to auspicious dates . . . . Since this calendar was authorized by the emperor, the destiny and daily life of Chinese subjects were thus symbolically sanctioned and controlled by the emperor through a calendar whose precision in turn articulate the emperor's mandate of heaven  
(<http://www.admin.ias.edu/hssem/pingyi.html>)

Almanacs giving lists of lucky days are still extremely popular wherever Chinese is spoken.<sup>3</sup>

As mentioned above, Chinese astronomers sought foreign data and know-how in order to check the accuracy of their calculations.

Before the middle of the seventh century CE, after Buddhism had become rooted in China, Indian astronomers worked in the Chinese capital . . . . They were more reliable for predicting solar eclipses than those current in China. The political significance of solar eclipses led the Chinese court from the turn of the eighth century to depend on resident foreign astronomers. When the Mongols brought China under their rule in the second half of the thirteenth century [the Yuan dynasty, 1279-1368], their astronomical officials were Islamic, from Persia and Central Asia (Sivin 1990: 192).

In the seventeenth century, Jesuit missionaries replaced Muslims as high-level astronomy officials. This was because the Muslims had lost the ability to predict eclipses or produce a correct calendar. They merely followed previous computations and therefore “errors accumulated as the same calendar was recycled for two hundred years” (<http://www.admin.ias.edu/hssem/pingyi.html>).

The Jesuits were mainly interested in converting China to Catholicism. To do this, they needed access to the court.

The only established access to the top was the Astronomical Bureau, which had provided positions to foreigners for nearly one thousand years. By 1645 the Europeans had gained operational control of the bureau after submitting to the throne a series of treatises that set in Chinese the mathematical and cosmological foundations of European astronomy and winning several dramatic eclipse prediction contests (Sivin 1990: 192).

Although there was resistance to the Europeans, the superiority of their methods was soon recognized. Ten officials of the Bureau of Astronomy signed the following statement:

At first we also had our doubts about the astronomy from Europe when it was used in 1629 [when the Jesuits beat the court astronomers in correctly predicting a solar eclipse], but after having read many clear explanations our doubts diminished by half, and finally by participating in precise observations of the stars, and of the positions of the sun and moon, our hesitations were altogether overcome. Recently we received the imperial order to study these sciences, and every day we have been discussing them with the Europeans. Truth must be sought not only in books, but in making actual experiments with instruments . . . (Needham 1959: 456).

<sup>2</sup> In fact, when there was a change of dynasty, loyalist individuals or even states would refuse to use the new calendar. After the fall of the Ming dynasty (1368-1644), for instance, Korea refused to use the calendar of its successor, the Qing (1644-1911).

<sup>3</sup> For a “Chinese Almanac Online,” see <http://chinesefortunecalender.com/Almanac.htm>



Using instruments to seek the truth was not alien to Chinese tradition. The Chinese had been observing the sky with instruments since before the beginning of the Common Era. By the seventeenth century, however, Western methods had surpassed those of China and other countries. Also, the telescope, recently invented in Europe, was about to change astronomy forever.

In addition to the telescope, the other discovery that revolutionized sixteenth and seventeenth century European science was Copernicus' theory of a heliocentric (sun-centered) solar system. The Jesuits brought news of the telescope to China but, although they were well-acquainted with Copernican theory, didn't teach or publicize it in China. This was because the church condemned Galileo in 1616 and 1632 (Needham 1959: 443, 444). The Jesuits were only able to introduce the Copernican system to China in 1760.

**Rationale:** Students will learn why the Chinese were such careful observers of the sky and why the importation of astronomical expertise was so important.

**Time:** Two forty minute lessons.

**Instructional Resources:** Five pairs of documents with exercises and questions:

1. Astronomy and Imperial Rule
2. The Crab Nebula
3. The Calendar and Daily Life
4. Chinese and Western Almanacs
5. Eclipses and Eclipse Prediction
6. Description of a Solar Eclipse
7. Foreign Astronomers in China
8. What Went Wrong With Chinese Astronomy?
9. The Jesuits and Astronomy
10. Eclipse Prediction Contest

Some documents are primary sources and some are secondary materials selected from various books and articles. Primary sources are marked with an asterisk. \*

**Procedure:** The class is divided up into five groups; each group receives one pair of documents.

- First day Each group will read its documents and answer the questions and do the exercises in writing. Students can (1) work by themselves, coordinate their answers, and prepare one written piece, or (2) discuss the documents, exercises, and questions, and then write together. In the end, there should be one written set of answers from each group, and each group member should have a copy of it.
- Second day The class divides into new groups, each new group having a member from one of the previous groups. Each group member will briefly summarize the content of the documents he or she read in their first group and explain his group's answers to the questions. Each group will answer the essential questions:

What was the importance of astronomy to the pre-modern Chinese state and people? How did the West-East exchange of scientific information along the Silk Roads affect China?



**Whole Group Reflection:** On the second day, a member from each group will present the group's conclusions.

**Instructional Modification:** Consideration should be taken regarding academic levels in choosing group members and resource materials.

**Application:** How does modern astronomy, with its use of satellites and other advanced technology, affect people's everyday lives? The class can consider issues such as war and peace, the weather, the environment, etc.

**Legendary Astronomers Measure The Sun's Shadow  
with a Device Called a Gnomon.  
Here They Are Determining The Beginning Of Summer  
When The Shadow Is Shortest**



(Source: *Qinding Gujin tushu jicheng* [Imperially approved synthesis of books and illustrations, past and present] (1726-1728), reprinted in 1905)  
<http://www.math.nus.edu.sg/aslaksen/pictures/solstice-2-ss.jpg>



UNIT  
3 - K



## DOCUMENT 1: ASTRONOMY AND IMPERIAL RULE

---

It was an urgent matter of national security, as we would put it today, for the Imperial Directorate of Astronomy to be able to predict solar eclipses and other celestial events. This was because if not predicted they were ominous; that is to say, they could be interpreted (and exploited by prospective rebels) as warnings from Heaven that the virtue of the ruling house was failing (<http://ccat.sas.upenn.edu/~nsivin/cop.html>).

The emperor was responsible for performing rituals to protect the state and the people. For instance, on a chosen day at the beginning of spring, he would plow the first furrow to begin the planting season. This was done to guarantee an abundant harvest. He was also the only person allowed to offer sacrifices to Heaven. Astronomy was important to such ceremonies because

For the state, it was necessary that certain imperial rituals should be carried out at the proper times. Such rituals, often involving the emperor himself as celebrant were an essential contribution to the maintenance of cosmic order. If they were mistimed, they could fail to do benefit or even do harm. If winter solstice [the beginning of winter] fell a few minutes before midnight, but the astronomers predicted it an hour later, the emperor would be led to carry out his sacrificial ritual a whole day late (Cullen 1996: 6).

**1. Why is predicting eclipses a question of “national security”?**

---

---

---

---

**2. Why would plowing the first furrow before spring began be a bad thing?**

---

---

---

---

**3. How might astronomy be used to validate the Emperor’s legitimacy?**

---

---

---

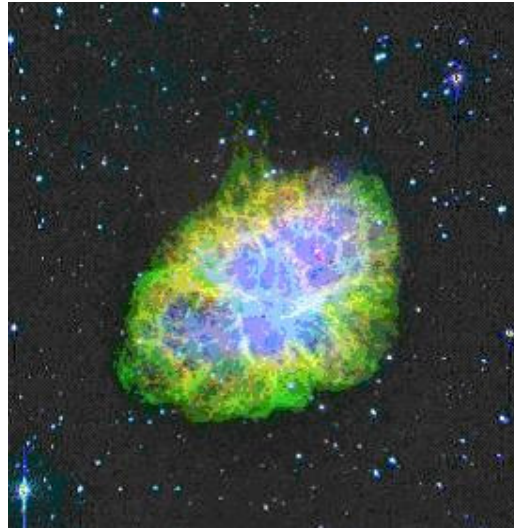
---



UNIT  
3 – K







(Source: Photograph courtesy of Paul Scowen, Mt. Palomar 60-inch telescope)  
<http://setiathome.ssl.berkeley.edu/newsletters/newsletter18.html>

In 1054 CE Chinese astronomers observed the sudden appearance of what they called a “guest star.” This was a new star so bright that it was seen in daylight for twenty-three days. The “guest star” was a supernova, an explosion occurring at the end of a star’s life. The above photo is of the Crab Nebula, the cloud of gas and dust left behind by this explosion. The Chinese had been observing such phenomena for many centuries.

