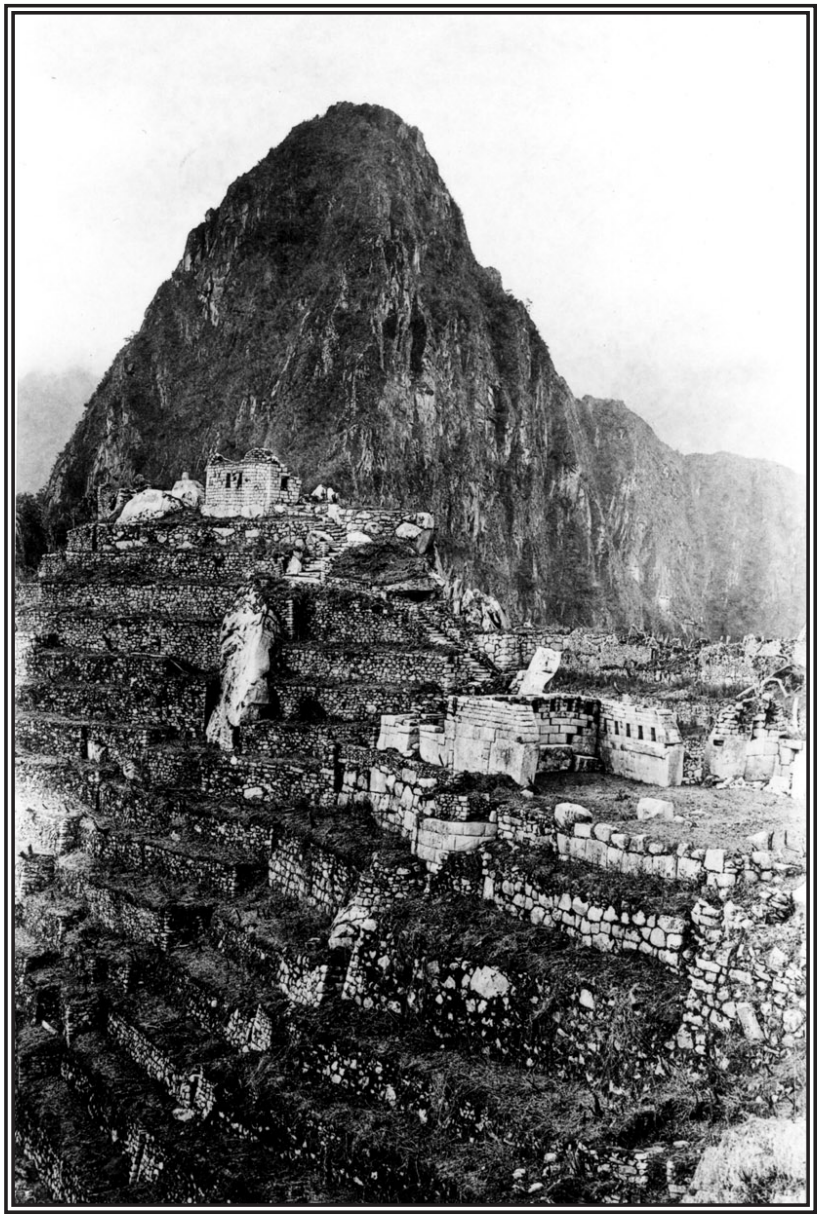
Social Studies Curriculum

Machu Picchu: Unveiling the Mystery of the Incas

January 26 to May 4, 2003

Revised



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This social studies curriculum is designed to accompany the exhibition *Machu Picchu: Unveiling the Mystery of the Incas,* on view at the Peabody Museum of Natural History, Yale University, New Haven, Connecticut, from January 26 to May 4, 2003.

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Written for the Yale Peabody Museum
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I. Summary

This curriculum is designed to be used in conjunction with the exhibition *Machu Picchu: Unveiling the Mystery of the Incas*, to be held at the Peabody Museum of Natural History at Yale University in New Haven, Connecticut, from January 26 to May 4, 2003. Teachers can make arrangements for their class to visit the exhibition by calling Janet Sweeting, Head of Public Education, at (203) 432-3775. The teacher and student guides to the exhibition can be picked up at the Museum's admissions desk.

The curriculum has been developed for social studies teachers in middle school classrooms. It is also suitable for high school world history and Spanish classes. The activities are designed to be used in tandem with the background article included in the curriculum (see Section IV, "The Inca: From Village to Empire"). Teachers are encouraged to choose the activities that are most suitable to their own curriculum and the time they have available.

The curriculum supports the Connecticut Social Studies Curriculum Framework for middle school (see Appendix C). Writing activities are designed to prepare students for the content area portion of the Connecticut Mastery Test (CMT) and the interdisciplinary writing section of the Connecticut Academic Performance Test (CAPT).

A second curriculum for middle school science teachers is under development.

II. Note to Teachers

Curriculum Design

This curriculum is designed to be used in conjunction with the exhibition *Machu Picchu: Unveiling the Mystery of the Incas.* If you cannot attend the exhibition, go to the Peabody Museum's Machu Picchu website at http://www.yale.edu/machupicchu and take a virtual tour of the exhibition to complement the curriculum.

The curriculum has been developed for social studies students in grades 6 to 9. It can be adapted for use by other grade levels. The curriculum is designed as a two-week unit, including the visit to the exhibition. Each daily lesson is intended to take one class period. All classroom activities are designed to stand alone. If you do not have time to do the entire two-week unit, choose the activities that fit in best with your curriculum and the ability levels of your students.

The curriculum is organized around information contained in the background article "The Inca: From Village to Empire" (see Section IV). The activities, including handouts, depend on information included in each day's reading assignment. It is therefore imperative that students read the material *before* doing the day's activities. The daily lesson plans are organized sequentially and are keyed to build on information contained in each day's reading. A glossary provides definitions of key words and concepts. Defined words are printed in boldfaced type the first time they appear in the background article; foreign words are italicized. A vocabulary exercise is included after each day's reading assignment. You may want to quiz students on the vocabulary to encourage them to do each day's reading ahead of class.

Using the Inquiry Approach

The curriculum uses the inquiry approach. Each day's activities begin with an overarching inquiry question. Write the question on the board and present it at the beginning of each class period. Ask students to discuss it at the end of the day's activities.

Modifying the Material to Fit Your Students' Needs

We encourage you to adapt the curriculum to your students' age and ability levels. For example, if you feel that the reading assignments are too advanced for your students, consider providing the information in lecture form. You can supply some answers on handouts where prior knowledge is assumed (for example, by giving students information on the Roman Empire if they have not studied it). You may want to consider reducing the number of foreign words included as vocabulary words.

The "Student Guide to *Machu Picchu: Unveiling the Mystery of the Incas*" is designed to focus students' attention and encourage them to study highlighted exhibition material. Ask them to fill it out during the visit and to complete it at home.

III. Objectives

Knowledge

Students will gain an in-depth knowledge of the geography of South America.

Students will learn about how mountains affect climate, plant and animal ecology and the daily life of humans living in the region.

Students will learn about the history, economy and social life of the Inca Empire.

Students will learn about the impact of the Spanish Conquest on the Andean people.

Students will learn about the archaeological site of Machu Picchu, built by the Inca.

Attitudes

Students will learn that society can be organized effectively in ways very different from our own.

Students will learn about how environment can be manipulated in different ways to support life.

Students will appreciate the accomplishments of native South American cultures before the arrival of Europeans.

Skills

Students will create a topological map to understand the impact of the Andes Mountains on the climate of South America.

Students will practice testing hypotheses to come to a conclusion based on available evidence.

Students will practice developing an analytical essay by examining how the Inca Empire was organized in the absence of writing, money and the wheel.

Students will practice writing across disciplines in preparation for the CMT and CAPT.

IV. The Inca: From Village to Empire

1. Introduction

At about the time Christopher Columbus landed on a tiny island in the Caribbean Sea, Huayna Capac, a powerful emperor and warrior, was battling to expand his empire thousands of miles to the south, in what is now Ecuador and Colombia. He and his father and grandfather had fought to create an empire that at its peak extended over a vast area along the rugged **Andes Mountains** of South America. Probably the largest nation in the world at that time, the **Inca Empire** was suddenly conquered by a small band of Spanish soldiers in 1532.

The Inca people originated in the Cuzco Valley of what is modern-day Peru in about AD 1000, and gradually conquered neighboring tribes. The empire expanded rapidly under three Inca emperors between 1438 and 1527 until at its height it stretched from what is now the border between Colombia and Ecuador to central Chile—a distance of over 3,400 miles. At its height, the Inca people, who numbered only about 100,000, ruled from 10 to 12 million people from at least 86 ethnic groups with their own languages, traditions and religious beliefs.

The empire encompassed wildly contrasting geographic regions, ranging from towering snow-capped mountains to coastal deserts to Amazonian jungles. The heart of the empire, centered around **Cuzco,** was located at such a high elevation that people unaccustomed to high altitudes suffered from altitude sickness, which includes headaches, fatigue, dizziness and upset stomach. The empire was often plagued with a variety of natural disasters, including earthquakes, volcanoes, droughts and devastating floods.

2. Inca Gold

The Spanish ***conquistadores,*** or conquerors, came to what they called the New World in search of gold. Francisco Pizarro, who first came to the Americas in 1502, had heard rumors of a land filled with gold to the south of Mexico. He and a small band of Spanish soldiers landed on the shores of what is now Ecuador in 1531. They had arrived in **Tahuantinsuyu,** the "Land of the Four Quarters," known to us as the Inca Empire.

When Pizarro and his men arrived in the Inca capital of Cuzco, they saw a splendid city with palaces, halls, and temples made of huge stones carefully fit together without **mortar.** Most incredible of all were the temples decorated with gold, silver and precious jewels. The most important temple was the **Coricancha,** or "House of the Sun," dedicated to the Inca sun god, named **Inti.** Its walls and doorways were covered with gold, both inside and out. One building within the complex contained a large statue of the sun, made of solid gold and embedded with precious stones. More fantastic still was the garden. A Spanish eyewitness, **Pedro de Cieza de León,** describes the sight as follows:

> They had also a garden, the clods of which were made of pieces of fine gold; and it was artificially sown with golden maize, the stalks, as well as the leaves and cobs, being of that metal.… [T]hey had more than twenty golden sheep [llamas] with their lambs, and the shepherds with their slings and crooks to watch them, all made of the same metal.*

Early Spanish observers described the Andean people as well fed, healthy and clean. When the Spanish arrived, the Inca emperor and his assistants supervised a highly organized government that

* Pedro de Cieza de León, *Chronicles of Peru.* Quoted in *The Incas and Their Ancestors: The Archaeology of Peru* by Michael Moseley, London: Thames and Hudson, 1992, p. 8.

Map of Tahuantinsuyu, the Inca Empire.

controlled an area of 135, 000 square miles. The Spanish must have been surprised to learn that the Inca Empire ran very efficiently without three inventions considered essential by Europeans—writing, money, and the wheel.

How was the Inca Empire able to organize such a vast area and produce enough wealth to provide basic necessities to its people and support a lavish lifestyle for the Inca nobility and priests? The answers lie in the many ways the Incas devised to take advantage of their diverse environment.

3. Extreme Environment

The Andes—the second highest mountain chain in the world—create an environment of extreme climate and weather conditions. Mountain ranges are created when continental plates slide under each other, creating pressure that lifts and squeezes the land above them, like a tablecloth being pushed up by a heavy plate. The mountain range was created over a period of millions of years, as the plate under the Pacific Ocean has been sliding eastward under the South American plate, raising the mountains and creating a deep trench off the coast. This constant grinding causes severe earthquakes. In the mountainous terrain, earthquakes can cause mud slides and avalanches. For example, in May of 1970, a devastating earthquake, followed by avalanches and mud slides, killed 70,000 people in the central Andes. The earthquake loosened a huge block of ice that caused a landslide which buried an entire town, killing 4,000 people. Periodic volcanic eruptions have also claimed the lives of thousands.

The region's climate is influenced by water and air currents that flow north from Antarctica along the Pacific coast. The ocean current, called the **Peru** or **Humboldt Current,** brings extremely cold but nutrient-filled water to the surface, supporting a rich supply of fish, birds and sea mammals. But the cold Peru Current causes clouds to release moisture before they reach land, creating one of the driest deserts in the world along the west coast of South America. The winds, cooled by the Peru Current, then warmed by the coastal plains, do not precipitate enough water to produce significant amounts of rain until they rise high into the Andes, where rain falls seasonally in the mountain valleys of the western slope. On the eastern slopes, on the other hand, equatorial winds blowing from the east over the Amazon River hit the mountains, cool, and produce large amounts of rain. The well-watered eastern slopes of the Andes support lush, tropical vegetation as they drop to the Amazonian basin.

At irregular intervals, a warm ocean current runs south along the Peruvian coast, pushing the Peruvian Current farther west. This current, called **El Niño,** causes heavy rain in the desert coastal areas and drought in the southern Andes. In 1982, the worst El Niño in 100 years produced heavy flooding in coastal cities, destroying roads and irrigation systems, while drought in the mountains killed thousands of animals.

4. The Vertical Economy

The Andes Mountains stretch from Colombia to Chile, creating three distinct geographic areas—the ***costa*** (coast), the ***sierra*** (mountains), and the ***selva*** (tropical rainforest). (See Handout 1: The Vertical Economy, page 24.) The *costa* is a narrow strip of land bordered by the Pacific Ocean to the west. One of the driest deserts in the world, it is crossed by many rivers that run down from the mountains and can be harnessed for **irrigation.** The western slope of the sierra is extremely dry. Between the two mountain slopes lies the ***altiplano,*** a dry, high-altitude plain in southern Peru and northern Bolivia. Areas at altitudes above 10,000 feet are called the **highlands.** The eastern slopes of the Andes, called the ***ceja de selva*** ("**eyebrow of the rainforest**,") enjoy warmer, humid weather. The eastern slopes of the Andes have a **montane cloud forest** environment, due to a cool, misty climate that supports thick, low vegetation. To the east lies the *selva,* the beginning of the Amazonian rainforest.

Although the rugged Andes Mountains create extreme weather conditions and make transportation difficult, they have hidden advantages that Andean people learned to exploit. The difference in altitude between the peaks and valley bottoms can be as great as 10,000 feet (almost two miles!), creating wide variations in temperature and rainfall at different altitudes. The varying **topography** of the mountains creates a variety of **ecological niches,** which are zones stacked one on top of another where different types of animals and plants can survive. So, instead of having to travel hundreds of miles to arrive in a different climate, Andean people can walk as little as 60 miles to go from a tropical forest in the lowlands to the frozen **tundra** of the highlands. An Andean family group might make its base in the temperate **quechua** zone located in the highlands, where family members would grow maize, beans, garden vegetables, **quinua** (a high protein grain), potatoes and Asian grains such as wheat and barley. Some family members descend to the *ceja de selva* on the eastern slopes of the Andes to tend fields of maize, coca, fruit, pepper, and other staples. They can descend farther onto the plains of the Amazon forest to cultivate ***manioc,*** a root crop. They also maintain herds of llama and **alpaca** in the higher pasturelands. Plants with different planting and harvesting times can be grown at different altitudes. Various plots of land farmed by one family group might be two or three days apart by foot.

This system, called a "**vertical economy**," had many advantages in the harsh Andean climate. First, it gives a community access to a wide variety of foods and other products. Second, it protects them against the impact of harsh and unpredictable weather conditions—if frost or drought destroys the crop at one elevation, the community can fall back on the harvest in another ecological niche. Andean farmers also plant several (sometimes dozens) of varieties of one crop like potatoes in a single field so that at least some plants will survive the season's unpredictable temperature and rainfall.