Why was this event in the sky so important? In pre-modern China, everything that existed was fit into three words:

<b>HEAVEN</b>	The “universe.” It gives birth to everything.
<b>EARTH</b>	Planet earth and everything on it, living and non-living.
<b>HUMANKIND</b>	People—men and women.

It was believed that Heaven, Earth, and humankind were interconnected and what happened in the sky reflected the state of affairs on earth (Cullen 1996: 2). It was therefore the astronomer’s job to understand connections between Heaven and Earth. According to one of the Chinese classics, a court astronomer

. . . concerns himself with the stars in the heavens, keeping a record of the changes and movements of the planets . . . [and] the sun and moon, in order to understand whether events on earth will bring good or bad fortune (*Zhouli* 6; Adapted from Needham 1959: 190).

In pre-modern China, astronomers were court officials responsible to the emperor. Events such as eclipses, comets, and supernovae might signal trouble for the dynasty and the emperor’s rule.

What about this “guest star”? Since it wasn’t positioned near the main star of the constellation in which it suddenly appeared, court astronomers told the emperor that the guest was a friendly one. They thought this demonstrated the greatness of the emperor’s rule, since he was able to attract guests from far away.





DOCUMENT 2: *THE CRAB NEBULA*\*

(continued from the previous page.)



UNIT  
3 – K

**Web Quest: The Crab Nebula**

Using a search engine such as google.com, search for “Crab Nebula.” Answer the following questions. You can look up unfamiliar words in the following online astronomy dictionary for students:

<http://www.allaboutspace.com/subjects/astronomy>

**1. Is China the only society thought to have observed the Crab Nebula? Name one other.**

---

---

---

**2. What constellation did the “guest star” appear in?**

---

---

**3. What would have happened if this guest star was closer to our solar system?**

---

---

---



## DOCUMENT 3: THE CALENDAR AND DAILY LIFE

In pre-modern China it was “believed that Heaven, Earth, and humankind were interconnected and that what happened in the sky reflected the state of affairs on earth” (Cullen 1996: 2). One of the most important expressions of this belief was the government’s yearly publication of the calendar. It was issued under the name of the emperor, the “Son of Heaven.”

On the first day of winter, the director of the Astronomical Bureau submitted the calendar for the coming year. Included was a list of activities and the correct days on which they could be done. These things were all related to the daily life of the emperor and his relatives. Correct days were listed for

- |   |   |
|---|---|
| 1. Worship, offerings, and prayers  | 12. Marriage ceremonies   |
| 2. Giving out favors and awards   | 13. New staff or servants joining the household                           |
| 3. Submitting documents to the court  | 14. Bathing   |
| 4. Publishing imperial decrees  | 15. Beauty treatment  |
| 5. Capping ceremony [coming of age ceremony for young men]  | 16. Shaving the head  |
| 6. Outings  | 17. Manicure  |
| 7. Banquets   | 18. Receiving medical treatment   |
| 8. Summoning the wise and virtuous [inviting people to court who weren’t government officials and have them offer political advice] | 19. Tailoring   |
| 9. Ceremony for the army when it was setting out on a campaign  | 20. Construction work: digging foundations and erecting pillars and beams |
| 10. Sending envoys to foreign countries   | 21. Repairing city walls  |
| 11. Marriage arrangements   | 22. Making drains and digging wells                                       |
|   | 23. Planting trees  |
|   | 24. Hunting   |
- (Adapted from Ho 1969: 142-143)

The calendar, as well as privately published almanacs, had similar lists that applied to the daily lives of common people.

The following table explains why lists of lucky and unlucky days were compiled:

1. The <u>emperor</u> is the <u>Son of Heaven</u> ;
2. The <u>emperor</u> issues the <u>calendar</u> ;
3. The <u>calendar</u> charts the harmonious movement of Heaven (sun, moon, stars, and planets);
4. The calendar’s list of <u>lucky and unlucky days</u> shows how human activity is connected to the movements of the sun, moon, stars, and planets;
5. When the <u>people</u> follow the <u>calendar</u> by obeying the list of lucky and unlucky days, the people are in harmony with <u>Heaven</u> .

**1. Do people still believe that their daily lives are connected to the stars and planets? Explain. Can you name anything that people today do (or not do) based on the stars?**

---

---

---



UNIT  
3 – K



An almanac is a yearly publication that gives a calendar and other information such as the times of sunrise and sunset. Almanacs are important in Chinese society because

Almost all activities of daily life, from taking a wife to closing a business deal, were conducted according to an elaborate . . . scheme of lucky and unlucky days. Such schemes were an essential part of the calendar in the form most widely distributed. Commercially published almanacs giving this information are still bought in huge numbers by modern Chinese people (Cullen 1996: 6).



**Activity: Comparing Almanacs**

Take a look at the contents page of a current world almanac such as the *World Almanac and Book of Facts*, *New York Times Almanac*, or *Time Almanac* in your school library. Then access one of these Chinese-style almanacs on the internet:

- <http://www.dragon-gate.com/resources/Fengshuitools/almanac/index.asp>
- <http://www.chinesefortunecalendar.com/Almanac.htm>
- <http://www.chineseastrologyonline.com/FarmerCal.htm>

**Answer the following questions:**

**1. What does the Western Almanac contain that the Chinese-style almanac doesn't?**

---

---

---

---

**2. What does the Chinese almanac contain that the Western doesn't?**

---

---

---

---

**3. Are there any similarities between the two?**

---

---

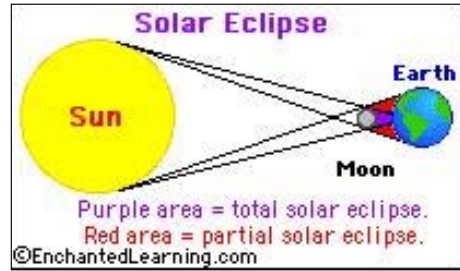
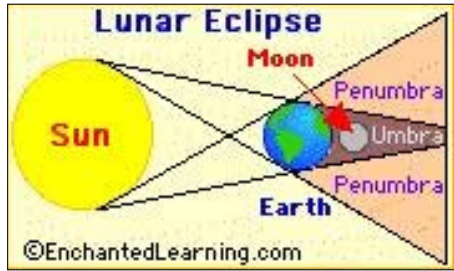
---

---



DOCUMENT 5: ECLIPSES AND ECLIPSE PREDICTION

Eclipse prediction was one of the most important responsibilities of imperial astronomers. When the earth's shadow falls on the moon, it is called a lunar eclipse; when the moon is between the Earth and the Sun, it is called a solar eclipse.



<http://www.enchantedlearning.com/subjects/astronomy/moon/Lunareclipse.shtml> <http://www.enchantedlearning.com/subjects/astronomy/sun/solareclipses.shtml>

During a lunar eclipse, the size of the Earth's shadow blocking the Moon is more than 6,000 miles in diameter. In a solar eclipse, the Moon's shadow falling on Earth and blocking the Sun is only about 150 miles in diameter—a tiny part of the Earth's surface. Therefore it's much more difficult to predict a solar eclipse compared to a lunar eclipse. In addition, although lunar eclipses come at regular intervals, solar eclipses do not ([http://eclipse99.nasa.gov/pages/traditions\\_Calendars.html](http://eclipse99.nasa.gov/pages/traditions_Calendars.html)).