Andean people developed a technique for food storage that actually turned their harsh environment into an asset. Living at altitudes of about two miles above sea level, they had as many as 300 nights of frost and heat from strong sunlight during the day. They used this combination of hot and cold to "freeze dry" meat and potatoes that were left outside to alternately freeze and dry over a long period of time. The Incas called the dried meat ***charqui.*** It lent its name to the dried meat we call beef jerky. Andean people also made ***chuño*** by softening potatoes in water and leaving them outside to freeze at night. During the day they dried in the hot sun. The freeze-dried foods could be stored in warehouses for several years and used during periods of drought or other natural disasters. The ability to store food was crucial, since frequent frosts, hail and drought often led to crop failures in two or three years out of four.

5. From Hunter to Farmer

People living in this land of extremes have devised different ways of using the region's resources. Scientists now believe that the first people proba-

"Genetically Engineering" the Potato

The potato shows the most biodiversity, or genetic variation, of any food crop. Thousands of varieties vary by size and shape, as well as by their ability to resist frost, pests, disease and drought. Some types mature in a short time, a crucial factor at high elevations, where the growing season is short. Potatoes come in a variety of colors, from the familiar white and yellow to purple, red, orange or brown. Some potato varieties are carnivorous, meaning that they devour their prey. They produce a sticky substance that traps insects, which are gradually absorbed by the plant as the insects decompose. Another repels insects by giving off an unpleasant odor. While there are more than 200 wild potato species, all edible potatoes belong to a single species, called *Solanum tuberosum.*

The potato was probably domesticated between 7,000 and 10,000 years ago in the Andes region, possibly in the Lake Titicaca area. The Andean people selected potatoes with desirable characteristics and cross-bred them over time to develop new varieties that thrived in a variety of conditions. They developed different potato varieties that could tolerate the semi-arid conditions of coastal valleys. Some flourished in subtropical forests, and still others thrived in cooler plateaus. Others could survived in high, cold mountains with thin atmosphere. Andean people developed potatoes that can survive in altitudes of up to 14,750 feet. These bitter potatoes are processed to remove bitterness by being freeze-dried into *chuño.*

The potato—either fresh or freeze dried—is often depicted on pottery produced by pre-Inca and Inca artists. The Aymara people, who lived around Lake Titicaca, described units of time in terms of how long it takes to cook a potato! So,

Continued

bly arrived in South America from the north between 12,000 and 15,000 years ago. For thousands of years, people hunted game and gathered wild foods. Between about 8000 and 3000 BC, some groups gradually began to supplement their diets by planting some crops. Over time farmers developed many new plant varieties by selecting wild plants with desired traits, planting and cultivating them, and using some of the seeds the following year. This process was repeated over a period of several hundred years until a new plant variety was created. Highland people developed a variety of grains and **tubers,** such as the potato, that could survive in the dry, high altitude climate. Other plants, such as peanuts, beans, squash, sweet potatoes and *manioc,* were cultivated along the coast and in lower altitude mountain regions and in the tropical rainforest.

The first villages appeared on the seacoast between 5700 and 3000 BC. The people obtained almost all of their protein from the fish and shellfish they caught in the sea. In about 4000 BC, maize, or corn, was introduced to Peru from Mexico, but it remained a minor part of the diet for many millennia. Eventually, corn came to play a very important role in Andean culture, both as a food and as the base of ***chicha,*** a beer used in religious rituals. People of the Andes also grew the coca plant. They chewed its leaves and made coca tea to deaden hunger pangs, relieve the effects of altitude sickness and provide necessary vitamins and minerals. The plant was so important to the Andean people that it was used in religious rituals and sacrificed to the gods. Coca was originally used in Coca Cola. Today, coca plants are still grown legally in the Andes region for chewing and herbal tea. Coca is also grown to make cocaine, an illegal narcotic drug that causes serious problems throughout the world. By 2500 BC, Andean people had fully domesticated the llama and alpaca, two animals related to the camel, which were used for wool, fuel, meat and transport.

Beginning in about 2500 BC, coastal and highland people developed irrigation systems to increase agricultural yields. People living in the coastal desert regions built elaborate irrigation systems to harness the many rivers that flowed from the mountains to the sea. Between about 1800 and 800 BC, the people of the highlands began building **terraces** to create flat areas for fields and to prevent rainfall runoff and soil erosion. Also during this period, craftsmen began working with gold and copper, and people began using looms to weave cloth from llama and alpaca wool. Andean people started making **ceramics,** or pottery, in about 1800 BC, about 2,000 years after it appeared in Ecuador and Colombia.

6. Who Were the Inca?

Before the Inca Empire united the central Andes region, the area was divided into a multitude of political and language groups, which were often limited to a single river valley. Scientists working in Peru have determined that the Incas originated in the Cuzco Valley sometime around AD 1000. Because they had no written language, the Inca left no written record of their history. They transmitted their history orally, and it is difficult for historians to determine how much of their stories are legend

"Genetically Engineering" the Potato

Continued

instead of saying "See you in an hour," they would say "See you in three cooked potatoes."

The Inca built special storage bins for potatoes in naturally cool areas. They devised methods to control temperature and moisture and diffuse light to reduce spoilage. Potatoes could be stored in these buildings for up to six years.

The Spanish colonialists returned to Europe with a variety of plants that had been developed in central and South America, including the potato, corn, tomatoes, peppers, and a wide variety of beans. The potato had the largest impact on the European diet, growing well in the cold climates of northern France, Germany, England and Ireland. The Irish became dependent on only a few varieties of the potato for a large portion of their diet, and when potato blight, a disease that made the harvested potato rot, spread throughout Ireland in the nineteenth century, millions of Irish people died. Many millions more emigrated to the United States and Canada. Scientists eventually developed a potato variety that could resist potato blight by returning to the Americas, where they found wild potatoes containing a gene that was blight resistant.

The Inca were growing 3,000 different varieties of potatoes when the Spanish arrived. Today in the United States, only 250 types are grown, and three-quarters of the entire American potato harvest includes only twenty varieties of the potato.

Andean farmers continue to develop their own indigenous varieties of potatoes. Their traditional agricultural methods allow wild potato species to grow alongside domesticated varieties, resulting in new and possibly useful gene combinations.

and how much is based on actual events. Some versions of Inca **oral history** list the names of 13 Inca emperors, but the first six were probably mythical.

Between AD 1200 and 1438, the Incas gradually became the dominant group in the Cuzco area. **Wiracocha** Inca started to expand Inca territory in the Cuzco region by force. In 1438, a neighboring tribe, the Chancas, attacked the Incas. Wiracocha and his son, Inca Urcon, fled the invaders. But another son, Inca **Yupanqui,** rallied some of the Inca soldiers and appealed to surrounding tribes to defend Cuzco. When only a few soldiers responded to his call to arms, he asked the earth for help, and cried out that even the stones scattered around the city were turning into warriors to help his cause. After the Incas captured the Chanca stone idol, many wavering warriors joined Yupanqui's army, and he defeated the Chanca. When Wiracocha named Urcon as emperor, the Inca nobles rebelled, forcing Wiracocha to give up his throne. Prince Yupanqui became emperor, or **Sapa Inca,** and changed his name to **Pachacuti**—which means "earthquake" or "he who transforms" in **Quechua.**

Pachacuti lived up to his new name by leveling Cuzco and rebuilding it as an imperial capital. He reorganized the Inca religion, making Inti, the Sun God, the most important Inca god, and establishing the worship of Wiracocha, the Creator god. He built the Coricancha, the temple dedicated to Inti that awed the Spanish *conquistadores.*

Pachacuti conquered the densely populated region around Lake Titicaca. His son extended Inca control as far north as Quito, Ecuador, and took over the coastal and highland regions of Peru. In 1471, the son became emperor, taking the name Topa Inca, and continued to extend the empire south into central Chile. He conquered large areas of what is now Bolivia, and parts of present-day Argentina. **Huayna Capac,** Topa Inca's son, became emperor in 1493. He extended the empire's borders to southern Colombia and added some jungle area in eastern Peru. By 1527, the empire extended 3,416 miles along the Andes.

After governing for almost 35 years, Huayna Capac died suddenly. Historians think he died of **smallpox,** which was introduced by the Spaniards to the New World and spread like wildfire among Native Americans, who lacked **immunity** to European diseases. In fact, European diseases spread so quickly among Native Americans that they traveled throughout the New World even faster than the Europeans did. Huayna Capac died without naming an heir. Two of his sons, Huascar and Atahualpa, fought each other for the throne in a civil war that lasted five years. The Spanish arrived on the coast at just about the time that Atahualpa's forces defeated Huascar.

7. The Spanish Conquest

A small Spanish force, led by **Francisco Pizarro,** quickly conquered the Inca Empire through a combination of superior weapons, trickery and luck. The empire had already been weakened by the introduction of European diseases, especially smallpox, and the five-year civil war. Pizarro landed on the coast in 1531 with a force of just 260 men. They traveled to **Cajamarca,** where Atahualpa was encamped with an army of thousands of soldiers on his way to Cuzco to be invested as the new emperor. The Spaniards hid men, horses and guns in the large halls surrounding the town's central **plaza.** Atahualpa entered the plaza unarmed, along with several thousand guards. The Spaniards charged on horseback and fired their canons into the crowded square. As many as 7,000 Incas were killed, and the emperor captured. Not one Spaniard lost his life. The Spanish demanded that Inca officials hand over a huge **ransom** in gold and silver in order to free the emperor. Inca officials brought rooms full of gold and silver objects over several months—an estimated $50 million in today's dollars. But even this did not save the Inca emperor, who was executed on Pizarro's order eight months after he was captured. The Spaniards named Thupa Wallpa, a younger brother of Huascar, as a **puppet** ruler.

While the supporters of Atahualpa mourned his death, allies of Huascar cheered his execution. Some ethnic groups who resented Inca rule sided with the Spanish. Fighting continued for several months, but the Spanish and their native allies soon managed to defeat Inca forces in Peru and triumphantly entered Cuzco, exactly one year after confronting Atahualpa at Cajamarca. Manco Inca was installed as Sapa Inca and at first cooperated with the Spanish conquerors. But in 1536 he led a massive attack involving between 200,000 and 400,000 troops on Cuzco, where a force of only a few hundred Spaniards withstood the Inca assault for months. After failing to run the Spaniards out of Inca territory, Manco Inca retreated to the isolated Vilcabamba region in the lower reaches of the Urubamba River Valley, about 125 miles from Cuzco, where he maintained an independent Inca state for 36 more years. Spanish forces captured and executed Thupa Amaru, the last Inca leader, in 1572.

8. Administering a Vast Empire

An empire is a government that controls a huge territory and millions of people. It usually encompasses many different ethnic groups. Empires usually gain control over other areas by military force, but control can also be economic or political. The leaders of empires need to develop certain mechanisms to exert control over their vast territory, such as a road system, a common language, an administrative system and an army.

One reason the Inca Empire ran smoothly is that the Inca rulers took traditions that already existed in the Andes region and altered them to serve in the administration of the Inca state. For example, a road system had already been built by previous civilizations in various parts of the Inca Empire. The Inca emperors expanded it so that it connected the entire empire. Inca emperors also used the traditional ***mita* system** of sharing labor as the basis for obtaining labor services from all households. (See Section F, "The *Mita* System," page 16.)

A. The ayllu

The basic unit of society in the Andean highlands was the *ayllu,* a group of related families who traced their origins back to a common ancestor and were responsible for honoring him by providing ritual offerings. People were expected to marry someone from their own *ayllu.*

Ayllu members shared land and exchanged labor throughout the agricultural year. For example, members of an *ayllu* would work together to plow and plant fields, take care of llama herds, build a house, and maintain irrigation canals. *Ayllu* members helped each other—if one member of an *ayllu* was called to serve in the army for several months, other members would perform his work. Strict accounting was involved—if someone performed a job for another *ayllu* member, he or she would expect an equal amount of labor in return. Payment could be the same service—for example, plowing five rows in a field—or giving a textile that took the same number of hours to make. Food was also used to repay someone for work performed.

Inca administrators used the *ayllu* as the basic unit for determining the amount of goods and *mita* labor owed. *Ayllus* were grouped into admin-

Inca Emperors

Wiracocha Inca: He began expanding Inca control in the Cuzco area, but fled when the Chanca, a neighboring tribe, attacked in 1438.

Pachacuti Inca (Yupanqui): (Ruled AD 1438 to 1471) He repelled the Chanca attack and became emperor. He reorganized the Inca government and religion and expanded the empire.

Topa Inca: (Ruled AD 1471 to 1493) He expanded Inca territory in Ecuador, Bolivia, central Chile and parts of Argentina.

Huayna Capac: (AD 1493 to 1527) He expanded the empire to its largest extent. After governing for 35 years, he died suddenly of smallpox.

Atahualpa: In 1532, he defeated his brother Huascar in a five-year civil war that weakened the Inca Empire. He was captured by the Spanish and executed in 1533.

Thupa Wallpa: A puppet emperor appointed by the Spanish.

Manco Inca: Installed by the Spanish as a puppet ruler, Manco Inca fought the Spanish until his forces were defeated in 1537. He escaped into the Amazonian rainforest where he maintained a small Inca state in Vilcabamba for 36 years.

Thupa Amaru: The last Inca leader, he was executed by the Spanish in 1572.

istrative units of 10,000 households and were further subdivided into units of 5,000, 1,000, 500 and 100 households.

B. Inca hierarchy

The Inca Empire was organized in a strict **hierarchy** starting with the emperor and reaching all the way down to individual households. The Sapa Inca, or Ultimate Inca, had complete power. He was considered a descendant of the sun god. The empire was divided into four quarters, and a close relative of the emperor was lord (***apu***) of each quarter. The four *apus* made up the Supreme Council, which advised the Sapa Inca on important matters. Royal governors, usually but not always Incas, headed each of the **provinces,** which often encompassed a single ethnic group. The empire contained over 80 provinces at its peak.

Each province had a hierarchy of ***curacas*** who were responsible for between 100 and 10,000 households. The *curacas* appointed foremen, who were in charge of between 10 and 50 taxpaying households. The *curacas* carried out many tasks vital to the running of the empire. They determined how much land a household needed each year to support itself, based on the number of people in the family and how much the family owed in *mita* labor and agricultural products. The *curacas* were responsible for collecting what was owed and seeing that it was stored properly. *Curacas* were in charge of managing the *ayllu*'s resources, resolving quarrels, and maintaining the community's well being. If a disaster occurred, the *curaca* was held responsible. One *curaca* was put to death when a devastating El Niño destroyed his *ayllu*'s territory. *Curacas* were expected to be generous and provide *ayllu* members with food and *chicha* during festivals. *Curacas* appointed by the Inca were often former leaders of conquered groups. The position became hereditary, so that sons of *curacas* were sent to Cuzco to be trained, returned to the home province and became *curacas.* Usually *curacas* were men, but women could also perform the role.

C. Connecting an empire

The Inca rulers realized that to govern a huge empire, they needed a common language, so they made their tongue, Quechua, the official language of the empire. But local groups could still use their own language for daily activities.

The Inca rulers needed a system of communicating with all parts of the empire. So they expanded the existing roads into an elaborate system that ran throughout the empire. The road system was over 25,000 miles long. One road ran along the coast, and another lay inland along the Andes Mountains. Bridges crossed broad rivers as well as rushing streams that cut through deep mountain valleys. Shorter roads linked the two main roads.

The road system was used almost entirely by people on official business—the Inca emperor and his court examining the realm, caravans of llama herders transporting goods to be housed in storehouses, soldiers marching to put down an uprising in a rebellious province, administra-

The Llama

The llama and its relatives, the alpaca, **vicuña** and **guanaco,** have long been important to the Andean people. Related to the camel, llamas and alpacas were domesticated very early in the Andes—by about 2500 BC. Andean people still depend on llamas and alpacas for many things—they provide wool for blankets and clothing, fuel and fertilizer, and meat. The llama is also invaluable for carrying heavy loads up and down steep mountain paths, although they are not strong enough to carry a person or pull a wagon. European animals that provide meat and milk, such as the cow, pig, goat and chicken, were not found in South American until the Spanish introduced them. Similarly, pack animals, including the horse, ox and mule, and wool-bearing sheep were not available prior to the Spanish Conquest. The only sources of animal protein other than the llama were the guinea pig, domesticated duck, and wild game such as deer and birds.