Although lunar eclipses could be predicted with considerable accuracy by 100 BCE, the lack of the mathematics needed to calculate accurately the intersection of the Moon's shadow cone with the Earth's sphere made solar eclipses a continuing problem. The tendency of the imperial court to look abroad for technicians who could deal with it was fateful for the development of astronomy within China . . . (Adapted from Sivin 1990: 174).

**Note Taking Guide: Lunar and Solar Eclipses**

*Use this guide to record information. Then answer the following questions.*

Eclipses:	What happens? (Where is the Earth? The Sun? The Moon?)	Size of shadow?	Easy/hard to predict?
Lunar eclipse			
Solar eclipse			

**1. Which type of eclipse could the Chinese predict easily?**

\_\_\_\_\_

**2. Why is it harder to predict a solar eclipse?**

\_\_\_\_\_

\_\_\_\_\_



The Chinese word for “solar eclipse” combines the character for “sun” with the character for “to eat”:

日	+	食	=	日	食
RI		SHI		RI'SHI	
“Sun”		“to eat”		“Solar eclipse”	

In August 1514, the Chinese recorded the following account of a solar eclipse:

At about mid-day, the sun was suddenly eclipsed. It was total. Stars were seen and it was dark. Even objects an arm’s length away could not be seen. The domestic animals were alarmed and people were terrified. After a while, it became light

(Adapted from [http://eclipse99.nasa.gov/pages/traditions\\_Calendars.html](http://eclipse99.nasa.gov/pages/traditions_Calendars.html)).

1. Study the eclipse diagram in Document 5, what gets “eaten” in a lunar eclipse?  
In a solar eclipse?

---



---

2. Enter the term “solar eclipse cruise” in a search engine such as a google.com, and examine one or two of the results. How do the reactions of people today toward a solar eclipse differ from this Chinese account? Why?

---



---



## DOCUMENT 7: FOREIGN ASTRONOMERS IN CHINA\*

---

Before the middle of the seventh century CE, after Buddhism had become rooted in China, Indian astronomers worked in the Chinese capital . . . They were more reliable for predicting solar eclipses than those current in China. The political significance of solar eclipses led the Chinese court from the turn of the eighth century to depend on resident foreign astronomers. When the Mongols brought China under their rule in the second half of the thirteenth century [the Yuan dynasty, 1279-1368], their astronomical officials were Islamic, from Persia and Central Asia (Sivin 1990: 192).

Under the Mongols a separate Institute of Muslim Astronomy was established (Allsen 2001: 168). The Italian Jesuit Matteo Ricci (1562-1610) (see Document 9, below) later made the following observations about this dual system:

The present Emperor supports two separate schools of astronomy at a very great expense . . . One of these schools follows the method of the Chinese who claim to possess the knowledge of determining the calendars and the eclipses. The other follows the Saracens [Muslims], reducing the same facts to the tables which have been introduced from abroad. The results arrived at by each school . . . are always compared so that one may be aided and corrected by the other for a final decision (Ho 1969: 153).

**1. Why did the Chinese require the assistance of foreign astronomers?**

---

---

**2. Name two societies that supplied astronomers to China.**

---

---



. . . by the middle of the fifteenth century Chinese astronomy was in dire straits. The Ming [dynasty, 1368-1644] astronomers simply routinely followed the computation tables left by the Yüan [the previous dynasty, 1279-1368] astronomers to compile the calendar. They were unable to master the complicated calculating techniques and had difficulties revising the calendar once it lost precision. The officials of the Bureau of Astronomy could neither produce a correct calendar, nor predict with high precision events as significant as solar eclipses. The problems were due in part to errors accumulated as the same calendar was recycled for two hundred years, and in part to the failure to adjust [their instruments] for the transfer of the Ming capital from Nanjing [in the south] to Beijing [in the north]. However, a large portion of the responsibility must be assigned to incompetent court astronomers (<http://www.admin.ias.edu/hssem/pingyi.html>).

### Activity: Star-gazing in Ming China

**Question:** Why would the failure to adjust instruments for the transfer of the Ming capital from a southern to a northern city be a problem for Chinese astronomers? To find out, go to eCuip, the web site of the Digital Library Project of the Chicago Public Schools/University of Chicago Internet Project:

[http://ecuiplib.lib.uchicago.edu/diglib/science/cultural\\_astronomy/interactives/polaris/polaris.swf](http://ecuiplib.lib.uchicago.edu/diglib/science/cultural_astronomy/interactives/polaris/polaris.swf)

Here, by comparing the difference between observing Polaris (the North Star) from the North Pole and from Chicago, you'll find out why latitude makes a difference when observing the stars. Pretend that the North Pole is Beijing and Chicago is the southern city of Nanjing. Answer the questions below.

**1. Look at a globe or world map. Which is farther north, the North Pole or Chicago? Beijing or Nanjing?**

---



---

**2. Study pp. 3-5 on the website. At the North Pole, where is Polaris in relation to you, the viewer?**

---



---

**3. Study pp. 6-7 on the web site. At Chicago, where is Polaris in relation to you, the viewer?**

---



---

**4. If you had instruments adjusted for Chicago (Nanjing) and moved them to the North Pole (Beijing), would you find Polaris in the same place?**

---



---



## DOCUMENT 9: THE JESUITS AND ASTRONOMY\*

---

The Jesuit missionaries in China in the early seventeenth century were there not to teach astronomical science but to convert the empire from the top down to Roman Catholicism. The only established access to the top was the Astronomical Bureau, which had provided positions to foreigners for nearly one thousand years. By 1645 the Europeans had gained operational control of the bureau after submitting to the throne a series of treatises that set in Chinese the mathematical and cosmological foundations of European astronomy and winning several dramatic eclipse prediction contests (Adapted from Sivin 1990: 192).

Matteo Ricci (1562-1610) was a Jesuit and one of the founders of the Catholic Church in China. Learning to read and write Chinese, he spent years cultivating friendships with sympathetic Chinese scholar-officials. He not only saw himself as a Catholic missionary, but as a teacher of western mathematics and science.

Although the instruments he was shown at the Imperial Observatories impressed Ricci, he expressed the following view of Chinese astronomy:

They divide the heavens into constellations in a manner somewhat different from that which we employ. Their count of the stars outnumbers the calculations of our astronomers by fully four hundred, because they include in it many of the fainter stars which are not always visible. And yet with all this, the Chinese astronomers take no pains whatever to reduce the phenomena of celestial bodies to the discipline of mathematics . . . Finally they center their whole attention on that phase of astronomy which our scientists term astrology, which may be accounted for by the fact that they believe that everything happening on this terrestrial globe of ours depends on the stars (Ho 1969: 151-152).

**1. Why did the Jesuits use their scientific knowledge in China?**

---

---

**2. What was Ricci's main criticism of Chinese astronomy?**

---

---



UNIT  
3 - K





The solar eclipse of June 21, 1629 gave rise to an occasion for the traditional Chinese method, the Muslim method and the Western method for the prediction of eclipses to be compared with one another, and here Xu Guangqi [one of China's first Catholics and an associate of Matteo Ricci] succeeded in demonstrating the superiority of the new method. It was only then that the Ming emperor decided to see if the calendar could be revised . . . (Ho 1969: 150).

The Belgian Ferdinand Verbiest (1623-1688) was another Jesuit who came to China. In 1668, at the emperor's command, he debated with a Muslim astronomer. The two each had to predict the hour of an expected lunar eclipse. Verbiest won—the eclipse came an hour later and lasted for much less time than the court astronomers had predicted. Verbiest was put in charge of the Imperial Observatory in Beijing and supervised the making of a new set of instruments.<sup>4</sup>

Although there was resistance to the Europeans, the superiority of their methods was soon recognized. Ten officials of the Bureau of Astronomy signed the following statement:

At first we also had our doubts about the astronomy from Europe when it was used in 1629 [when the Jesuits beat the court astronomers in correctly predicting a solar eclipse], but after having read many clear explanations our doubts diminished by half, and finally by participating in precise observations of the stars, and of the positions of the sun and moon, our hesitations were altogether overcome. Recently we received the imperial order to study these sciences, and every day we have been discussing them with the Europeans. Truth must be sought not only in books, but in making actual experiments with instruments . . . (Needham 1959: 456).