Llamas are **docile,** and one herder can control about 20 animals. They are more sure-footed than horses or mules. Alpacas are raised for their wool, which is very fine. The wool of vicuñas, which live in the wild, is even finer, and during the Inca Empire only Inca royalty could wear clothing made of vicuña. All four types of animals produce lightweight wool that is very warm—ideal for the cold Andean climate.

Continued

tors on official business, and runners delivering messages. Ordinary people could use the roads only if granted official permission.

Runners, called ***chasquis,*** lived in small huts that were built every four to six miles along the road. The messengers would run to the next way station, shouting the message to the next *chasqui.* Messages could travel about 150 miles a day in this manner. The messengers probably carried *quipus* to assure that their messages did not get distorted by frequent repetition. *Chasquis* also carried goods to the emperor, bringing fish from the coast to Cuzco in just two days.

Inca armies used the roads in time of war to move quickly into battle. Storehouses built along the way held weapons and supplies, including lances and darts, dried food, blankets and even sandals for soldiers to use in time of war. If crops failed in one area, food was distributed to area residents from the warehouses. The local community was expected to refill the storage houses when crops were plentiful.

D. Land ownership

Our government is financed by taxes that all working people pay. But the Inca Empire did not use money. How was their complex government supported?

The Inca emperor owned all land in the empire. Agricultural land in each community was divided into three parts. Local farmers worked all the land, but they were allowed to keep only the products from one portion of the fields. The other two portions of the agricultural yield went to support Inca religious leaders and the Inca government. Herds of llamas and alpacas were divided up in a similar manner—one part of the wool went to the emperor, one part to the priests, and the local community was entitled to keep only the wool from the community herds. The exact proportion each group received depended upon local needs.

E. Irrigation and terracing

The land along the Pacific coast and in the highlands is dry and requires irrigation to produce reliable crop yields. People living in the **arid** deserts along the coast had built elaborate irrigation systems to harness the many rivers that flowed from the mountains to the ocean. The Incas expanded this system to make it more productive.

In the highlands, farmers had long built terraces to create more surface area for farming. Terracing involves building large retaining walls on a mountain slope and filling in the space between the wall and the slope above with soil. Terracing prevents soil erosion and rainfall runoff. Channels divert spring water and streams to water the tiny fields. Farmers had been terracing the slopes of the Andes for centuries, and the Incas greatly expanded the amount of agricultural land by building terraces in conquered lands throughout the Andes. At the height of the Inca empire, about 2.47 million acres of irrigated terraces were in cultivation. Andean farmers still use some of these terraces today, but many have fallen into ruin.

Building terraces, irrigation systems and roads requires a high level of or-

The Llama *Continued*

Llamas were often sacrificed in religious ceremonies, by cutting their hearts out with a special knife. The meat was distributed and eaten raw, or burned at sacred sites. Craftsmen made small llama figurines of gold, silver, seashells and stones. These figures, called ***conopas,*** were kept in Inca homes or near llama corrals and brought out during sacred festivals. They were sometimes burned and buried along with special foodstuffs and coca in religious ceremonies.

Llamas and alpacas are still vital to the Andean economy. Highland people still make their wool into clothing and eat the meat of llamas that die of natural causes. In some areas, animals are still slaughtered for feasts and rituals. Children living in families who herd llamas are given a pet llama when they are six so they can learn to take care of it. Older children and young adults are responsible for watching over the herd. Alpaca wool is sold to traders for cash and exported throughout the world.

Some Andean villages still celebrate festivals to protect their llama and alpaca herds and ensure their fertility. The Qero people, who live in an isolated area about 100 miles east of Cuzco, hold a festival at Easter to bless the finest textiles produced in the village in the previous year. In the maize and llama ceremony, held at the time of the maize harvest, llamas are decorated with yarn and forced to drink *chicha.*

ganization and the labor of many workers. Where did Inca administrators find workers to carry out these major engineering projects?

F. The mita *system*

As we have seen, the Incas did not have money, and so the government could not collect taxes as we know them. Instead, Inca administrators required adult men to work for the state for a certain number of days per year. This system is called the *mita* system. As soon as a man married, he became the head of a household and was obligated to perform *mita* work. Each person was assigned a specific job according to his skills. For example, a skilled weaver would be assigned to make cloth, and a fast runner would be assigned to be a *chasqui* runner. The foot soldiers in the Inca army were farmers who were serving their *mita* labor obligation. Pachacuti rebuilt Cuzco by calling 30,000 men to contribute *mita* labor. Both women and men were required to weave a certain amount of cloth for the state each year. Other activities carried out with *mita* labor included farming, mining, road and bridge building, building temples and other public monuments, transportation of goods, building canals, terraces and irrigation systems, and making pottery and metalwork. Some ethnic groups were considered to be especially skilled at certain tasks and these were therefore assigned to them. For example, one group was thought to be especially good at carrying litters (a sort of platform on railings used to carry important people). Others were gifted stonemasons, dancers or warriors. Some groups were considered "good for nothing," but they were assigned *mita* work anyway. One group was required to gather reeds, and another to turn in a basket of live lice every four months!

Although every man was expected to contribute work each year for the empire, only a few men in a village would be called to work at one time so that other family members could take over their work at home. The length of time a person was expected to do *mita* work varied according to the task assigned, but usually lasted no more than two to three months per year. The person assigned a specific task could get family members to help him in order to make the length of *mita* service shorter, so it was beneficial to have a large family. Although *mita* work was required, and probably resented by non-Inca ethnic groups who became incorporated into the empire, it was really an extension of the Andean custom of each individual working for the group. Now each head of household was performing labor for a certain period of time for the Inca state.

Workers and their families received something in return for the labor they contributed to the state. Both *curacas* and the Inca emperor hosted festivals periodically, in which they gave food and drink to everyone in the community. These festivals were rewards after workers had completed plowing, planting, harvest and canal cleaning chores. The emperor also gave textiles and metal objects as an expression of generosity and to symbolize his gratitude for *mita* labor. For example, soldiers received blankets.

The Inca Empire also employed fulltime skilled craftsmen to produce luxury textiles, elegant pottery and exquisite objects of gold and silver. The emperor gave these luxury goods to leaders of conquered people, to members of the Inca nobility and to Inca religious leaders. They were also placed in the graves of important people.

G. Quipu

The Inca ruler and his administrators needed detailed information on what was happening in all parts of the empire. They needed to know how many people lived in each province, how much each province was producing, and how much it owed the government in agricultural products and *mita* labor. How did Inca **bureaucrats** keep records of all this important information if they did not have writing?

The Inca used an ingenious tool that had been developed by an earlier civilization in the region for keeping track of all kinds of information. The object, called a ***quipu,*** is simply a long string held

horizontally with shorter strings of many colors tied to it. (See drawing). Each of these threads can have other threads tied to it. The threads have different types of knots to represent the numbers 0 to 9. For example, a knot representing the number 6 tied at four inches on a 10-inch string could represent 6,000 (its position at four inches from the main string would be read as the thousandths column). *Quipus* could not be used to add, subtract or multiply. Specially trained administrators called ***quipucamayocs*** learned to "read" the *quipus.* They used stones and counting trays similar to the **abacus** for doing calculations, and then transferred the information back to the *quipu.*

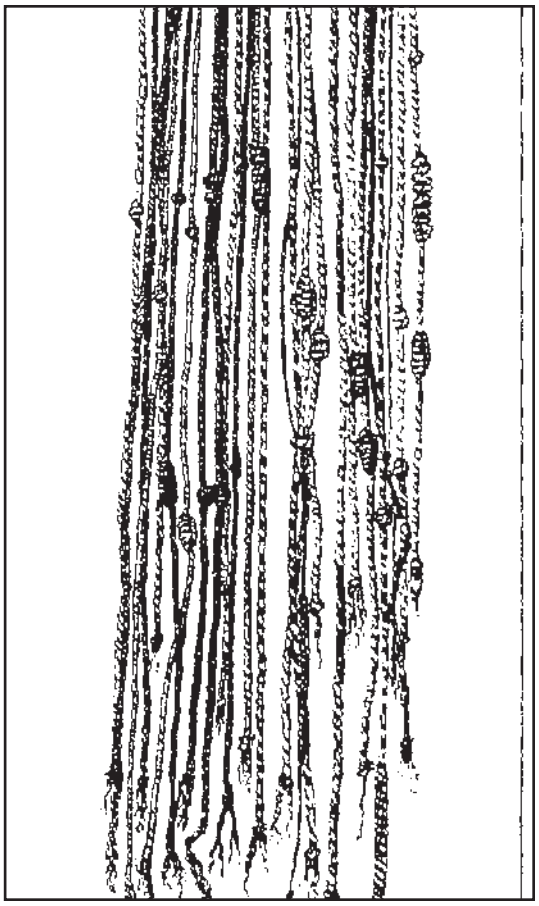
The *quipu* was used to record all kinds of information, from the number of births and deaths in a province, the number of llamas or alpacas in a village herd, the amount of corn stored in a storehouse, the amount of gold produced in a province, or the amount of *mita* textiles a community owed. Colored strings represented different things—for example, a yellow string might represent gold, and a white string silver. The *quipu* was also used to record historical events and legends and could be used to represent ideas. For example, white might represent peace and red, war. The *quipu* was lightweight and compact, and could easily be carried by *chasqui* runners.

Reading a *quipu* was difficult. *Quipucamayocs* spent many years learning to read and interpret the *quipu.* They worked in every provincial capital collecting and recording important information about the province. They would send regular reports back to the emperor in Cuzco. He and his advisors then decided how much the province owed in agricultural products and *mita* service. Being a *quipucamayoc* was often hereditary, with *quipu* readers passing their skills down to their sons. Sons of Inca nobility and provincial rulers learned to read the *quipu* at a school in Cuzco.

This complex system for collecting information collapsed after the Spanish Conquest. When the Spaniards saw the Incas using the *quipu,* they had little understanding of its meaning. They often destroyed them, thinking they were ungodly. All we know about what information *quipus* contained is from early trials, in which *quipucamayocs* interpreted *quipus* and Spanish court officials copied down what the *quipucamayoc* said. (See *mita* handout, From Tribute to Taxes, page 31.) But these *quipus* were not preserved. So the secret of deciphering the *quipu* died with the last *quipucamayoc.* Although scholars have studied the *quipu* extensively, no one can decipher a *quipu* with certainty today. Some Andean herders still use a simplified version of the *quipu* to keep track of their llama herds. It is less complex than the *quipus* used during Inca times, with fewer cords, types of knots, and colors.

H. Inca religion

Perhaps because they lived in a harsh and unpredictable environment, the Inca practiced religious rituals designed to win the favor of the gods, who were often associated with natural forces such as the sun, water, or weather. The Inca people gave precious things to the gods to earn their favor.



A *quipu.*

From *The Inca Empire,* by Dennis Nishi (San Diego: Lucent Books, 2000), page 34. Used with permission.

The Inca religion grew out of the beliefs of Andean people regarding natural forces. Andean people have long worshipped the natural world around them, including mountains, rivers, lakes, the ocean, and constellations. They identify natural features such as especially high mountains, springs and large stones as sacred places, called ***huacas.***

The Inca worshipped the sun as the ultimate giver of life and celebrate festivals to assure that the sun will continue to appear each day. They used felines and snakes as symbols in their religious art.

Pachacuti reorganized the Inca religion. He created a special relationship between himself and the sun, proclaiming that the Inca emperor was the sun's son. Pachacuti built the elaborate temple to the sun in Cuzco that awed the Spanish. **Wiracocha** was the god of creation who was believed to have created all things, including the sun, moon and stars, as well as the earth and human beings. The Inca people believed that Illapa, the thunder or weather god, controlled rain. He was asked to provide enough rainfall at critical points during the agricultural cycle. Mama-Quilla, the moon god, was the wife of the sun. The festival of the moon was held near the spring equinox, at the beginning of the planting season. Pachamama, the god of the earth, and Mama-Cocha, the god of the sea, were also female gods. Many other local **deities** existed to protect herds of llamas, wild animals and crops.

Andean people also considered the bodies of dead people to be sacred. The bodies of Inca emperors were mummified after death. The **mummies** were brought out for display during festivals and given things to eat and drink. Founding ancestors of *ayllus* were also mummified. *Ayllu* members honored them by displaying them during festivals and providing them with ritual offerings, including food and *chicha.*

A large group of male and female priests worshipped the many gods and maintained their shrines. The highest priest, usually the brother or uncle of the emperor, worshipped the sun. A group of women called ***aqllakuna*** made textiles and *chicha* for the temples. The priests and attendants of Inca gods were supported by the agricultural goods produced by the portion of the land under Inca control.

Major festivals took place in December at the beginning of the rainy season, and included dancing, drinking and sacrifice. Another important festival occurred in May to celebrate the corn harvest. Many llamas were sacrificed, and the meat was either eaten or burned. In June, a festival to the sun god Inti took place near Cuzco. Only royal Inca men could participate. The festival included llama sacrifices, dancing, and drinking *chicha.*

Inca beliefs required people to observe many rituals tied to the agricultural calendar. These rituals involved the sacrifice of precious objects, including textiles, *coca, chicha,* and llamas. Children were sacrificed only on rare occasions after natural disasters, war, or during the crowning of a new emperor.

9. Learning About the Inca

Because the Incas had no written language, scholars studying them have had to rely on other sources of information. These include:

—reports made by Spanish observers who conquered the Incas;
—archaeological remains left by the Inca people, such as buildings, pottery, textiles, tools, metal objects and burial sites; and
—studies of people living today in the Andes who still practice some Inca traditions.

Each source of information has **biases** or other limitations. Biases arise from the observer's opinions or points of view. The Spanish officials, soldiers and priests were biased in their reporting of Inca life, because they wanted to justify their conquest of the Inca. Most portrayed Andean reli-

gion unfavorably and some exaggerated the scope of human sacrifice. Early Spanish observers often misunderstood Andean culture and language. For example, they called the Inca's language Quechua, which was the Inca word for "highland valley." The Incas called their language ***runasimi,*** or "human speech."

After the Spanish Conquest, some people with Inca heritage learned to write Spanish, and several wrote accounts of life during Inca times. But these accounts were also biased in that they may have portrayed Inca rulers as more just and powerful than they actually were. These individuals also tried to use these accounts to increase their personal status. They were also Catholic, so they were often critical of the Inca religion.

Archaeologists have studied the physical remains of the Inca culture extensively. They have reconstructed the elaborate road system, examined gravesites to learn about burial customs and religious beliefs, and studied Inca crafts such as pottery, metal objects and textiles. They have also excavated Inca cities to learn about how people lived. This source of information, while valuable, is incomplete. The Spanish destroyed much of the Inca's treasure when they conquered the Inca Empire. For example, they melted down practically all of the precious gold and silver objects made by Inca craftsmen and sent it back to Spain. Over the centuries, people have looted the graves of Inca and other Andean people, leaving little behind for archaeologists to examine. As we have seen, some artifacts, like the *quipu,* are indecipherable, since the ability to read the *quipu* died with the last *quipucamayoc.* Many important objects, such as textiles and things made of wood, rot in humid climates. In addition, many aspects of Inca life left no physical record. Religious beliefs and legends, while very important to Inca culture, cannot be learned about solely from the physical objects that have survived until today.

10. Modern-day Andean People

Today, millions of people still live in the Andean highlands. They use some of the crops and subsistence practices developed in Inca times. Using terraces built by the Inca, they grow potatoes, herd llamas and alpacas, and weave beautiful textiles. Some continue Inca traditions such as drinking *chicha* and eating *cuyes* (guinea pigs) during religious festivals. Seven million also continue to speak Quechua, the language of the Inca state.

Social scientists called **anthropologists** study these people to learn about cultural traditions that may go back to Inca times. But many traditions have been modified by contact with Spanish culture as well as modern influences. For example, an Indian group called the **Qero** still produces beautiful textiles. They hold a religious ceremony at Easter that involves blessing the finest textiles produced during the year. The festival begins with people parading two crosses under an arch hung with textiles and continues with a ceremony where participants drink *chicha.* In another festival, known as **Qoylluri Riti,** Quechua-speaking farmers make a pilgrimage to a snow-capped peak. The shrine near the summit, however, is dedicated to the Virgin Mary, thus combining Catholicism with earlier traditions of mountain worship. These festivals illustrate how Inca customs and Spanish traditions are often blended into a new ritual. Anthropologists have to determine how these practices, and their meanings, have changed over time.

Today, the people who live in the Andes Mountains have a culture that is a mixture of Inca, colonial Spanish and more modern influences. Isolated by imposing mountains, some villages have preserved their culture more than many other native groups in the Americas.

But many highland traditions are disappearing. Many highland people have moved to the coastal cities in search of an easier way of life and greater opportunities for their children. They are replacing their diet of potatoes and *quinua,* a high protein grain, with pasta and rice, which, while easier to prepare, is less nutritious. They drink bottled beer rather than locally made *chicha.* Oth-

ers remain in the mountains but adopt modern practices such as wearing machine-made clothing rather than weaving their own textiles.

11. Conclusion

The Inca Empire was one of the most highly developed civilizations of its time. Unlike the Roman Empire, it was at its peak when it was conquered by outsiders, with superior weapons and the horse, which gave them an advantage on the battlefield. European diseases introduced by the Spanish decimated the Inca people even before the invaders arrived on their shores.

The Inca culture is of interest to scholars because its leaders developed a highly organized state that ruled over millions of people living in a vast territory without the aid of money, writing or the wheel. By building on indigenous institutions, such as the *ayllu, mita* labor, the *quipu* and the vertical economy, Inca rulers controlled a vast empire and managed to provide basic shelter and food for millions of people in an environment of harsh extremes.

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V. Lesson Plans

1. Introduction

Overview

Students will be introduced to the Inca Empire. They will learn the name "Machu Picchu" and their curiosity will be piqued as to why the site was built.

Materials

Video: *The Incas,* PBS Odyssey series (see Additional Resources, page 45).

Introduction

Explain that the class will be visiting an exhibition at the Peabody Museum in New Haven about Machu Picchu, a site located in Peru. Relate that the Inca people built Machu Picchu at about the time Christopher Columbus came to the Americas. After the Spanish conquered the Inca Empire, the site lay in ruin for several centuries until it was rediscovered by Hiram Bingham, an American historian at Yale University, in 1911. Bingham and others speculated as to why the Inca people would build a town in such an isolated place. Over the decades, archaeologists have developed several explanations for why Machu Picchu was built. Students will try to solve the mystery of Machu Picchu's purpose by learning about the Inca Empire.

Procedures

Inquiry question

Tell students that throughout the unit, they will be learning about how Inca society was able to obtain basic necessities like food and shelter in a harsh environment. Ask students to take notes throughout the unit on the many techniques Andean people created to modify and take advantage of their environment. (You may want to have a bulletin board where students can post ideas or illustrations.) Explain that they will be writing an essay at the end of the unit on this question.

1. *Introduction:* Show PBS video *The Incas.* (As much as time allows, but be sure to include the first 16 minutes and the last 5 minutes.) Ask students how the geographic setting of the Inca Empire as described in the video affected the Andean people.

2. Locate modern-day Peru on a large map or globe. Explain that at one time Peru was the heart of the Inca Empire. Ask how its location in the southern hemisphere affects people's lives. (Seasons are reversed—their summer is our winter.)

3. *Homework:* Have students read the background article, "The Inca: From Village to Empire" (Section IV), Section 1, Introduction, Section 2, Inca Gold, and Section 3, Extreme Environment (pages 7 to 9), and complete the word match (page 65) for tomorrow. (Optional: Tell students they will have a quiz on the vocabulary.)

V. Lesson Plans

2. Making a Relief Map

Overview

Students will be introduced to the geography of the Andes region and the impact of the Andes Mountains on the region's climate and weather.

Materials

A large (2 feet by 3 feet) map of South America without country labels. A small physical map of South America showing elevations and countries. (See for example, *World Book* terrain and political maps of South America. See Additional Resources to order a large National Geographic map of South America.) Several large containers of play dough or modeling clay (4 to 5 different colors). Toothpicks, paper, cellophane tape.

Procedures

Inquiry question

How do the Andes Mountains affect South America's climate and weather? What is the impact of the Peru Current on western South America's climate and weather? Marine resources?

1. *Introduction:* Review the homework reading. Stress the impact of the Andes Mountains on the region's weather and the effect of the Peru Current on rainfall.

2. Explain that the class will be creating a relief map of South America. Show the class the physical map of South America. Have students label the countries of South America on the 2 by 3 foot map.

3. Now have them create a three-dimensional map of South America with play dough or modeling clay. The map should show:

   a) the Andes Mountain chain;
   b) the small coastal desert bordering the Pacific Ocean;
   c) the Amazonian basin to the east of the Andes; and
   d) the location of Cuzco and Machu Picchu.

   Different colors should be used to approximate different elevations. Have them label countries that are covered by the modeling clay with toothpick labels. Next, have them draw the Peru Current along the Pacific Coast.

4. *Discussion:* Return to the inquiry question to discuss how the Andes Mountains affect the climate and weather of western South America and the impact of the Peru Current on rainfall and marine resources.

5. *Assessment:* Assess each student's participation in the map activity and subsequent class discussion.

6. *Homework:* Have students read in the background article, "The Inca: From Village to Empire" (Section IV), Section 4, The Vertical Economy, and Section 5, From Hunter to Farmer (pages 9 to 11) and complete the word match exercise (page 66) for tomorrow. (Optional: Tell students they will have a quiz on vocabulary.)

V. Lesson Plans

3. The Vertical Economy

Overview

Students will learn about how the Andean people utilize the "vertical economy" to take advantage of their environment.

Materials

Handout 1: The Vertical Economy (page 24), world map.

Procedures

Inquiry question

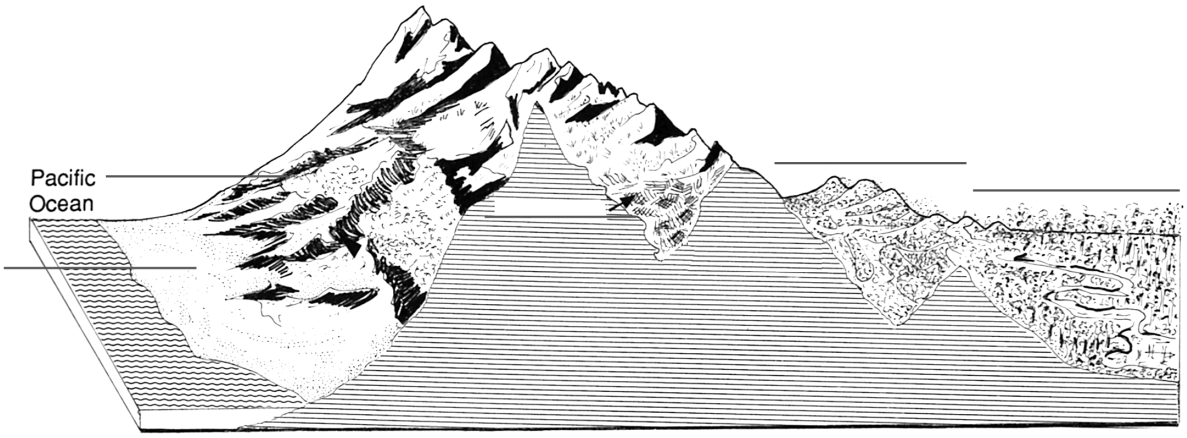
What techniques have Andean people developed to take advantage of their extreme environment?

1. *Introduction:* Ask students if they have ever tasted space food or freeze-dried foods made for camping. Explain that the people of the Andes have been using similar foods for centuries.
2. Ask a student to describe how temperature changes as altitude increases (it gets colder). Observe that the atmosphere also becomes thinner, so there is less oxygen and carbon dioxide at higher altitudes. Observe that mountains also affect rainfall, with higher altitudes often receiving larger amounts of rain or snow.
3. Review with the class the concept of the "vertical economy" as described in the reading assignment. Ask someone to describe how the Andean people take advantage of the vertical economy by obtaining various products from fields and pastures at different altitudes.
4. Have students fill out Handout 1: The Vertical Economy, showing which crops and animals would be raised at different altitudes in the Andes. (Refer students to pages 9 to 10 of the assigned reading.)
5. *Discussion:* Ask someone to describe how the Andean people have developed food preservation techniques that take advantage of their extreme climate. Show students samples of *chuño* and *charqui* if you can obtain it. (See Additional Resources, page 45.)
6. *Assessment:* Ask students to make a menu of their favorite meal. Then have them draw a diagram on a map showing where each food item would come from. Ask them to write a paragraph contrasting how and where we get our food versus how and where the Andean people obtain their food. (Our food comes from great distances and travels horizontally, while Andean food comes from a much shorter distance and travels vertically.)
7. *Homework:* Have students read in the background article, "The Inca: From Village to Empire" (Section IV), Section 6, Who Were the Inca?, and Section 7, The Spanish Conquest (pages 11 to 13), and do the word match (page 68). (Optional quiz.)

V. Lesson Plans

Handout 1: The Vertical Economy

Reread Section 4, The Vertical Economy, of the background article "The Inca: From Village to Empire" (Section IV, pages 9 to 10). Then fill in the blanks on the diagram below, labeling the *costa,* highlands, *altiplano, ceja de selva* and *selva.* List the crops or animals that would be raised in each region (at least two for each region).



Major life zones in the central Andes.

Source: Modified from *Chavin and the Origins of Civilization,* Richard L. Burger. New York and London: Thames and Hudson, 1992, 1995, figure 11, page 21.

V. Lesson Plans

4. Timeline

Overview

Students will place the period of the Inca Empire in a time frame.

Materials

World history text.

Procedures

Inquiry question

Place the Inca Empire in time. What was happening elsewhere in the world at about this time?

1. *Introduction:* Ask someone to cite the approximate dates of the Inca Empire. Explain that the class will be learning about what was happening elsewhere in the world during this period.

2. *Timeline:* Have students reread in the background article, "The Inca: From Village to Empire" (Section IV), Section 6, Who Were the Inca?, and Section 7, The Spanish Conquest, pages 11 to 13, and ask them to identify five key dates in the history of the Inca Empire. Have them record these events on a sheet of paper. Ask them to research what was happening elsewhere in the world at approximately the same time by referring to a world history text or doing research on the Internet. Have them record events that were occurring at about the same time elsewhere in the world and write a paragraph about their importance.

3. *Discussion:* How sophisticated was the Inca Empire compared to European , African or Asian cultures?

4. *Assessment:* Grade each student's written assignment and participation in class discussion.

5. H*omework:* Have students read in the background article, "The Inca: From Village to Empire" (Section IV), Section 8, Administering a Vast Empire, subsections A, B and C (pages 13 to 15) and do the word match (page 70). (Optional quiz on vocabulary.)

V. Lesson Plans

5. Comparing Two Empires

Overview

Students will learn about the concept of empire and compare the Inca Empire with another empire.

Materials

Handout 2: Comparing Two Empires (page 27), world history text.

Procedures

Inquiry question

What is an empire? What administrative mechanisms are common to the Roman and Inca empires?

1. *Introduction:* Explain that students will be learning about the Inca Empire and comparing it to another empire they are familiar with.
2. Ask students what the term "empire" means to them. (See Section 8, Administering a Vast Empire [page 13], of the background article "The Inca: From Village to Empire" [Section IV] for a working definition.) Emphasize that an empire exercises control over a vast territory and many different ethnic groups. Empires have developed techniques for maintaining control over large areas. Control can be military, economic or political in nature.
3. Ask students to give examples of empires they know about. Lead the discussion to a description of the Roman Empire. Explain that they will be comparing the Roman and Inca empires.
4. Ask students to think about what mechanisms would be necessary to rule over a large territory composed of different ethnic groups (a method of communicating, means of moving troops, methods for record-keeping, ways of supporting the empire through some type of taxation).
5. Ask students to write down the key features of an empire. Ask them to describe how the Inca Empire fits this description (ruled over people of different languages and ethnic groups; gained power by force; had an administrative system; used a common language for official business, had a communication system).
6. Have students fill out Handout 2: Comparing Two Empires (page 27).
7. *Discussion:* Discuss the similarities and differences between the Inca and Roman empires. Have students understand that the two empires had many features in common. The main difference was that the Roman Empire lasted for about 460 years, while the Inca Empire lasted less than 100 years.
8. *Assessment:* Ask students to write a short essay on the following: Compare and contrast three techniques the Romans and Incas devised to govern a vast territory.
9. *Homework:* Have students read in background article, "The Inca: From Village to Empire," Section 8, Administering a Vast Empire, subsections D, E, F and G, pages 15 to 17 and do the word match (page 71). (Optional quiz.)

V. Lesson Plans

Handout 2: Comparing Two Empires

What is an empire? Describe in your own words the characteristics of an empire. (Refer to Section 8, Administering a Vast Empire, in "The Inca: From Village to Empire" (Section IV, page 13) for a definition of "empire.")

Think of an empire you have studied in social studies. What features of an empire did it have?

Now review what you know about the Roman Empire. Then fill out the following grid comparing the Roman Empire and the Inca Empire.

	Roman Empire	Inca Empire
Time Span		
Size		
Number of subjects		
Official language		
Length of road system		
Method of record-keeping		
Method of taxation		

What features do the two empires have in common? What features are different? Based on this comparison, what elements of an empire are essential to its functioning? Why?

V. Lesson Plans

6. Making a *Quipu*

Overview

Students will learn about the *quipu,* a record-keeping device used by the Incas and other Andean people.

Materials

Handout 3: Making a *Quipu* (page 29) (optional), 4 to 6 balls of string or yarn of different colors, scissors.

Procedure

Inquiry question

How would you keep track of important information if you did not have writing or numbers?

1. *Introduction:* Lead a class discussion about the *quipu.* What was it? How was it made? Explain that students will be making *quipus* that record important information about themselves and their class.

2. Remind students of the structure of the *quipu*—one long horizontal string, with several strings of different colors tied to the main string. Different knots represent different numbers. Positions on the string (distance from the main string) represent decimal places. Different colors represent different things. (*Note:* Boy Scouts and Girl Scouts may be able to teach the class how to make special knots.)

3. (For more advanced ages) Distribute Handout 3: Making a *Quipu* (page 29) and review how the various *quipu* knots are made.

4. Provide students with 4 to 6 balls of different colored string or yarn. Tell them they will be making a *quipu* to record two important facts about their lives. Examples could include their date of birth, the number of people in their family, or their address. Also ask them to record two important facts about their class. (*Note:* Explain that students do not have to make knots as elaborate as those shown in the handout.)

5. *Discussion:* Have students explain their *quipu* to classmates, either in small groups or to the entire class.

6. *Assessment:* Grade students on whether their *quipu* records four facts and on their presentation of their *quipu.* Ask students to write a short essay describing the advantages and disadvantages of the *quipu.*

7. *Homework:* Have students read Section 8, Administering a Vast Empire, subsection H (pages 17 to 18), on Inca Religion and the boxed text on The Llama (pages 14 to 15) in the background article, "The Inca: From Village to Empire" and do the word match (page 72). (Optional quiz.)

V. Lesson Plans

Handout 3: Making a *Quipu*

Quipu means "knot" in Quechua. *Quipus* are made of strings consisting of cotton or llama wool. One person who has studied the *quipu* in detail describes them as looking like worn out mops!

Many anthropologists have studied *quipus* extensively. But while they can describe them, they cannot know for sure what they are counting. So the meaning of the remaining *quipus* is still a puzzle. They are like a code that has not yet been broken.