**1. Who were the contestants in the eclipse-prediction contest? Who won?**

---



---

**2. Give one reason why the ten Chinese astronomy officials accepted European methods.**

---



---

<sup>4</sup> For illustrations and brief explanations of these instruments, see <http://www.mhs.ox.ac.uk/tycho/catfm.htm?beijing>



---

## Unit L

# THE SILK ROADS YESTERDAY, TODAY, AND TOMORROW

---

**Essential Questions:** Can a “Silk Roads” based on oil and other natural resources be economically beneficial to China and Central Asia in the twenty-first century? How do China’s future energy needs fit into the picture of Central Asia’s development in the twenty-first century?

**Learning Experience:** Through class discussion, studying a series of tables, and reading an article, students will begin to understand the problems facing industrializing nations such as China. They will also learn the importance of global interdependence in the face of the depletion of natural resources, a major world problem.

**Anticipatory Set:** How do countries get what they don’t have? Going to war was and, unfortunately, still is an option. Through what peaceful means will China get what it needs to continue its unprecedented economic growth? What role will Central Asia play?

### *The Shanghai Skyline Symbolizes China’s Future Energy Needs Will Central Asian Oil Satisfy Them?*



(Source: Photograph courtesy of Renqiu Yu, 2002)

**Context:** As early as the second century BCE, the Silk Roads facilitated the movement of goods and ideas between East and West. Merchants took great physical and financial risks to profit from the demand for a variety of luxury goods, most notably silk. By the fifteenth and sixteenth centuries, however, political and religious instability, particularly in Persia, caused a decline in Silk Roads trade. It was never again to play a vital role in the exchange of goods and ideas between East and West.

Although the era of the Silk Roads has long since passed, events of recent years suggest that there may be some sort of “Silk Roads” revival underway. This time, however, the main commodity will be oil and other natural resources.



UNIT  
3 – L



The collapse of the Soviet Union helped Central Asia reemerge as a region with the potential of playing a more prominent role in world affairs. Uzbekistan, home to such fabled Silk Roads cities as Samarkand and Bukhara, is developing into a regional power. Kazakhstan, the largest of the “stans,” is potentially one of Central Asia’s richest nations, with huge deposits of oil, gas, and minerals (**Map B** and **Map C**).

Kazakhstan is important to world energy markets because it has significant oil and natural gas reserves. As foreign investment pours into the country’s oil and natural gas sectors, the landlocked Central Asian state is beginning to realize its enormous production potential. With sufficient export options, Kazakhstan could become one of the world’s largest oil producers and exporters in the next decade (<http://www.eia.doe.gov/emeu/international/kazak.html>).

In the future, Kazakhstan’s oil wealth may serve to promote interdependence between Central Asia and the People’s Republic of China:

China currently is the world’s third largest oil consumer, behind the United States and Japan . . . China is expected to surpass Japan as the second largest world oil consumer within the next decade . . . making it a major factor in the world oil market (<http://eia.doe.gov/emeu/international/contentsnjava.html>)

China has been an importer of oil since 1993. The need for imports will increase with time. Therefore, China

. . . has been acquiring interests in [oil] exploration and production abroad. CNPC [China National Petroleum Corporation] holds oil concessions in Kazakhstan, Venezuela, Sudan, Iraq, Iran, Peru, and Azerbaijan . . . The most significant deal thus far is CNPC’s acquisition of a 60% stake in the Kazakh firm Aktobemunaigaz, which came with a pledge to invest significantly in the company’s future development over the next twenty years. While there had been some discussion of a possible oil pipeline from Kazakhstan to China, CNPC has said that it would only be considered if reserves were sufficient and it was economical, which looks doubtful (<http://eia.doe.gov/emeu/international/contentsnjava.html>).

As petroleum becomes scarcer and more expensive in the twenty-first century, perhaps this pipeline will become a reality. In addition, perhaps the “Silk Roads” framework can be useful for analyzing important current and future regional economic trends. Some questions to consider are: Does the twenty-first century offer the possibility of a revival of the Silk Roads? If so, how might this occur? What will be the effects of this revival?

**Rationale:** Much of this unit is speculative and much is beyond the scope of a typical global history curriculum. However, this inquiry could be useful at the end of the sophomore year as a way of both reviewing key content from earlier in the global history course, and as a way of using a “case study” approach to illustrate some current global economic trends. It may also be a way of covering, via a look at economic trends in Central Asia and China, broader themes such as interdependence, use of resources, and the movement of peoples and goods. This unit also teaches students how to interpret economic tables and graphs.

**Time:** One forty-minute session.

### **Instructional Resources:**

- Handouts: “China—Economic and Energy Data,” four tables and accompanying questions; article on “China’s Mounting Influence on Central Asia: The Battle for Oil” and accompanying questions.



- List of key economic terms.

Some documents are primary sources and some are secondary materials selected from various books and articles. Primary sources are marked with an asterisk. \*

**Procedure:** Begin the class by asking students to answer the following question:

Why do you think China’s need for energy has been increasing in recent years?”

Allow students enough time to consider the question and write a response before engaging in full class discussion. Possible reasons for China’s rising energy needs—increasing population, economic growth, technological development, etc.—should then be listed on the blackboard.

- Distribute Handout 1, “China—Economic and Energy Data,” which contains four tables and accompanying questions. Have students answer the questions based on study of the tables.

Working in cooperative pairs, have students think about possible solutions to China’s energy problems. They may come up with some of the following possibilities: conservation of energy, promotion of efficient use of energy, development of alternative energy resources, increased imports of oil and natural gas. Discuss in class the positive and negative affects of these different options.

- Distribute Handout 2, “China’s Mounting Influence on Central Asia: The Battle for Oil” and accompanying questions.

**Whole Group Reflection:** How would life in the United States be different without plentiful supplies of oil? Would oil shortages impact a society like China’s in the same way?

**Instructional Modifications:** Some classes will require introduction to the economic reforms that took place in China beginning in the 1980s and to the economic terms used in the tables.

**Application:** Ask students to write a 1-2 page essay on the following situation: As an adviser to the Chinese government, you are asked to present a report on possible solutions to China’s energy problems.

***A Car-free Shopping Street in Guangzhou (Canton) in Southern China  
Building China’s Consumer-oriented Society Will Require More and More Imported Oil***



(Source: Photograph courtesy of Renqiu Yu, 2002)



**Table 1: China—Economic and Energy Data**

China's shares of world totals (in percent)				
	1971	1995	2010	2020
<b>GDP</b>	3	12	15	20
<b>Population</b>	23	21	20	19
<b>Primary Energy Demands</b> (including combustible renewables and waste)	5	11	14	16

(Source: IEA 1998)

**Table 1: Questions**

1. What percentage of the world's GDP did China have in 1995? \_\_\_\_\_
2. How is this projected to change by 2020?  
\_\_\_\_\_  
\_\_\_\_\_
3. How is China's share of "primary energy demand" projected to change by 2020?  
\_\_\_\_\_  
\_\_\_\_\_
4. The greatest change in GDP was between 1971 and 1995. What might have accounted for this change?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. What is the relation between GDP and population?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Table 2: Projections for the Chinese Energy System**

<b>Total Primary Energy Demands</b> <i>Millions of tonnes, oil-equivalent—Mtoe</i>				
	<b>1971</b>	<b>1995</b>	<b>2010</b>	<b>2020</b>
<b>Solid Fuels (basically coal)</b>	190	664	1087	1416
<b>Oil</b>	43	164	355	506
<b>Gas</b>	3	17	57	81
<b>Nuclear</b>	0	3	19	33
<b>Hydro</b>	3	16	39	62
<b>Other Renewables</b>	0	0	2	3
<b><u>Total</u></b>	239	864	1539	2101

(Source: IEA 1998)

**Table 2: Questions**

**1. How has China’s total primary energy demand been changing in recent years?**

---



---

**2. According to the chart, which type of fuel does China rely on the most?  
What are some disadvantages of this?**

---



---



---

**3. How much oil is China expected to need in 2010? 2020?**

---



---



**Table 3: Looking into the Future—The Roots of China’s Energy Concerns**

	1971	1995	2010	2020
<b>GDP</b> (in billions of U.S. dollars)	484	3404	8426	13123
<b>Population</b> (in millions)	845	1206	1372	1469
<b>GDP per capita</b> (thousands of U.S. dollars)	0.57	2.82	6.14	8.93

(Source: IEA 1998)

**Table 3: Questions**

1. How do the economic and population figures in Table 3 explain the numbers in Table 2?  
\_\_\_\_\_

**Table 4: Chinese Estimates of Future Petroleum Imports**

In millions of tonnes				
	2000	2010	2020	2050
<b>Demand</b>	200	260	320	520
<b>Domestic Supply</b>	155	165	180	80
<b>Deficit</b>	45	95	140	440
Deficit met by:				
<b>Substitution Fuels</b>	–	10	51	280
<b>Oil Imports</b>	–	–	–	–
<b>Projections 1996</b>	45	85	89	160
<b>Projections 1999</b>	35	60-75	130	–

(Source: IEA 1998)

**Table 4: Questions**

1. According to the chart, what general trend do you see?  
\_\_\_\_\_
2. What change in domestic supply does the chart predict will take place between 2020 and 2050?  
\_\_\_\_\_
3. What is China’s solution to the increase in demand for oil? What possible problems might arise from them?  
\_\_\_\_\_



### “China’s Mounting Influence on Central Asia: The Battle for Oil”

China is making inroads into Central Asia as its need for energy imports keeps climbing. Spurred by an economy that grew by nearly 10 percent in the first half of the year, China has been seeking new oil sources in the region and around the world. China’s oil imports have already soared by 34 percent this year.

China has been an oil importer since 1996, but its recent economic boom has pushed it past Japan to make it the world’s second-biggest oil consumer, behind the United States. High demand has driven the country’s state-owned oil companies into foreign markets that seemed too distant only a few years ago.

Under the Chinese government’s “go West” policy, state companies have revived projects in Kazakhstan that have languished since 1997, when China National Petroleum Corporation promised to invest \$9.5 billion in pipelines and oil fields thousands of kilometers from home.

Robert Ebel, who directs the energy and national security program at the Center for Strategic and International Studies in Washington, said the reason for China’s involvement in Central Asia is prompted both by higher demand and its need to reduce the risk of relying on the Middle East. “I think [China] sees that its requirements are going to be met in the future only through imports, and so they’re just reaching out to wherever they can—whether it’s Azerbaijan, or Syria, or Russia or Central Asia, or Venezuela—to diversify these sources of imports, not only to diversify their sources of supply but how the oil gets to China,” Ebel said.

Ebel said that Central Asia offers China land routes that reduce the vulnerability of depending solely on ocean transport. But so far, the returns from Central Asia have been small.

For now, Kazakhstan is the only Central Asian country that exports oil to China. Kazakh oil shipments to China, which are sent by rail, account for less than 1 percent of China’s imports. But that could soon change thanks to an agreement in May to build a 1,000-kilometer oil pipeline from Kazakhstan’s central Karaganda region to western China.

. . . Beijing has invested some \$1.3 billion so far. More than 6,000 Kazakh workers are employed at the site, with another 6,000 working on other Chinese-run projects in the vicinity.

Nurmukhambet Abdibekov, deputy governor of the Aqtobe region, is enthusiastic about the Chinese investment. He said it is already raising the standard of living for thousands of families.

“This project is expanding. New jobs are being created,” Abdibekov said. “We are sure that it is very positive that the local citizens have got these opportunities, that they can get these new well-paid jobs to support their families.”

. . . Veteran oil expert Otesin Zhumanov is amazed at the latest developments.

“I never thought that the Chinese would ever come here to run our business,” Zhumanov said. “I did everything to make my two sons become oil managers and oil experts. We had no idea about foreign investors then, even to forecast such developments”

(Source: Michael Lelyveld, November 20, 2004 <http://www.eurasianet.org/departments/business/articles/pp112004.shtml>)





**1. Why does China need new sources of oil?**

---

---

**2. What is China's "go West" policy?**

---

---

**3. Why is central Asian oil more reliable?**

---

---

**Key Economic Terms**

GDP (Gross Domestic Product): The total market value of all goods and services produced within the political boundaries of an economy during a given period of time, usually one year.

Per capita GDP: GDP divided by the number of people living in a country.

Nominal GDP: Measured in current dollars. An increase in nominal GDP may reflect not only increases in production of goods and services, but also increases in prices.

Real GDP: GDP adjusted for price changes. It permits comparisons of material living standards over time and between different nations.

Tonne of Oil Equivalent (TOE): A way of measuring energy in terms of the heat content of crude oil.

Import: To bring in goods or merchandise from a foreign country.

Export: To send out goods or merchandise from one country to another.

Gas: Includes natural, coke oven, and blast furnace gas as well as gas works.

Nuclear: Shows the primary heat equivalent of the electricity produced by a nuclear power plant with an average thermal efficiency of thirty-three per cent.

Hydro: Shows the energy content of the electricity produced in hydroelectric power plants. Hydro output excludes output from pumped storage plants.

Other renewables: This heading covers combustible renewables, solid biomass and animal products, gas/liquids from biomass, industrial waste, and municipal waste.

(Source: <http://www.econedlink.org>)



---

## Unit M

### TWO LEGENDARY TRAVELERS: MARCO POLO AND IBN BATTUTA

---

**Essential Questions:** What unique political circumstances made travel possible for Marco Polo and Ibn Battuta? What did a thirteenth century European and a fourteenth century North African Muslim feel was important, unusual or exotic about the Asia they traveled through?

**Learning Experience:** Students will be able to (1) understand the historical context that made the travels of Marco Polo and Ibn Battuta possible; (2) get a sense of what Asia under Mongol rule was like; (3) also look at travel in the pre-modern world through the lenses of their own travel experiences.

**Anticipatory Set:** Have you ever experienced culture shock? Compare your own travel experiences to travel in an age when most people spent their lives very near home.

**Context:** The Eurasian land travels of both Marco Polo and Ibn Battuta were made possible by the Mongol conquests of the thirteenth century. The Mongol empire divided Eurasia into an empire that included Russia, Iran, all Central Asia, China, and Korea. They encouraged trade and permitted merchants and other travelers, regardless of religion or ethnicity, to pass through their domains. Under the *Pax Mongolica*—the “Mongol Peace”—it was possible to go almost anywhere within their domains. A fourteenth century Italian merchant’s handbook says that it was “perfectly safe, whether by day or night” to travel from the Black Sea to China (Latham 1958: 15).

Marco Polo was born about 1254, the son of a Venetian merchant. In the Middle Ages, the city-state of Venice was a powerful force in the eastern Mediterranean. When the Byzantine capital of Constantinople was captured and sacked during the Fourth Crusade (1204), the doge of Venice<sup>1</sup> was one of the commanders of the occupying force.

Venice fought bitterly with its main rival, the city-state of Genoa, to control trade in the Black Sea region. In 1298, Marco Polo was captured during a sea battle between Venice and Genoa. In a Genoese prison, he dictated his *Travels* to a well-known writer, Rustichello of Pisa.