Quipus consist of a main string with other strings hanging from it. The main string has a knot at one end and is twisted at the other end, so that the reader knows which end is the beginning and which is the end. The attached strings are looped over the main string, so that the person who is tying the knot has two strands of the string to work with (see illustration, Figure A). There are three types of knots—the single knot (B), the long knot (C) and the figure 8 (D).

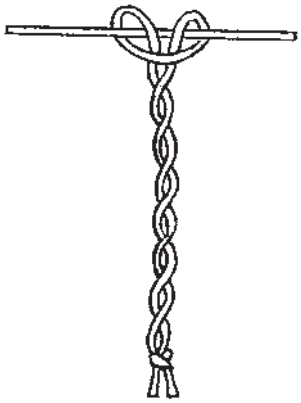


Figure A

Main string

Figure B

Single overhead knot

Figure C

Long knot

Figure D

"Figure Eight" knot

Source: *Code of the* Quipu *Databooks*, Marcia Ascher and Robert Ascher, http://instruct1.cornell.edu/research/quipu-ascher/. Used with permission.

V. Lesson Plans

7. The *Mita* System

Overview

Students will understand how the Spanish Conquest changed the lives of Andean people by analyzing quipus recording taxes owed during two periods.

Materials

Handout 4: From Tribute to Taxes (pages 31 to 32).

Procedure

Inquiry question

How did the Spanish Conquest change the way Andean people lived?

1. *Introduction:* Explain that students will be discussing the concept of *mita* labor and studying how this method of supporting the government changed after the Spanish Conquest.
2. Review the concept of *mita* labor. (Inca subjects were required to work a certain number of days each year for the empire.) Explain that the Spanish Conquest changed the way the government was supported. Now people were required to pay taxes to Spanish lords and the colonial government in the form of goods and silver and gold instead of providing *mita* labor. Explain that students will be analyzing the information contained in two *quipus* to compare how the two systems of taxation worked.
3. Distribute Handout 4: From Tribute to Taxes (pages 31 to 32) and complete it as a class.
4. *Discussion:* Ask students what they can infer about how the Spanish Conquest changed the lives of the Andean people based on the information contained in the two *quipus.* (Under the Spanish, the Andean people were required to give goods and gold and silver. During the Inca Empire, they were contributing their labor.)
5. *Assessment:* Ask students to write a one- to two-page journal entry describing how their lives as Andean farmers changed after the Spanish Conquest.
6. *Homework:* Read Section 9, Learning about the Inca, and Section 10, Modern-Day Andean People (pages 18 to 20), in the background article "The Inca: From Village to Empire" (Section IV), and do the word match (page 73). (Optional quiz.)

V. Lesson Plans

Handout 4: From Tribute to Taxes

On the next page are two lists that were transcribed from *quipus* soon after the Spanish Conquest of the Inca Empire. The first describes the tribute owed by two tribes to the Inca emperor prior to the Spanish Conquest in 1532. The second is a list of payments made by another native group to their Spanish lord in 1558. Compare the two lists and answer the following questions:

1. What were the Yacha and Chupaychu people providing to the Inca emperor? How did this compare to what the Xauxa people were providing to the Spanish lord?

   Yacha, Chupaychu Xauxa

2. Record the nouns listed in the first line describing the tribute owed by the Yacha and Chupaychu people. Are there any verbs in the sentence?

3. Reread the description of a *quipu* provided in the background article "The Inca: From Village to Empire" (Section 8, subsection G, *Quipu,* pages 16 to 17). Does the information given on the first *quipu* described in the handout seem more or less complicated that the description given in the text? How?

4. Is any important information missing from the first *quipu*?

5. What does the information on the second *quipu* suggest about how the Indians' way of life changed after the Spanish Conquest?

6. Can you see any ways in which the *quipucamayoc* who was reading the *quipu* inferred information rather than just reading it?

7. Write a paragraph describing evidence of misinterpretation on the part of the Spanish scribe who recorded what the *quipucamayoc* was saying.

Handout 4: From Tribute to Taxes *continued*

Tribute owed by the Yacha and Chupaychu people to the Inca emperor: †

In addition they gave 400 Indians to plant the fields in Cuzco so that the people might eat and make their offerings to the church. [temple]

In addition [they gave] 50 Indians as servants for Guayna Cava [Huayna Capac]*, and in continuation.

In addition [they gave Indians] to guard the body of Topa Ynga [Inca] Yupanque.**

In addition [they gave] 20 Indians to guard the body of (H)uayna Capac* after his death.

In addition [they gave] 20 Indians for making feathers.

In addition [they gave] 60 Indians to collect honey.

In addition they gave 60 Indians in order to grow coca, which they delivered to Cuzco and to the storehouses of Guanuco and sometimes they delivered 200 sacks and at other times 40.

In addition they gave 500 Indians to go to war with the person of the Inca and to carry the hammocks going to Quito and to other places.

Tribute given by the natives of Xauxa to their Spanish overlord in 1558: †

In addition we gave him in gold and silver in Caxamarca in gold 596 pesos [and] in silver we gave another sum of 596 pesos.

In addition we gave him 4 horse blankets.

In addition we gave him 40 sheep [llamas].

In addition we gave him 149 *fanegas* [about 1.5 bushels] of maize

In addition we gave him [of] bowls and jugs 2983 vessels.

In addition we gave him 2386 pheasants [partridges].

Let's Go Camping

As a class, plan an imaginary one-week camping trip that will include the teacher and all students and their families. Have students question their family members to explain what *mita* service was and to see what *mita* services they can provide and for how many hours. In class, have students list all *mita* services they and their family members can contribute. Next, make a list of all the tasks required to have a successful camping trip (include time required for each task). Compare the two lists. Will you have enough *mita* hours to do everything required to have a successful camping trip? If not, assign participants more tasks and see if they will agree to do them.

* Inca emperor who ruled from 1493 to 1527. ** Pachacuti's son and Huayna Capac's father.

† Source: "From Knots to Narratives: Reconstructing the Art of Historical Record Keeping in the Andes from Spanish Transcriptions of Inka Khipus," by Gary Urton, in *Ethnohistory* 45:3 (Summer, 1998). Used with permission.

Teacher Handout for From Tribute to Taxes

Students may get the impression that the Yacha and Chupaychu people were giving people to the Inca emperor as slaves. Encourage them to interpret the language in light of what they know about *mita* labor service to realize that what they are actually giving is days of *mita* service. (The use of the term "Indian" has been avoided in the text. It is used here since that is how it appeared in the Spanish translation of how the *quipucamayoc* interpreted the *quipu.*)

Answers to questions:

1. The Yacha and Chupaychu people gave "Indians," meaning they provided people to work a certain number of days to fulfill *mita* labor requirements; Xauxa people gave gold, silver, blankets, sheep (llamas), maize, bowls and jugs, and pheasants (partridges).
2. Indians, fields, Cuzco, people, offerings, church. Yes—gave, plant, eat, make.
3. The *quipu* described in the court case contains many different types of information, including action words as well as nouns.
4. How long services were provided.
5. They were forced to produce things wanted by the Spanish, especially gold and silver.
6. The *quipucamayoc* assumes that people performed *mita* service to plant the fields in order to give some of the crop to the temple; he recognizes that the amount of coca varied.
7. The Spanish scribe makes it sound like the group is giving people as slaves rather than providing workers as part of *mita* services; he refers to the Indians as making offerings to the church instead of the temple; he refers to llamas as sheep and calls partridges pheasants.

V. Lesson Plans

8. Inca Children at Work and Play

Overview

Students will study illustrations of Inca children to learn about their lives.

Materials

Handout 5: Working with a Primary Document — Illustrations by Felipe Guamán Poma de Ayala (pages 36 to 38).

Procedures

Inquiry question

How were the activities of Inca children similar to those of modern children? How were they different?

1. *Introduction:* Explain that students will be learning about how Inca children worked and played by studying illustrations drawn by a man who lived during the Inca Empire and the period following the Spanish Conquest.

2. Distribute Handout 5: Working with a Primary Document: The Illustrations of Felipe Guamán Poma de Ayala (pages 36 to 38). Divide the class into eight groups and ask each group to study one drawing and discuss what it tells them about the life of an Inca child. How old is the child shown? What is he or she wearing? How does he or she wear his or her hair? How was his or her life similar to the lives of modern children? How was it different? Have a member of each group read the text accompanying the illustration, and another summarize the group's discussion about their illustration.

Possible responses:

Similarities: Inca children played games. They had pets. Older children watched younger ones. Teenagers did work similar to adults and paid *mita* taxes (although at only half the rate of adults).

Differences: Older boys wore knee-length tunics (see illustrations 4, 5 and 6), girls wore longer, mid-calf tunics (see illustrations 3, 6 and 7). Girls wore their hair very short (see illustrations 3, 6 and 7). Most children did not go to school, but instead learned practical skills while working with adults. Their games taught them important skills, like hunting birds. (Ask students if their games teach them skills.) Very young children (5 to 9) performed important work, like looking after younger children, herding llamas, carrying *chicha* beer and fuel. Older children (18) were responsible for carrying official messages.

3. *Discussion:* What aspects of Felipe Guamán Poma de Ayala's life enabled him to provide valuable information about life during the Inca Empire? During Spanish colonial rule? In what ways might he have been biased against the Incas? the Spanish?

Possible responses:

Because he was born during the Inca Empire, Felipe Guamán Poma de Ayala was an eyewitness to daily life during that time. He was sympathetic to that way of life, especially since his father had been an Inca official. He was a practicing Catholic, which may have made him critical of Inca religious practices. He could read and write Spanish, which meant that he had been educated by Spaniards. He condemned the cruel treatment of the native people by Spanish colonialists.

4. *Assessment:* Have students write a journal entry describing a day in the life of an Inca child. The journal entry should state how old the child is and draw on information obtained from Felipe Gumán Poma de Ayala's illustrations and class discussion about them.

V. Lesson Plans

Handout 5: Working with a Primary Source — Illustrations by Felipe Guamán Poma de Ayala

These drawings were made by Felipe Guamán Poma de Ayala, a man who lived in Peru during the first decades of Spanish colonial rule. He wrote a 1400-page "letter" to the king of Spain to educate him about how the native people living in the former Inca Empire were being treated by the Spanish. He described in great detail the Inca Empire, including its history and customs. Guamán Poma probably wrote the letter, addressed to King Philip III of Spain, between 1567 and 1615. He would have been about 90 years old at the time he finished his monumental task, which took over 30 years to complete and involved extensive travel. In order to see how ordinary people lived under the Spanish, the author disguised himself as a poor person.

Guamán Poma, who describes himself as a "person of Indian race" and a Catholic, wrote his work in Spanish. Because he did not have written evidence from Inca sources, he relied on "the colored and knotted cords on which we Indians of Peru used to keep our records." Guamán Poma was the gandson of Topa Inca Yupanqui, an Inca emperor. His family had ruled what became the province of Chinchaysuyu before it was conquered by the Incas. His father served the Inca emperor Huascar as an ambassador and met Francisco Pizarro before he marched to meet the Inca emperor at Caxamarca. He later fought with the Spanish against Francisco Pizarro's brother and was given land in return for his loyal service. Guamán Poma was a local chief and described himself as "a protector of the Indians and deputy of the royal [Spanish] administrator." (Letter to a King, p. 231).

In addition to describing life in the Inca Empire, Guamán Poma chronicled acts of torture and murder committed by the Spanish against the native population. His lengthy work was in part a plea to the Spanish king to provide "good government" in Peru. There is no evidence that the king ever read the three-volume document.

What aspects of Guamán Poma's life enabled him to provide valuable information about life during the Inca Empire? During Spanish colonial rule?

In what ways might Guamán Poma have been biased against the Incas? The Spanish?

Study the following illustrations and read the captions. What do the drawings tell us about the life of Inca children? How were their lives similar to yours. Different?

■※ POR·DON PHELIPE·GVAMAN·POMA:DE AIALA

Study the following illustrations and read the captions. What do the drawings tell us about the life of Inca children? How were their lives similar to yours. Different?

Figure 1

"The first category consisted of newborn babies up to the age of a month or two and still being rocked in the cradle by their mothers, who are the proper source of milk and affection for these tiny creatures."

The bandage on the baby's head was used to shape the skull and make it narrower.

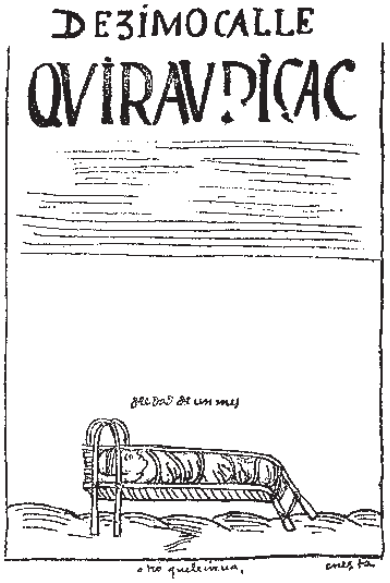


Figure 2

"(C)hildren who were feeding at their mother's breasts and learning to walk…in their first years of life were incapable of looking after themselves and were often put in the care of elder children so that they should not fall or burn themselves or come to any other harm."

This one-year-old girl is accompanied by her pet dog.

Figure 3

"(G)irls…between five and nine…were sometimes able to do jobs about the house…. Some of them gathered herbs, helped to make maize spirit or looked after babies."

This five-year-old girl is carrying corn beer in a large jar called an *aryballo*.

Figure 4

"When they were not playing for their own amusements, they were used to look after the younger children or rock the cradles of the newborn."

This five-year-old boy is learning to hunt birds with a sling. Inca games often taught children to do useful tasks.

Note: Quotations are taken from "Letter to a King: A Peruvian Chief's Account of Life Under the Incas and Under Spanish Rule," by Felipe Guamán Poma de Ayala, translated from *Nueva Coronica y Buen Gobierno* by Christopher Dilke (New York: E.P. Dutton, 1978).

■※ POR·DON PHELIPE·GVAMAN·POMA·DE AIALA

Figure 5

"The boys [between the ages of 9 and 12] were employed in trapping small birds…. Only small tasks like watching the flocks, carrying wood, weaving and twisting thread were entrusted to them. [Most] boys got their education in the fields and were not sent to any other school."

Only sons of the Inca elite were sent to the *Yachay-huasi,* or school.

Figure 6

"The main occupation of the girls [between the ages of 9 and 12] was picking the large variety of wild flowers in the countryside. These flowers were used for dyeing the fine cloth called *cunbe,* among other purposes. The girls also gathered nutritious herbs which were dried and stored for a period of up to one year."

Girls often wore their hair short.

Figure 7

"Coro Tasque serves her superiors and the community."

This 12-year-old girl is spinning yarn at the same time she is herding llamas and carrying wood for fuel.

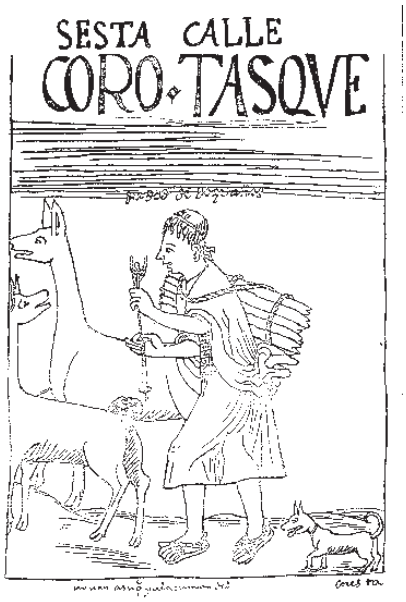


Figure 8

"The fifth category were those between the ages of about 12 and 18…. Boys of this age were employed in the personal service of the rulers and their divinities…. The young girls… performed various useful jobs in and out-of-doors for their parents and grandparents, such as cooking and cleaning the house or helping about the farm. Being submissive and respectful, they quickly learned whatever was expected of them."