In 1265 or 1266, Marco Polo’s father and uncle visited the court of Khubilai Khan, ruler of Mongolia and north China. Khubilai was a grandson of Chinggis Khan, the man who united the Mongols and set them on the road to world empire.

Khubilai asked the brothers to return home and persuade the Pope to gather a hundred learned Christians to accompany them back to China. The Polo brothers weren’t able to do this, but they returned to China in 1275, bringing Marco with them.<sup>2</sup>

Khubilai employed the Polo family, we are told, in important government positions. This was in keeping with the Mongol practice of using foreigners rather than potentially disloyal Chinese.

Marco Polo traveled as a European Christian in a completely alien world. He was interested in “peoples, beasts, and birds; gold, silver, precious stones, and pearls; merchandise and many other things”

---

<sup>1</sup> “Doge” was the title of the ruler of the city state.

<sup>2</sup> Four years later, in 1279, Khubilai would become the emperor of all China after the defeat of the Southern Song dynasty.



(Olschki 1960: 130). He had a merchant's eye for "available sources of food and water . . . means of transport . . . the marketable products of every district . . . and the channels through which flowed the interlacing streams of export and import" (Latham 1958: 19).

The Polos returned to Venice after more than twenty years in Asia. Marco's book, called *The Travels*, enjoyed widespread popularity and early on was translated into practically every European language. More than a hundred manuscript copies of the text exist today.<sup>3</sup>

"Abu 'Abdallah ibn Battuta has been rightly celebrated as the greatest traveler of pre-modern times. He was born into a family of Muslim legal scholars in Tangier, Morocco, in 1324 . . . He studied law as a young man . . . "After twenty years of travel, in 1354 Ibn Battuta returned home. He spent the rest of his life as a provincial judge and died in 1368 or 1369. His travels covered some 73,000 miles (Dunn: 1986: 1, 3, 316, 318).

Like Marco Polo, Ibn Battuta's land travels were made possible by the Mongol conquests:

The powerful Mongol *khans* of Persia and Central Asia were converting to Islam, and the conditions of order and security that attended the *Pax Mongolica* of the later thirteenth and early fourteenth centuries gave freer play than ever to the movement of Muslims back and forth across Eurasia (Dunn 1986: 11).

Unlike Marco Polo, who entered a strange new world on leaving Venice, Ibn Battuta

. . . spent most of his traveling career within the cultural boundaries of what Muslims call *Dar al-Islam*, or Abode of Islam . . . the lands where Muslims predominated in the population, or at least where Muslim kings or princes ruled over non-Muslim majorities . . . Therefore almost everywhere Ibn Battuta went, he lived in the company of other Muslims . . . (Dunn 1986: 7).

Ibn Battuta's book, the *Rihla* (*Travels*), was written at the command of the Sultan of Morocco with the help of a young scholar named Ibn Juzayy. Although some parts of the book were invented to make it a more complete picture of the Muslim world, its accuracy and authenticity have stood the test of time. In his own day, however, many considered Ibn Battuta a liar (Dunn 1986: 3, 310, 314-316).

In addition to traveling as a religious Muslim and a legal scholar, Ibn Battuta

. . . was a member a literate, mobile, world-minded elite, an educated man . . . looking for hospitality, honors, and profitable employment in the more newly established centers of Islamic civilization in the further regions of Asia and Africa (Dunn 1986: 11-12).

**Rationale:** How much do you get to know about places by flying over them in a airliner? How does it compare with land travel by horse, camel, or on foot? Why?

**Time:** One to two class sessions.

### Instructional Resources:

- Excerpts from the travel accounts of Marco Polo and Ibn Battuta
- Exercise: "Marco Polo Meets Ibn Battuta"
- Handout for "Marco Polo Meets Ibn Battuta"
- **Map J** and **Map D**, and atlases from the school library.

<sup>3</sup> Although some have doubted whether Marco Polo actually went to China, incontrovertible evidence exists to prove this. See: <http://eprints.anu.edu.au/archive/00001944/01/Marcopolo.html>.



Some documents are primary sources and some are secondary materials selected from various books and articles. Primary sources are marked with an asterisk. \*

**Procedure:** This unit consists of two activities.

- A. Preliminary Activity In preparation for reading Marco Polo and Ibn Battuta, students should begin to think about travel by answering the following questions:
  1. List the words that come to mind when you hear the word “travel.”
  2. List the places you have physically traveled to in your life.
  3. What kind of trip (vacation, family visit, and so forth) was it?
  4. How did you make the trip?
  5. How did your background (culture, religion, language, etc.) affect your travel experience?
  6. List places you have visited in your imagination—through books, television, films, the Internet, and so forth.
  7. Have you ever experienced culture shock as a result of travel?

Allow students a few minutes to answer each question. Then ask the class to generate answers on the board for each question. Discuss commonalities and differences between the various answers.

In preparation for reading the documents in Activity 2, class discussion should then focus on how students would “translate” their travel experience for the benefit of an audience. Do you want to provide only the chronology and facts? Is embellishment acceptable? Distortions? Fabrications? Exaggerations? Bias? Can the Marco Polo and Ibn Battuta documents also be looked at in light of these concepts?

- B. Documents: Selections from Marco Polo and Ibn Battuta
  1. Preparation As homework, students will go over the itineraries of Marco Polo and Ibn Battuta and fill in **Map J** and **Map D**. They can use atlases, Internet search engines to look up place names. *The Getty Thesaurus of Geographic Names* is also available on the web [http://www.getty.edu/research/conducting\\_research/vocabularies/tgn/index.html](http://www.getty.edu/research/conducting_research/vocabularies/tgn/index.html)

In class, the teacher will guide the discussion of the itineraries with a large world map or map of Asia.

2. Reading the documents The class is divided into pairs. Students will first work separately. They will underline and try to define unfamiliar vocabulary and write out answers to the questions following each document. Each pair will compare its word lists and develop an answer that both students agree upon.
- C. Marco Polo Meets Ibn Battuta

The class is divided in half: one half plays Marco Polo, one half Ibn Battuta. As homework, each student researches his/her role. In addition to understanding the historical and geographical contexts of the two journeys, students should be aware of the different backgrounds of the two young men.



Each Marco Polo makes up six questions that he/she thinks the real Marco Polo would ask the real Ibn Battuta and vice-versa.

In class, groups of Marco Polos and Ibn Battutas are formed. These groups discuss the pool of questions and decide on six of the best.

Each Marco Polo Group then exchanges questions with an Ibn Battuta group. The groups write out answers to the questions. The answers are then discussed and evaluated by the whole class.

### Marco Polo Meets Ibn Battuta

The following websites are good resources. (Teachers can also expand this assignment by using readings from Marco Polo's *Travels* (Latham 1958) or Ross Dunn's book on Ibn Battuta (Dunn 1986.)

*Marco Polo and His Travels*

<http://www.silk-road.com/artl/marcopolo.shtml>

*In the Footsteps of Marco Polo*

[http://www.metmuseum.org/explore/Marco/get\\_1.html](http://www.metmuseum.org/explore/Marco/get_1.html)

*The Travels of Ibn Battuta—A Virtual Tour with the 14th Century Traveler*

[http://www.sfusd.k12.ca.us/schwww/sch618/lbn\\_Battuta/lbn\\_Battuta\\_Rihla.html](http://www.sfusd.k12.ca.us/schwww/sch618/lbn_Battuta/lbn_Battuta_Rihla.html)

*Articles from Saudi Aramco World on Ibn Battuta's travels*

<http://www.saudiaramcoworld.com/index/Subjects.aspx#>

**Whole Group Reflection:** What made travel easier for Marco Polo and Ibn Battuta compared with the barriers that would exist today if we tried to reproduce their journeys?

#### Instructional Modification:

- In pair sharing, if one student is better at giving responses, he or she should answer the questions.
- As a homework assignment, students can write a paragraph describing part of an actual or imaginary travel experience.
- If there are too many places in the itineraries (homework assignment), have some students do Marco Polo and some Ibn Battuta.