This 18-year-old boy is working as a *chasqui,* a runner who is carrying a *quipu* and an official letter (*carta*). He is required to perform half the labor services of an adult subject of the empire.

V. Lesson Plans

9. Why Was Machu Picchu Built?

Overview

Students will brainstorm about why Machu Picchu was built.

Materials

Handout 6: Can You Solve the Mystery of Machu Picchu?

Procedures

Inquiry question

How would building a town in the Andes be different from building a town in your area? How would you design a building to resist earthquakes?

1. *Introduction:* Show students a photograph of Machu Picchu and explain that tomorrow they will be going to an exhibition about the site. Explain that Hiram Bingham rediscovered Machu Picchu in 1911. He thought it was the last refuge of the Inca emperor who was fleeing Spanish rule. Explain that historians and archaeologists have been debating about the purpose of Machu Picchu ever since. Tell students that they will be "brainstorming" about why Machu Picchu was built before they visit the exhibition.
2. Distribute Handout 6: Can You Solve the Mystery of Machu Picchu? (pages 40 to 41). After students read the handout, have them brainstorm about Machu Picchu's purpose, either as an entire class or in small groups.
3. Discuss the various theories about why Machu Picchu was built. Record these theories on a bulletin board or chalk board. Explain that tomorrow the class will be going to see the exhibition *Machu Picchu: Unveiling the Mystery of the Incas* at the Yale Peabody Museum, where they will learn why Machu Picchu was built.
4. *Assessment:* Evaluate students on their participation in their group's discussion.
5. *Homework*: Have students define these vocabulary words before they go to the exhibition *Machu Picchu: Unveiling the Mystery of the Incas*.

alpaca	artifacts	cranial
Cuzco	deformation	empire
jamb	miniature	moat
plaza	plumb bob	retainers
spring	terrace	Torreon

V. Lesson Plans

Handout 6: Can You Solve the Mystery of Machu Picchu?

Hiram Bingham was a young professor of history at Yale University when he decided to go to Peru to search for the legendary "last refuge of the Incas." He knew from historical documents that Manco Inca, one of the last Inca emperors, built a city in a remote spot in the region of Vilcabamba in an attempt to escape Spanish rule. He had heard about remains of a settlement high in the eastern slopes of the Andes called "Matcho Picchu," but to his knowledge, no European or American had ever seen the site. It was not mentioned by early Spanish observers.

Bingham set out in 1911 with a small band of Americans and Peruvians to explore the Urubamba River Valley, where he thought the last refuge of the Incas might be located. He got Melchor Arteaga, a local resident, to take him to some ruins, which lay high on a rocky ridge. The Urubamba River flowed around three sides of the mountain more than 1,500 feet below. Bingham was amazed when, after a hard two-hour climb up a steep mountain path, he came upon "a jungle-covered maze of small and large walls, the ruins of buildings made of blocks of white granite, most carefully cut and beautifully fitted together without cement."*

Bingham took a careful inventory of the buildings and other structures that made up the settlement. He returned a year later to excavate the site, taking thousands of photographs both before and after excavation and removing hundreds of objects, including stone tools, pottery and metal jewelry. After he left the site, he asked himself if this could indeed be "the last refuge of the Inca."

Below are the clues Bingham had to work with. Your mission is to think carefully about each clue. Then brainstorm as a class: What does each clue suggest about Machu Picchu's original purpose? Do you think Bingham *had* found the last refuge of the Incas?

Clues

1. Machu Picchu was built on an extremely remote site, surrounded on three sides by a river that has carved out a deep valley. Towering mountains make access to the site very difficult.
2. The site appears to be built in a single architectural style similar to the Inca capital of Cuzco.
3. The site contains many buildings carefully constructed out of huge stones that fit together so tightly that no mortar is required.
4. The site was surrounded by only a small number of terraces—not enough to produce food for a large population.
5. The site contained many simple tombs, but Bingham did not find elaborate tombs containing precious gold objects and rich textiles that would have been included in the grave of an Inca emperor or members of his family.
6. Excavation of the site revealed many everyday objects such as tools and pottery.
7. The main portion of the site shows little evidence of glass, tiles, nails or other artifacts introduced by the Spanish.
8. Machu Picchu is fairly close to Cuzco, the Inca capital—about a three-day journey on foot.
9. Because it is at a lower altitude and on the slopes above the Amazonian basin, Machu Picchu's climate is moister and warmer in the cold Andean winter than Cuzco's.

* Bingham, Hiram, 1913. The Discovery of Machu Picchu. *Harper's Magazine,* vol. 126.

Handout 6: Can You Solve the Mystery of Machu Picchu? *continued*

Question

Had Hiram Bingham found the last refuge of the Incas? Give reasons to support your conclusion or **hypothesis.**

After viewing the exhibition *Machu Picchu: Unveiling the Mystery of the Incas,* you will find out if your hypothesis is correct.

V. Lesson Plans

Teacher Handout

Explanation of Handout 6: Can You Solve the Mystery of Machu Picchu?

Below are some facts that argue against the hypothesis that Machu Picchu was the last refuge of the Incas. They are keyed to the questions in Handout 6.

1,2,3: Manco Inca could not have built such an elaborate assembly of buildings when he was fleeing from the Spanish.

2: The fact that the site was built in one style suggests that it was all built at the same time.

4: The limited number of terraces suggests that the site housed a small permanent population and that the emperor and his attendants brought much of their food from Cuzco.

5: The absence of elaborate tombs suggests that members of the Inca royal family did not live here permanently.

6: Archaeologists have concluded that the Inca emperor brought precious objects with him to Machu Picchu and took them back to Cuzco when he left the site.

7: Because there is little evidence of Spanish artifacts, archaeologists assume that Machu Picchu was abandoned by the Incas around the time of the Spanish Conquest.

8,9: The fact that Machu Picchu is located fairly close to Cuzco in a warmer climate suggests that the site was chosen as a getaway vacation spot for the Inca emperor and his attendants.

V. Lesson Plans

10. Before You Visit the Museum

1. Visit the exhibition on your own, if possible, using the Teacher's Key (Section VI) as your guide.

2. Make copies of the Student Guide to the exhibition (Section VII) for all of your students.

3. Homework: Have students define the following vocabulary words:

alpaca	artifacts	cranial
Cuzco	deformation	empire
jamb	miniature	moat
plaza	plumb bob	retainers
spring	terrace	Torreon

Note: Explain to students that subsequent Inca leaders, including Manco Inca, fled the Spanish and lived for 36 years in a remote area in Vilcabamba, a forest region 120 miles down the Urubamba River from Cuzco. This site is "the last refuge of the Incas."

11. Visiting the Exhibition

1. View the exhibition *Machu Picchu: Unveiling the Mystery of the Incas.*

2. Have students complete the Student Guide (Section VII) during the visit and complete it as homework if necessary.

V. Lesson Plans

12. Summing Up

1. *Introduction:* Ask students for their reactions to the exhibition *Machu Picchu: Unveiling the Mystery of the Incas.* What did they like best? What did they learn about the Inca? Did anything surprise them?

2. Give students a few minutes to review their guide to the exhibition and fill in any missing information. Discuss the completed student handout.

3. Discuss why Machu Picchu was built. Compare the purpose described in the exhibition (the emperor's royal estate for leisure and sacred activities) to the purposes hypothesized by the class in the brainstorming session. Discuss the reasons archaeologists now believe the site was a royal estate (see Teacher Handout, Explanation of Student Handout 6: Can You Solve the Mystery of Machu Picchu?, page 42)

Assessment Essay

Assign the Assessment Essay as homework. Ask students to write an essay on the following topic:

The Inca rulers controlled a vast area and millions of people without the aid of tools such as writing, the wheel and money. Discuss the alternate methods they developed to organize their society.

(You may want to prompt them to discuss the *mita* system, *quipu,* and the llama.)

Enrichment Activities

1. Learn how to weave with a backstrap loom.

2. Make a meal using all Andean foods (see Additional Resources, page 45).

3. Build a terrace and irrigation system.

4. Build a suspension bridge.

5. Research life in present-day Peru and compare it to the Inca Empire.

Additional Resources

Books

The Incas, by Terence D'Altroy. Malden, MA: Blackwell, 2002.

Most thorough and up-to-date book on the Incas (adult).

Machu Picchu, by Elizabeth Mann. New York: Mikaya Press, 2000.

Beautifully illustrated book suitable for elementary and middle school students.

Articles

The May 2002 issue of *National Geographic Magazine* has an article, "Inca Rescue," pages 78 to 91, on attempts to preserve Inca mummies. The issue includes an excellent pull-out wall map of the Inca Empire. See also "How Did Machu Picchu Work?" in "Behind the Scenes" (unnumbered pages).

Videos

The Incas, PBS Odyssey Series video. To order, go to the PBS web site: http://www.pbs.org/ and click on "Shop," then search for "incas." Cost: $19.98. Item code: ODYS921.

Inca Mummies, a companion video to the May 2002 National Geographic article above.

Maps

Enlarged political wall map of South America available from National Geographic website for $16.99 (go to "Online Maps").

Andean Foods

Andean foods, including *chuño* (black and white potatoes), *manioc* flour, *kiwicha,* and *quinua,* can be purchased at many Latin American grocery stores and some health food stores.

Websites

National Geographic Society

http://www.nationalgeographic.com/inca/machu_picchu_4.html

UNESCO

http://whc.unesco.org/sites/274.htm

http://www.unesco.org/whc/whreview/article5.html

See "Historic Sanctuary of Machu Picchu."

UNEP World Conservation Monitoring Center

http://www.wcmc.org.uk/protected_areas/

Quipu

http://instruct1.cit.cornell.edu/research/quipu-ascher/

Includes a databook cataloguing existing *quipus* throughout the world.

Local New Haven Resources

Videos

The Incas, PBS Odyssey Series video.

Available from Best Video, 1842 Whitney Avenue, Hamden, CT; 203-287-9286. Ask for the special teacher's rate: $5.00 for four nights.

Andean Foods

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Chico's, 151 Truman Street (off Ella Grasso Boulevard), New Haven, CT; (203) 776-8504.

VI. Guide to
Machu Picchu: Unveiling the Mystery of the Incas
Teacher's Key

This guide is designed to help you learn as much as you can about the Incas during your visit to *Machu Picchu: Unveiling the Mystery of the Inca*s. You are to write down answers to the questions as you walk through each room of the exhibition. You will be graded on how complete your answers are. Questions labeled "EC" are more difficult and will earn extra credit points. Bring the handout to your next class—it will serve as the basis for discussion.

Entry Room

Before you enter the exhibition, look at the life-sized llama on display. As they view the exhibition, have students find as many examples as possible of how the llama was used by the Incas in art and everyday life.

Room 1: Film—*Unveiling the Mystery of the Incas*

View the film *Unveiling the Mystery of the Incas* and answer the following questions:

1. Where is Machu Picchu located?

   [Andes Mountains of present-day Peru, South America]

2. Give the approximate dates for the beginning and end of the Inca empire.

   [A.D. 1430 to 1532]

3. Who brought Machu Picchu to the world's attention in 1911?

   [Hiram Bingham, a professor of Latin American history at Yale]

Room 2: Excavation

1. Who are the two men shown in the diorama?

   [Hiram Bingham and his assistant Alvarez]

2. What are they doing?

   [Hiram Bingham is taking photographs, his assistant is sweeping earth from artifacts]

3. When does the scene take place?

   [1912]

4. Look at the background photograph. How is Machu Picchu different today than when Hiram Bingham discovered it? How would it have looked when the Inca emperor lived there?

   [When he discovered it, the city was overgrown with vegetation. When the Inca emperor lived there it looked more like it does today, except that buildings had roofs.]

5. What is the hole at the right of the scene? What is inside?

[a grave; animal bones, ceramic vessels]

6. Look in the display case across the room. It shows some of the objects found in the grave. What was found there?

[pottery, bones, weaving tools, shawl pins]

7. This room shows Hiram Bingham and his assistant in the process of *excavating* Machu Picchu. Write a sentence describing what excavation is.

[Excavation is the process of carefully recovering artifacts for analysis.]

Go into the next room and turn immediately to your left to view the video.

Room 3: Curator's Tour

Listen to the six-minute video *Curator's Tour of Machu Picchu* and look at the model of the site as each part is lit. Be sure to get in at the beginning of the video. You may want to hear it twice.

1. Describe Machu Picchu's geographic setting. (Look at the photographs to the left and right of the model.)

[very mountainous terrain]

2. According to the video's narrator, what was the purpose of Machu Picchu?

[a country palace or royal estate for the Inca emperor]

3. According to Richard Burger, how was the Inca emperor's residence designed to show he was important? (list three features)

[it was isolated, had a private garden, was made of fine stone construction, had fountains to supply water, had a private bath]

4. According to Lucy Salazar, what was the Torreon?

[a sun temple]

5. Why do archaeologists think it served this purpose?

[it is similar to a religious temple in Cuzco, has fine stone walls that are curved, has a cave with niches for religious objects]

6. According to Lucy Salazar, what evidence is there that metal objects were made at Machu Picchu?

[many metal objects were found at the site, evidence that metal workers lived and worked on site]

7. According to Richard Burger, how was Machu Picchu defended? (list three ways)

[steep cliffs on three sides, guard tower, moat, only one entrance]

8. According to Lucy Salazar, where did the residents of Machu Picchu get their water?

[a spring]

9. What structures were built at Machu Picchu to carry water?

[16 stone fountains, canal]

10. According to Lucy Salazar, what did the Incas believe about water?

[The Incas believed that water cycled through the universe and ensured fertility.]

11. Look at the model. What engineering challenges did the Inca builders and engineers face? (list at least three)

[remote location, steep cliffs, water run off, where to find stone to build, hard to carry stones up steep cliffs, where to get water, where to get soil for terraces]

Turn to the right and go into the room that is paved like an Inca road.

Room 4: Inca Road

1. Look at the huge photo of Machu Picchu. What does it show about Machu Picchu's climate?

[cloudy, moist]

2. What are the walls that look like stairs called? Why were they built?

[terraces; to create a flat surface for growing crops]

3. Look at the map on the left of the Inca road system. On the map at the right, estimate the length of the Inca empire from top to bottom, using the key.

[2,500 miles]

4. (EC) Who would have built and maintained this road system?

[laborers doing *mita* work]

5. What is shown in the black and white drawing?

[a suspension bridge]

6. Why were bridges necessary in the Inca empire?

[its geography was very mountainous, many rivers]

7. (EC) Read the paragraph about the llama in the right-hand corner. List one advantage and one disadvantage of llama transport.

[advantage: llamas follow a lead animal and require little supervision by people;

disadvantage: llamas can carry only about 100 pounds—they cannot carry adults]

8. Look at the Inca road in the photo on the left. Does it help explain why the Inca did not use the wheel?

[Yes, the road is very steep and rocky, making it difficult to use a wheeled cart.]

9. Study the objects in the cases. What are they made of?

[gold, silver, stone, pottery, wood]

10. Choose three objects you like best. What were they used for?

[answers will vary]

Go forward toward the reconstructed house. Before you enter, note how Inca buildings were made.

11. What are the walls made of? Was mortar used?

[stone; no]

12. Inca buildings were very resistant to earthquakes. Can you see why?

[built of large rectangular blocks of stone that are tightly fit together]

13. Look up at the roof. What is it made of?

[thatch or grass]

14. Would this roofing material last very long?

[no, explains why buildings at Machu Picchu do not have roofs]

Room 5: Inca Emperor's Residence

1. Which man is the Inca emperor? How do you know?

[seated man; he is wearing gold earrings and sandals, is being served a drink in a gold cup]

NOTE: Refer to the written explanation to help answer the following two questions.

2. Listen to the language the emperor and his advisor are speaking. What is it?

[Quechua]

3. Is it still spoken today?

[yes]

4. (EC) What do you think the emperor and his advisor are talking about?

[discussing *quipu*; emperor is concerned about defending nearby gold mines; orders that amount of coca leaves brought to Machu Picchu be doubled]

5. Where do you think the Inca emperor's pets came from?

[Amazon River region]

6. Look at the *quipu* in the large display case. What is it made of?

[llama wool and cotton]

7. Write a brief description of the *quipu.*

[It is a long string with many shorter strings attached. Some strings have knots tied in them.]

8. What were *quipus* used for?

[recording information about census figures, taxes paid, keeping oral histories]

9. What does the word *quipu* mean?

[knot]

10. As you leave the room, look at the Inca tunic in the glass case. This is the only Inca tunic of its kind that has survived. Think about why there are very few remaining examples of Inca textiles.

[Textiles deteriorate, especially in a damp climate. Many Inca textiles were intentionally destroyed by the Spanish.]

Turn to the right to enter the large room with many glass cases.

Room 6

1. What is the kneeling man on the left doing?

[pounding metal with a stone hammer]

2. Metalworkers sometimes pound soft metals like silver and gold into a sheet and hammer it to change its shape. Find an example of hammered silver or gold objects in the case.

3. Metalworkers also pour hot metal into molds to make objects. Find three examples in this room of metal objects that were made this way.

4. (EC) Look to the far right in the display case at the carved piece of wood that looks like a man's face. Did you see something elsewhere in the exhibition that could have been made from a form like this?

[gold and silver drinking vessels shaped like a human face]

5. (EC) How do you think the object was made: by pouring hot metal into a mold, or by making a sheet of metal and hammering it?

[by hammering a sheet of metal]

6. Find three examples of things made out of pottery and describe what they were used for.

[answers will vary]

7. Look at the label about "Everyday Life." Look carefully to see who the man is. What is he doing?

[The man is Guamán Poma de Ayala. He is walking through Peru finding information for his book.]

8. How many people lived at Machu Picchu when the Inca emperor and his attendants were there?

[about 600]

9. During what part of the year did the emperor and his attendants stay at Machu Piccu?

[May to September, the dry season (winter)]

10. Go to the display case with everyday items in it, across from the three video screens. What things in the case are still used today?

[dice, tweezers, pottery cups, dishes, dolls, needles, plumb bob, axes, knives, mirrors]

11. What everyday Inca items do not have equivalents in our households, and why not?

[mortar and pestle (we grind food mechanically) shawl pins (we use buttons)]

12. What common items used today are missing from the Inca artifacts found?

[money, nails, books]

Interactive Explorer/Ongoing Investigations (this room and next)

Divide into four groups. Three groups can explore Machu Picchu on the three "Interactive Explorer" videos. (*NOTE:* The large screen on the right can be used by large groups to watch what is being shown on the smaller video screen.)

The fourth group should go into the next room and answer the following questions. Be sure your group does the activities in both rooms.

Room 7: Rediscovery Room

Each group will choose one archaeologist to report on by answering the following questions.

1. Watch the video on the screen to your right and choose one scientist. What is his or her name?

2. Describe what he or she is studying.

3. What archaeological techniques is he or she using?

4. What new information has he or she obtained about the daily life of the Inca from this research?

5. Look at the models of skulls in the case. Compare the shapes of the three skulls.

   [left skull is normally shaped, center skull has flattened forehead, skull on right is more cone-shaped than normal]

6. How did parents shape the skulls of babies?

   [They wrapped them in cloth or bound them to a cradle board.]

7. Do you think this hurt the babies?

   [no]

8. Do you think it made them less smart?

   [no]

9. Why do you think parents might have wanted to shape their children's skulls in this way?

   [to show they belonged to a certain cultural group]

10. Find the photograph of terraces. What crops were grown in terraces at Machu Picchu?

    [maize, potatoes, beans]

11. Do you think enough food could be grown on these terraces to feed 600 people?

    [No, food had to be carried from Cuzco when emperor was in residence.]

12. (EC) Look at "Daily Diet and Bone Chemistry" in the far corner. Read the explanation of how bones can be analyzed to see what people ate at Machu Picchu. What does this bone analysis show about the diet of people who lived there?

    [They ate a lot of maize, which was 65% of diet.]

13. (EC) How was the importance of this staple food reflected in Inca art? Give specific examples.

    [gold, coin objects, silver]

Room 8: Epilogue

1. Look at the graph on the left. How much did the Inca population decline around the time of the Spanish Conquest? (give as a percentage)

    [It declined from 14 million to 5 million, or about 66%.]

2. What were some of the diseases that caused this sudden drop in population?

    [smallpox, measles, typhus, scarlet fever, pneumonia, plague]

3. When did the native population of the former Inca empire finally recover?

    [mid-20th century]

4. Find three examples of how modern Peru is a mixture of Spanish and Inca cultures.

    [religious festivals, intermarriage, art has mixture of Spanish and Inca styles]

Summing Up

After the exhibition:

Discuss the handout questions.

Have groups report on their archaeologist.

Homework assignment

Have students write a paragraph on one of the following questions:

1. Why was Machu Picchu built?

2. What was your favorite part of the exhibition?

3. What did you learn about Inca people?

4. How do archaeologists find out about Inca life?

VII. Student Guide to
Machu Picchu: Unveiling the Mystery of the Incas

This guide is designed to help you learn as much as you can about the Incas during your visit to *Machu Picchu: Unveiling the Mystery of the Incas*. You are to write down answers to the questions as you walk through each room of the exhibition. You will be graded on how complete your answers are. Questions labeled "EC" are more difficult and will earn extra credit points. Bring the handout to your next class—it will serve as the basis for discussion.

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View the film *Unveiling the Mystery of the Incas* and answer the following questions:

1. Where is Machu Picchu located?

2. Give the approximate dates for the beginning and end of the Inca empire.

3. Who brought Machu Picchu to the world's attention in 1911?

Room 2: Excavation

1. Who are the two men shown in the diorama?

2. What are they doing?

3. When does the scene take place?

4. Look at the background photograph. How is Machu Picchu different today than when Hiram Bingham discovered it? How would it have looked when the Inca emperor lived there?

5. What is the hole at the right of the scene? What is inside?

6. Look in the display case across the room. It shows some of the objects found in the grave. What was found there?

7. This room shows Hiram Bingham and his assistant in the process of *excavating* Machu Picchu. Write a sentence describing what excavation is.

Go into the next room and turn immediately to your left to view the video.

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Listen to the six-minute video *Curator's Tour of Machu Picchu* and look at the model of the site as each part is lit. Be sure to get in at the beginning of the video. You may want to hear it twice.

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2. According to the video's narrator, what was the purpose of Machu Picchu?

3. According to Richard Burger, how was the Inca emperor's residence designed to show he was important? (list three features)

4. According to Lucy Salazar, what was the Torreon?

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6. According to Lucy Salazar, what evidence is there that metal objects were made at Machu Picchu?

7. According to Richard Burger, how was Machu Picchu defended? (list three ways)

8. According to Lucy Salazar, where did the residents of Machu Picchu get their water?

9. What structures were built at Machu Picchu to carry water?

10. According to Lucy Salazar, what did the Incas believe about water?

11. Look at the model. What engineering challenges did the Inca builders and engineers face? (list at least three)

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Room 4: Inca Road

1. Look at the huge photo of Machu Picchu. What does it show about Machu Picchu's climate?

2. What are the walls that look like stairs called? Why were they built?

3. Look at the map on the left of the Inca road system. On the map at the right, estimate the length of the Inca empire from top to bottom, using the key.

4. (EC) Who would have built and maintained this road system?

5. What is shown in the black and white drawing?

6. Why were bridges necessary in the Inca empire?

7. (EC) Read the paragraph about the llama in the right-hand corner. List one advantage and one disadvantage of llama transport.

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2. What were some of the diseases that caused this sudden drop in population?

3. When did the native population of the former Inca empire finally recover?

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Homework assignment

Write a paragraph on one of the following questions:

1.Why was Machu Picchu built?

2.What was your favorite part of the exhibition?

3.What did you learn about Inca people?

4.How do archaeologists find out about Inca life?

Appendices

A. Glossary

Reading Assignment 1: Pages 7 to 9.

Andes Mountains: Mountain chain running along the western coast of South America.

clods: Lumps of dirt.

conquistadores: Spanish soldiers who conquered the Inca Empire and other Native American groups in North and South America.

Coricancha: The temple to Inti, the sun god, built by Pachacuti in Cuzco.

Cuzco: A city in present-day Peru, Cuzco was the capital of the Inca Empire.

El Niño: A warm ocean current that runs south along the Peruvian coast, pushing the Peru Current out to sea. El Niño causes extreme weather-related disturbances in South America, including drought, torrential rains, mudslides and avalanches.

empire: A government that controls a huge territory and millions of people, often encompassing many different ethnic groups. Control may be military, political or economic.

Inca Empire: Empire that governed between 10 and 12 million subjects in the Andes region of South America between about AD 1438 and 1532. The Inca Empire lasted less than 100 years.

Inti: The Inca sun god. He was the second most important god after Wiracocha.

llama: An animal native to South America, related to the camel. The llama is used in the Andes to carry heavy loads. Its wool is used to weave cloth, its hide to make leather, and its meat is eaten.

maize: Corn. Maize was a very important part of the Inca diet and was also used to make *chicha*, or corn beer.

mortar: A building material made from sand, water and lime, similar to cement, for holding stones together.

Pedro de Cieza de León: A Spanish soldier who wrote about the Inca Empire about 20 years after the Spanish Conquest.

Peru Current (Humboldt Current): A frigid ocean current that flows north along the west coast of South America, carrying cold, nutrient-filled water that supports a rich ecosystem of fish, birds and sea mammals.

plate: Huge sections of the earth's crust that grind over and under each other, occasionally causing earthquakes.

Tahuantinsuya: The Quechua word for the Inca Empire.

Appendices

A. Glossary

Reading Assignment 2: Pages 9 to 11.

alpaca: A South American animal related to the camel and llama. Its very soft wool is used to make fine textiles.

altiplano: A high, dry plateau located in southeastern Peru and northwestern Bolivia between the two major Andean ranges.

ceja de selva: "Eyebrow of the rainforest," the area with lush vegetation just above the rainforest on the eastern side of the Andes Mountains.

ceramics: Containers made from clay, also called pottery.

charqui: An Andean freeze-dried meat that can be stored for long periods and easily transported.

chicha: A beer made from corn, *chicha* is often used by Andean people in festivals and religious ceremonies.

chuño: Freeze-dried potatoes that can be stored for long periods.

coca: A plant native to South America containing a narcotic chemical. Andean people chew the leaves to dull hunger pangs, provide energy and supply nutrients. *Coca* is grown and processed to make cocaine, a powerful illegal drug.

costa: Coast.

domesticate: The process of taming or cultivating a formerly wild animal or plant for food or other uses.

ecological niches: Small areas that support a specific mix of plant and animal life. Mountainous regions have many ecological niches since variations in altitude create different temperature and rainfall conditions.

highlands: Land above 10,000 feet in altitude.

irrigation: A system of canals and ditches that carries water to fields for crops.

manioc: A tropical plant with starchy roots used in making tapioca. A type of *manioc* called sweet cassava can be eaten like potatoes.

montaña: High, humid forested environmental zone on the eastern slope of the Andes.

montane cloud forest: Humid, high altitude area that supports lush vegetation. Machu Picchu is located in a montane cloud forest environment.

***quechua* zone:** The highly productive temperate zone on the western slopes and inter-mountain valleys of the Andes.

quinua: High protein grain grown in the Andean highlands.

selva: Rainforest.

sierra: Mountains.

terraces: Structures built in mountainous regions to create a flat surface to plant crops. Retaining walls are built on a slope and soil placed between the wall and mountain slope. Terraces prevent excessive runoff of rain and soil erosion.

topography: Surface features of a place or region, including mountains, hills and valleys.

tubers: Plants with thick, sometimes edible roots, such as potatoes and sweet potatoes.

tundra: Land in a very cold or high altitude region that remains frozen year-round.

vertical economy: In mountainous regions, different animals and crops can be raised at different altitudes. People can produce a variety of foods and other products within a relatively short distance by taking advantage of different ecological niches.

Appendices

A. Glossary

Reading Assignment 3: Pages 11 to 13.

Atahualpa: A son of Huayna Capac, he won the five-year civil war with Huascar, his brother, and was about to be named emperor when the Spanish arrived in the Inca Empire. He was eventually killed by the Spanish.

Cajamarca: The Inca city where Pizarro and Atahualpa, the Inca emperor, met.

Francisco Pizarro: The Spanish soldier who conquered the Inca Empire in 1532.

Huascar: A son of Huayna Capac, he fought and ultimately lost a bloody five-year civil war against his brother Atahualpa just before the Spanish invaded the Inca Empire.

Huayna Capac: The Inca emperor who expanded the empire to its largest extent. After governing for 35 years, he died suddenly of smallpox.

immunity: The body's ability to fight an infectious disease. Native Americans were very susceptible to European diseases such as smallpox because their bodies had not built up immunity by being exposed to the disease over time.

Inca Urcon: Wiracocha's son.

Manco Inca: The Inca leader who fought the Spanish and set up an Inca state in a remote part of the former Inca Empire.

oral history: History that is not written down, but is handed down by one person telling others about events in the past.

Pachacuti Inca (Yapanqui): A son of Wiracocha Inca who eventually became Sapa Inca. After taking the name Pachacuti in 1438, he vastly expanded the Inca Empire through war and reorganized the Inca government.

plaza: The central square in a town or city. Usually public buildings are grouped around the plaza and important public events take place in this open area.

puppet: Someone who is named ruler but is controlled by someone else.

Quechua: The language spoken by the Inca people. The official language of the Inca Empire, it is still spoken today in the central Andean highlands.

ransom: Payment demanded or made before a captive person is set free.

Sapa Inca: The Inca emperor; literally "Ultimate Inca."

smallpox: A deadly infectious disease brought to the New World by Europeans.

Spanish Conquest: Shortly after Columbus visited the New World, the Spanish invaded and conquered many civilizations in Central, South and North America, including the Inca Empire.

Thupa Amaru: The last Inca leader to resist the Spanish, he was executed in 1572.

Thupa Wallpa: A puppet ruler appointed by the Spanish.

Topa Inca: The son of Pachacuti, he expanded Inca territory in Ecuador, Bolivia, central Chile and

parts of Argentina.

Wiracocha Inca: The first Inca emperor who expanded Inca control beyond the Cuzco Valley. He was named after Wiracocha, the Inca god of creation.

Appendices

A. Glossary

Reading Assignment 4: Pages 13 to 15.

apu: A lord or judge serving the Inca emperor.

arid: Very dry.

ayllu: A related group of families in Andean societies, used as the basis for assigning mita labor tasks.

chasqui: A messenger who relayed official messages.

curaca: An official who supervised from 100 to 10,000 households in the Inca Empire. He or she served under the provincial governor.

hierarchy: An organization of people arranged in higher and lower ranks. Each person takes orders from the person above him or her in the hierarchy.

***mita* system:** The requirement that all male family heads work for a certain number of days for the Inca Empire. Duties included farming, serving in the army, textile weaving, building towns, terraces, irrigation systems and roads, working in mines, and carrying messages. Women were required to weave textiles.

provinces: Political subdivisions similar to U.S. states.

Appendices

A. Glossary

Reading Assignment 5: Pages 15 to 17.

abacus: A device for adding and subtracting that uses rows of beads.

bureaucrat: A government official who carries out orders.

constellation: A group of stars.

quipu: A device for recording numbers, and probably events, developed in South America and used extensively by the Inca emperor to gather information on the empire. The *quipu* is a long horizontal string with shorter strings extending vertically along it. Knots on the strings stand for different numbers and units. Different colors probably stood for different things that were being counted.

quipucamayoc: A person trained to read a *quipu.*

ritual: A religious ceremony.