**Application:** Students can recreate the journeys of Marco Polo or Ibn Battuta using the itineraries (p. 222) and travel agents on the Internet. They can write brief paragraphs in imitation of their chosen author.



***A Mongolian Coin Commemorates Marco Polo's Visit  
to The Court of Khubilai Khan (Left).***



[http://www.coin-invest.li/download/pictures/marco\\_polo/index.shtml](http://www.coin-invest.li/download/pictures/marco_polo/index.shtml)



UNIT  
3 - M



## FROM MARCO POLO'S TRAVELS

### DOCUMENT 1\*

---

Observing his wisdom, the Khan sent Marco as his emissary to a country named Kara-jang [Yunnan in southwest China], which it took him a good six months to reach. The lad fulfilled his mission well and wisely . . . When Marco went on his mission . . . he paid close attention to all the things that came his way, so he might tell them to the Great Khan. On his return he presented himself before the Great Khan and first gave a full account of the business on which he had been sent . . . Then he went on to describe all the remarkable things he had seen on the way so that the Khan and all those who heard him were amazed.

You may take it for a fact that Messer Marco stayed with the Great Khan fully seventeen years. In all this time he never ceased to travel on special missions. The Great Khan, seeing that Messer Marco brought him news from every country and conducted all the business on which he was sent so successfully, used to entrust him with all the most interesting missions (Adapted from Latham 1958: 41, 42).

**1. How did Marco Polo help the Great Khan and how did the Khan reward him?**

---

**2. If you were ruler of China like the Khan, what kind of information would you tell Marco Polo to bring back from his journeys?**

---

---

### DOCUMENT 2: THE PERSIANS\*

---

Now let me tell you about an experiment that was made in a neighboring kingdom called Kerman. The people of this kingdom are good, even-tempered, and peaceful. They never miss a chance to help one another out. The king once said to the wise men of his court: "Why is it that in our neighbor Persia, people always argue and fight with one another? Yet among us everyone is friendly and never fights?" The wise men answered that it was a difference in the soil. So the king then sent to Isfahan in Persia for seven shiploads of earth. He had it spread out over the floors of some rooms in the palace. He then had the earth covered with carpets. He held a banquet in these very same rooms. It so happened that right after dinner, the guests started quarrelling and fighting with one another. So the king agreed that the cause did indeed come from the soil (Adapted from Latham 1958: 63).

**1. What did the experiment prove?**

---

**2. Does this seem like a true story? Why or why not?**

---

---



## DOCUMENT 3: KHUBILAI KHAN AND RELIGION\*

---

Khubilai . . . returned to his capital and stayed there till February and March, the season of our Easter. Learning that this was one of our most important holidays, he sent for all the Christians and had them bring with them the New Testament. After repeatedly burning incense all around it, he kissed it and desired that all his noblemen do the same. He does this on all the major holidays of the Christians, such as Easter and Christmas. He does the same thing on the important holidays of the Muslims, the Jews, and the idol worshippers.<sup>5</sup> Being asked why he did so, he replied: “There are four prophets who are worshipped with greatest respect. The Christians say that their God is Jesus Christ, the Muslims Muhammad, the Jews Moses, and the Buddhists the Buddha . . . And I worship all four, so that I may be sure of worshipping him who is greatest in heaven (Adapted from Latham 1958: 119).

**1. How did Khubilai behave on all the major holidays of the Christians, Muslims, Jews, and idol worshippers?**

---

---

**2. As ruler of a huge multi-cultural empire, what advantage would there be for Khubilai to be tolerant of all religious faiths?**

---

---

## DOCUMENT 4: COAL\*

---

Let me tell you next of stones that burn like logs. It is a fact that throughout China there is a sort of black stone, which is dug out of veins in the hillsides and burns like logs. These stones keep a fire going better than wood. I assure you that, if you put them on the fire in the evening and see that they are kept on fire, they will continue to burn all night, so that you will find them still glowing in the morning. They do not give off flames, except a little when they are first kindled, just as charcoal does, and once they have caught fire they give out great heat. But the population is so enormous and there are so many bath-houses and baths continually being heated, that the wood could not possibly be enough, since there is no one who does not go to a bath-house at least three times a week, and in winter every day, if he can manage it (Adapted from Latham 1958: 156).

**1. Where is coal found and what does it replace?**

---

---

**2. Judging from Marco Polo’s remarks, how might the bathing habits of medieval Europeans have differed from those of the Chinese?**

---

---

<sup>5</sup> This is the term Marco Polo uses for Buddhism.





## DOCUMENT 5: THE MONGOL PONY EXPRESS\*

---

You must know that the city of Khan-balik (Beijing) is a center from which many roads go out to the provinces. Every road is given the name of the province to which it runs. The whole system is excellent. When one of the Great Khan's messengers rides out along these roads, he has only to go twenty-five miles before he finds what they call "yamb," a station where men and horses can rest. At every one, messengers find comfortable places to eat and sleep.

When the Great Khan needs to receive news quickly by mounted messenger, the messengers ride two hundred miles in a day, sometimes two hundred and fifty . . . As they draw near the station, they blow a horn which can be heard at a great distance. On arriving, they find two fresh horses, ready to ride. They mount them and, without a moment's breathing-space, are off again. And so it goes on until evening. That is how these messengers manage to cover two hundred and fifty miles a day. Indeed, sometimes they can achieve three hundred miles by riding all night long (Adapted from Latham 1958: 150, 151, 154).

**1. What did Marco Polo think of Chinese roads?**

---

---

**2. What value does a pony express system like have to the ruler of a large empire?**

---

---



## FROM IBN BATTUTA'S TRAVELS

### *Ibn Battuta Traveled the Seas in Dhows Like This*



(Source: The Mariner's Museum)

### DOCUMENT 6: BAGHDAD\*

Baghdad was the capital of the Abbasid Caliphate (750-1258) and one of the focal points of what has been called the "Golden Age of Islam." Its ninth century population of between 300,000-500,000 people made it the largest city in the world outside of China.

Thence we traveled to Baghdad, the City of Peace and Capital of Islam. Here there are two bridges . . . on which the people promenade night and day, both men and women. The town has eleven cathedral mosques, eight on the right bank and three on the left, together with very many other mosques and madrasas [colleges], only the latter are all in ruins.

The baths at Baghdad are numerous and excellently constructed, most of them being painted with pitch [pitch is made from tar and used for waterproofing], which has the appearance of black marble. This pitch is brought from a spring . . . from which it flows continually. It gathers at the sides of the spring like clay and is shoveled up and brought to Baghdad. Each establishment has a large number of private bathrooms, every one of which has also a wash-basin in the corner, with two taps supplying hot and cold water. Every bather is given three towels, one to wear round his waist when he goes in, another to wear round his waist when he comes out, and the third to dry himself with. In no town other than Baghdad have I seen all this elaborate arrangement, though some other towns approach it in this respect.

The western part of Baghdad was the earliest to be built, but it is now for the most part in ruins. In spite of that there remain in it still thirteen quarters, each like a city in itself and possessing two or three baths (Adapted from Gibb 1969: 99).

**1. Choose one word that would describe Ibn Battuta's reaction to Baghdad.**

\_\_\_\_\_

**2. Does the passage infer that Ibn Battuta comes from a more or less cosmopolitan part of the Muslim world as compared to Baghdad?**

\_\_\_\_\_



UNIT  
3 – M



## DOCUMENT 7: LIFE ON THE STEPPE\*

The steppe is dry grassland that covers large parts of Siberia, Mongolia, and Central Asia. Humans who live on the steppe survive by raising herds of animals: sheep, horses, camels, and sometimes yaks. Steppe nomads migrate from place to place to find fresh pasture for their animals.

The place was in the Kipchak steppe [in Central Asia], which is green but flat and has no trees. There is no firewood so people make fires out of animal dung. You will see even the highest ranked men picking it up and carrying it with them. The only method of traveling in the steppe is by wagon.

. . . These wagons have four large wheels and are pulled by two or more horses, or by oxen or camels . . . A lightweight tent is put on the wagon. It is made of a framework of thin wooden strips covered with felt . . . One can do anything one likes inside. One can sleep, eat, read, or write as the wagon moves along (Adapted from Gibb 1969: 142, 143).

**1. How do people on the steppe make fire?**

---

---

**2. Besides travel, how do steppe people use their wagons?**

---

---

## DOCUMENT 8: WINTER IN THE STEPPE\*

. . . This was in the depths of winter and I used to wear three fur coats and two pairs of trousers, one lined, and then on my feet I had woolen boots, with a pair of linen-lined boots on top of these and a pair of horse skin boots lined with bearskin on top of these. I washed myself with hot water standing close to the fire, but every drop of water froze instantly. When I washed my face the water ran down my beard and froze. When I shook it off it fell like snow. Water dripping from my nose froze on my moustache. I couldn't get on my horse because I was wearing so many clothes. My traveling companions had to help me get into the saddle (Adapted from Gibb 1969: 165).

**1. How did Ibn Battuta manage to get through the winter?**

---

---

**2. From the tone of this passage, what kind of climate is Ibn Battuta used to?**

---

---



## DOCUMENT 9: IBN BATTUTA ON CHINA\*

"Ibn Battuta praises China . . . noting the quality of its silk and porcelain, the excellence of its plums and watermelons, the enormous size of its chickens, and the advantages of its paper money" (Dunn 1986: 258). Since the Chinese weren't Muslims, Ibn Battuta would also be shocked by such things as the Chinese love for eating pork.

China is the safest and most agreeable country in the world for the traveler. You can travel all alone across the land . . . without fear, even if you are carrying much wealth.

China was beautiful, but it did not please me. On the contrary, I was greatly troubled thinking about the way paganism dominated this country. Whenever I went out of my room, I saw many things that bothered me very much. I became so unhappy that I stayed indoors most of the time and only went out when necessary. During my stay in China, whenever I saw any Muslims I always felt like I was meeting members of my own family (Adapted from Dunn 1986: 258).

### 1. What disturbed Ibn Battuta about China?

---

---

### 2. Why was he happy when he saw Muslims?

---

---

## DOCUMENT 10: CHINESE MERCHANT SHIPS\*

Less than a century after Ibn Battuta visited China, a fleet of Chinese ships sailed as far as the east coast of Africa. The ships Ibn Battuta describes below were probably much like those—the largest of which was four hundred feet long and one hundred feet wide.

[The large Chinese ships] carry a thousand men, six hundred are sailors and four hundred are soldiers . . . It has four decks and each cabin has a number of rooms and a bathroom. The cabins can be locked by the passengers, who take along with them their wives and slave girls . . . The sailors have their children living aboard ship. They grow vegetables in wooden tanks . . . Some of the Chinese own large numbers of ships that they send to foreign countries. There are no people in the world wealthier than the Chinese (Adapted from Gibb 1969: 236).

### 1. Describe living on a large Chinese ship.

---

---

### 2. Why are the Chinese wealthier than any other people?

---

---



## Student Handout: Marco Polo Meets Ibn Battuta

<b>WHERE DID THEY GO?</b>	
<u>MARCO POLO</u>	<u>IBN BATTUTA</u>
<p>In 1265 or 1266, Marco Polo's father and uncle visited the court of Khubilai Khan, ruler of Mongolia and north China.</p> <p>Khubilai asked the brothers to return home and persuade the pope to gather a hundred learned Christians to accompany them back to China. The Polo brothers weren't able to do this, but they returned to China, bringing seventeen year-old Marco with them.</p>	<p>Ibn Battuta was twenty when he started his travels in 1325. His original reason was to make a pilgrimage to Mecca, a duty required of all Muslims.</p> <p>In the end, he traveled for almost thirty years and covered 75,000 miles. Unlike the Polos, who were visiting strange lands and peoples, the people Ibn Battuta met were mostly Muslim.</p>
<ol style="list-style-type: none"> <li>1. Marco Polo and his father and uncle leave Venice in 1271</li> <li>2. Acre ( 'Akron in modern Israel)</li> <li>3. Southern Turkey, Syria, northern Iraq</li> <li>4. Armenia (The Armenian capital was home to a colony of Italian merchants)</li> <li>5. Across eastern Iran to the port of Hormuz</li> <li>6. Across central Iran to northern Afghanistan</li> <li>7. Across northern Afghanistan</li> <li>8. To the Pamir mountains</li> <li>9. Kashgar</li> <li>10. Southern branch of the Silk Roads along the edge of the Taklamakan desert</li> <li>11. Gansu province, China</li> <li>12. Cross the great bend in the Yellow River and the Ordos Desert</li> <li>13. Shangdu—Khubilai Khan's capital, about 125 miles north of Beijing</li> <li>14. Marco Polo's first mission for Khubilai Khan takes him through central and southwest China (perhaps in 1276)</li> <li>15. Marco's book also contains accounts of his travels in eastern China—along the route of the Grand Canal and into modern Fujian province</li> <li>16. In 1292, the Polos sail from south China for home. They accompany two princesses on their way to join the harem of a West Asian Mongol ruler. They reach Venice in the winter of 1295</li> </ol> <p style="text-align: center;">(Based on Olschki 1960: 12-38)</p>	<ol style="list-style-type: none"> <li>1. Sacred pilgrimage (<i>hajj</i>) to Mecca in Arabia (1325). Also visits North Africa, Egypt, Palestine, Syria</li> <li>2. Goes to Iraq, Persia, and once more to Mecca (1326)</li> <li>3. By sea down eastern coast of Africa. Returning, visits Oman, the Persian Gulf. Mecca again via overland route through Arabia (1328 or 1330)</li> <li>4. To India looking for a job with the Sultanate of Delhi: Goes north through Egypt and Syria to Asia Minor. Crosses the Black Sea to Central Asian steppe (1330 or 1332)</li> <li>5. Detour to Constantinople</li> <li>6. Again goes east through Central Asia. Arrives at the Indus River in 1333 or 1335. Spends eight years in India as a judge</li> <li>7. Sultan appoints him to lead a diplomatic mission to the court of the Mongol emperor of China (1341). He is shipwrecked on southwestern coast of India</li> <li>8. Travels around south India, Ceylon, Maldiv Islands</li> <li>9. Decides to go to China. Visits Bengal, Coast of Burma, Sumatra. Possibly visits southern coast of China. (Even though he describes a trip to China, some doubt that Ibn Battuta ever made such a journey)</li> <li>10. Returns to Mecca via south India, Persian Gulf, Egypt (1346-1347)</li> <li>11. Arrives home in Morocco in 1349</li> <li>12. Trip across Sahara to Kingdom of Mali in West Africa in 1353</li> </ol> <p style="text-align: center;">(Based on Dunn 1986: 1, 3)</p>



### Web-Resources for Marco Polo Meets Ibn Battuta

*Marco Polo and His Travels*

<http://www.silk-road.com/artl/marcopolo.shtml>

*In the Footsteps of Marco Polo*

[http://www.metmuseum.org/explore/Marco/get\\_1.html](http://www.metmuseum.org/explore/Marco/get_1.html)

*The Travels of Ibn Battuta—A Virtual Tour with the 14th Century Traveler*

[http://www.sfusd.k12.ca.us/schwww/sch618/lbn\\_Battuta/lbn\\_Battuta\\_Rihla.html](http://www.sfusd.k12.ca.us/schwww/sch618/lbn_Battuta/lbn_Battuta_Rihla.html)

Articles from *Saudi Aramco World* on Ibn Battuta's travels

<http://www.saudiaramcoworld.com/index/Subjects.aspx#>