Appendices

A. Glossary

Reading Assignment 6: Pages 17 to 18.

aqllakuna: The "Chosen Women" who wove cloth and made *chicha* that was consumed in religious rituals.

conopa: A small handmade object used in religious ceremonies by Andean people. They are often in the shape of llamas or other animals.

deity: A god.

docile: Easy to manage or control.

guanaco: A wild South American animal similar in size and shape to the llama, thought to be the ancestor of llamas and alpacas.

huaca: A site considered sacred to the Incas, such as a mountain, lake, river or rock.

mummy: A dead body preserved from decay, usually by wrapping in cloth.

vicuña: A wild animal of the Andean highlands related to the llama. Its wool is very fine. Only the Inca emperor and nobility were allowed to wear clothing made from vicuña wool.

Wiracocha: The Inca god of creation.

Appendices

A. Glossary

Reading Assignment 7: Pages 18 to 20.

anthropologist: A social scientist who studies modern peoples and their cultures.

archaeologist: A scientist who studies prehistoric human culture, usually by examining physical remains such as buildings, pottery, tools and other objects.

bias: Opinions and values held by a person that influence the way he or she interprets other cultures.

indigenous: Originating in the region or country where found; native.

Qero: A Quechua-speaking ethnic group living in the high mountains about 100 miles from Cuzco who still practice agricultural and herding techniques used during the Inca Empire. They weave beautiful textiles from alpaca wool. Their economic activities encompass three ecological zones: alpaca pastures, potato fields and maize fields.

Qoylluri Riti: A festival, still observed by Quechua-speaking people, where offerings are made at mountain-top shrines to ancient gods believed to inhabit the landscape. These shrines are dedicated to the Virgin Mary.

Runasimi: The name given by the Inca people to their language; literally "human speech." Scholars think that the Spanish mistakenly called the Inca language "quechua," an Inca word referring to a temperate and productive ecological zone in the Andean highlands.

Appendices

B. Word Match

Reading Assignment 1

Complete the following word match after reading tomorrow's homework assignment, pages 7 to 9.

1. _____ empire
2. _____ Andes Mountains
3. _____ Inca Empire
4. _____ Cuzco
5. _____ *conquistadores*
6. _____ Tahuantinsuyu
7. _____ mortar
8. _____ Coricancha
9. _____ Inti
10. _____ Pedro de Cieza de León
11. _____ clods
12. _____ maize
13. _____ llama
14. _____ plate
15. _____ Peru (Humboldt) Current
16. _____ El Niño

A. Spanish soldiers who conquered the Inca Empire and other Native American groups in North and South America.

B. Mountain chain running along the western coast of South America.

C. A city in present-day Peru; capital of the Inca Empire.

D. A building material made from sand, water and lime, similar to cement, for holding stones together.

E. The temple to Inti, the sun god, built by Pachacuti in Cuzco.

F. A Spanish soldier who wrote about the Inca Empire about 20 years after the Spanish Conquest.

G. Invasion of New World lands by the Spanish that began soon after Columbus arrived in the Americas.

H. Lumps of dirt.

I. Quechua word for the Inca Empire.

J. Huge sections of the earth's crust that grind against each other, occasionally causing earthquakes.

K. Empire centered in Cuzco (Peru) that governed between 10 and 12 million subjects in the Andes region of South America between about AD 1438 and 1532.

L. A very important part of the Inca diet; used to make *chicha,* or corn beer.

M. An animal native to South America related to the camel; used in the Andes to carry heavy loads. Its wool is used to weave cloth, its hide to make leather, and its meat is eaten.

N. Frigid ocean current that flows north along the west coast of South America, carrying cold, nutrient-filled water that supports a rich ecosystem of fish, birds and sea mammals.

O. A warm ocean current that runs south along the Peruvian coast; causes extreme weather-related disturbances in South America, including drought, torrential rains, mud slides and avalanches.

P. The Inca sun god. He was the second most important god after Wiracocha.

Appendices

B. Word Match

Reading Assignment 2

Complete the following word match after reading tomorrow's homework assignment, pages 9 to 11.

1. _____ *costa*
2. _____ *sierra*
3. _____ *selva*
4. _____ irrigation
5. _____ *altiplano*
6. _____ highlands
7. _____ *ceja de selva*
8. _____ montane cloud forest
9. _____ topography
10. _____ ecological niche
11. _____ tundra
12. _____ *quechua* zone
13. _____ *quinua*
14. _____ *coca*
15. _____ alpaca
16. _____ vertical economy
17. _____ *charqui*
18. _____ *chuño*
19. _____ tubers
20. _____ *manioc*
21. _____ *chicha*
22. _____ terraces
23. _____ ceramics

A. Small areas that support a specific mix of plant and animal life. Mountainous regions have many different zones since variations in altitude create different temperature and rainfall conditions.

B. Surface features of a place or region, including mountains, hills and valleys.

C. "Eyebrow of the rainforest."

D. Humid, high altitude climate that supports lush vegetation.

E. South American animal related to the camel and llama. Its wool is very soft and is used to make fine textiles.

F. Freeze-dried potatoes that can be stored for long periods.

G. High, dry plateau located in southeastern Peru and northwestern Bolivia between the two major Andean ranges.

H. In mountainous regions, different animals and crops can be raised at different altitudes. People can produce a variety of foods and other products within a relatively short distance by taking advantages of different zones.

I. An Andean freeze-dried meat that can be stored for long periods and easily transported.

J. Land in a very cold or high altitude region that remains frozen year-round.

K. Plants with a thick, sometimes edible root, such as potatoes and sweet potatoes.

L. A beer made from corn, often used by Andean people in festivals and religious ceremonies.

M. A tropical plant with starchy roots used in making tapioca.

N. Mountains.

O. Rainforest.

P. A plant native to South America that contains a chemical that is a narcotic. Andean people chew the leaves to dull hunger pangs, provide energy and receive nutrients. It is grown and processed to make cocaine, a powerful illegal drug.

Q. Structures built in mountainous regions to create a flat surface to plant crops. Retaining walls are built on a slope and soil is placed between the wall and the mountain slope. They prevent soil erosion and prevent excessive runoff of rain.

R. Land above 10,000 feet in altitude.

S. Coast.

T. Containers and other objects made out of clay, also called pottery.

U. A system of canals and ditches that carries water to fields so that crops can grow.

V. A temperate zone in the Andes Mountains.

W. A high-protein grain grown in the Andes.

VI. Appendices

B. Word Match

Reading Assignment 3

Complete the following word match after reading tomorrow's homework assignment, pages 11 to 13.

1. _____ oral history
2. _____ Sapa Inca
3. _____ Wiracocha Inca
4. _____ Inca Urcon
5. _____ Pachacuti (Inca Yapanqui)
6. _____ Topa Inca
7. _____ Huayna Capac
8. _____ Huascar
9. _____ Atahualpa
10. _____ Quechua
11 _____ smallpox
12. _____ immunity
13. _____ Francisco Pizarro
14. _____ Cajamarca
15. _____ plaza
16. _____ ransom
17. _____ puppet
18. _____ Thupa Amaru

A. A deadly infectious disease brought to the New World by Europeans.

B. A son of Wiracocha Inca who became Sapa Inca in 1438. He vastly expanded the Inca Empire through war and reorganized the Inca government.

C. The central square in a city or town. Usually important public buildings are grouped around the plaza.

D. Someone who is named ruler but is controlled by someone else. Thupa Wallpa was a puppet ruler appointed by the Spanish.

E. The Inca city where Pizarro and Atahualpa, the Inca emperor, met.

F. Payment made or demanded before a captive person is set free.

G. The body's ability to fight an infectious disease. Native Americans were very susceptible to European diseases such as smallpox because their bodies had not built up immunity to them by being exposed to the disease over time.

H. The language spoken by the Inca people. It was the official language of the Inca Empire and is still spoken today in the central Andean highlands.

I. Inca emperor who ruled after Pachacuti and expanded Inca territory in Ecuador, Bolivia, central Chile and parts of Argentina.

J. The first Inca emperor who expanded the Inca Empire beyond the Cuzco Valley. He was named after Wiracocha, the Inca god of creation.

K. He was captured by the Spanish *conquistadores* just before being installed as emperor and eventually murdered by the Spanish.

L. History that is not written down, but is handed down by one person telling others about events in the past.

M. He fought his brother in a bloody five-year civil war and was defeated just prior to the arrival of the Spanish *conquistadores*.

N. Spanish soldier who conquered the Inca Empire in 1532.

O. Wiracocha's son and chosen heir who fled Cuzco with his father during the Chanca war.

P. After extending the Inca Empire to its largest area, he died suddenly of smallpox.

Q. The title given to the Inca emperor, meaning "Ultimate Inca."

R. The last Inca ruler to resist the Spanish, who killed him in 1572.

VI. Appendices

B. Word Match

Reading Assignment 4

Complete the following word match after reading tomorrow's homework assignment, pages 13 to 15.

1. _____ *mita* system
2. _____ *ayllu*
3. _____ hierarchy
4. _____ *apu*
5. _____ province
6. _____ *curaca*
7. _____ *chasqui*
8. _____ arid

A. An official who supervised from 100 to 10,000 households in the Inca Empire. He or she served under the provincial governor.

B. Political subdivisions similar to U.S. states.

C. Requirement that all male family heads work for a certain number of days for the Inca Empire. Duties included farming, serving in the army, textile weaving, building towns, terraces, irrigation systems and roads, working in mines, and carrying messages.

D. An organization of people arranged in higher and lower ranks. Each person takes orders from the person above him or her.

E. A lord or judge serving the Inca emperor.

F. A related group of families in Andean societies.

G. Very dry.

H. Messenger who relayed official messages.

Appendices

B. Word Match

Reading Assignment 5

Complete the following word match after reading tomorrow's homework assignment, pages 15 to 17.

1. _____ *quipu*
2. _____ bureaucrat
3. _____ abacus
4. _____ *quipucamayoc*

A. A person trained to read a *quipu.*

B. A government official who carries out orders.

C. A method for adding and subtracting using rows of beads.

D. A device for recording numbers, and probably events, developed in South America and used extensively by the Inca emperor to gather information on the Inca Empire. It is a long horizontal string with shorter strings extending vertically along it. Knots on the strings stand for different numbers and units. Different colors probably stood for different things that were being counted.

Appendices

B. Word Match

Reading Assignment 6

Complete the following word match after reading tomorrow's homework assignment, pages 17 to 18.

1. _____ *huaca*
2. _____ Wiracocha
3. _____ deity
4. _____ mummy
5. _____ *aqllakuna*
6. _____ vicuña
7. _____ *guanaco*
8. _____ docile
9. _____ *conopa*

A. The "Chosen Women" who wove cloth and made *chicha* that was consumed in religious rituals.

B. The Inca god of creation.

C. A site considered sacred to the Incas, such as a mountain, lake, river or rock

D. A god.

E. A dead body preserved from decay, usually by wrapping in cloth.

F. Obedient, easy to control.

G. A wild animal of the Andean highlands related to the llama. Its wool is very fine. Only members of Inca royalty were allowed to wear clothing made of vicuña wool.

H. A small handmade object used in religious ceremonies by Andean people, often in the shape of llamas or other animals.

I. A wild South American animal similar in size and shape to the llama, thought to be the ancestor of llamas and alpacas.

Appendices

B. Word Match

Reading Assignment 7

Complete the following word match after reading tomorrow's homework assignment, pages 18 to 20.

1. _____ bias
2. _____ *Runasimi*
3. _____ archaeologist
4. _____ anthropologist
5 _____ Qero
6. _____ *Qoylluri Riti*

A. A festival, still observed by Quechua-speaking people, where offerings to ancient gods believed to inhabit the landscape are made at mountain-top shrines. The shrines are dedicated to the Virgin Mary.

B. A social scientist who studies modern peoples and their cultures, customs and beliefs.

C. Opinions and values held by a person that influences the way he or she interprets other cultures.

D. A scientist who studies prehistoric human cultures, usually by examining physical remains such as buildings, pottery, tools and other objects.

E. A Quechua-speaking ethnic group living in the mountains about 55 miles from Cuzco who still practice agricultural and herding techniques used during the Inca Empire. They weave beautiful textiles from alpaca wool.

F. The Inca term for their language, meaning "human language."

Appendices

C. Connections to Connecticut Social Studies Framework Standards

This curriculum supports the following standards of the Social Studies Curriculum Framework for the state of Connecticut.

K-12 Content Standards

History

Historical Thinking: Students will develop historical thinking skills, including chronological thinking and recognizing change over time; contextualizing, comprehending and analyzing historical literature; researching historical sources; understanding the concept of historical causation; understanding competing narratives and interpretation; and constructing narratives and interpretation.

Historical Themes: Students will apply their understanding of historical periods, issues and trends to examine such historical themes as ideals, beliefs and institutions; conflict and conflict resolution; human movement and interaction; and science and technology in order to understand how the world came to be the way it is.

Content Standard 2: World History

Educational experiences in Grades K–12 will assure that students use historical thinking skills to study the following periodization with escalating scale of breadth and depth:

World History

…intensified hemispheric interactions [AD 1000–1500];

emergence of the first global age [AD 1450–1770]…

Geography

Places and regions

Students will use spatial perspective to identify and analyze the significance of physical and cultural characteristics of places and world regions.

Physical systems

Students will use spatial perspective to explain the physical processes that shape the Earth's surface and its ecosystems.

Human systems

Students will interpret spatial patterns of human migration, economic activities and political units in…the world.

Human and environmental interaction

Students will use geographic tools and technology to explain the interactions of humans and the larger environment, and the evolving consequences of those interactions.

Economics

Economic interdependence

Students will demonstrate how the exchange of goods and services by individuals, groups and nations creates economic interdependence and change.

K–12 Performance Standards

Educational experiences in Grades 5 to 8 will assure that students:

—formulate historical questions based on primary and secondary sources, including documents, eyewitness accounts, letters and diaries, artifacts, real or simulated historical sites, charts, graphs, diagrams and written texts;

—gather information from multiple sources, including archives or electronic databases, to have experience with historical sources and to appreciate the need for multiple perspectives;

—distinguish between primary and secondary sources;

—interpret data in historical maps, photographs, artworks and other artifacts;

—examine data to determine the adequacy and sufficiency of evidence, point of view, historical context, bias, distortion and propaganda, and to distinguish fact from opinion;

—analyze data in order to see persons and events in their historical context, understand causal factors and appreciate change over time;

—examine current concepts, issues, events and themes from historical perspectives and identify principle conflicting ideas between competing narratives or interpretations of historical events; and

—develop written narratives and short interpretative essays, as well as other appropriate presentations from investigations of source materials.

Historical themes

Educational experiences in Grades 5 to 8 will assure that students:

—explain the origins of American religious diversity, showing knowledge of some of the beliefs of Native Americans and migrants to the new world and give examples of ways those beliefs have changed over time;

—explain how roles and status of people have differed and changed throughout history based on gender, age, class, racial and ethnic identity, wealth, and/or social position;

—describe examples of how societies throughout history have used various forms of visual arts, dance, theater, myths, literature and music to express their beliefs, sense of identity and philosophical ideas;

—explain reasons for conflict and ways conflicts have been resolved;

—identify and analyze the various causes and effects of movements of groups of people;

—explain how economic factors influenced historical events in…other regions of the world; and

—describe, explain and analyze the impact of the exchange of ideas on societies, politics, religion, etc.

Standard 4: Applying history

Educational experiences in Grades 5 to 8 will assure that students:

—initiate questions and hypotheses about historic events being studied;

—be active learners at cultural institutions such as museums and historical exhibitions;

—display empathy for people who have lived in the past.

Standard 9: Places and Regions

Educational experiences in Grades 5 to 8 will assure that students:

—describe human and natural characteristics of places and how they shape or place identity; describe the process and impact of regional change;

—examine ways in which regions are interconnected;

—identify and evaluate various perspectives associated with places and regions;

—explain and assess how culture affects perception of places and regions;

—demonstrate how personal knowledge and experiences influence an individual's perception of places.

Standard 10: Physical Systems

Educational experiences in Grades 5 to 8 will assure that students:

—understand how concepts of physical geography can be applied to explain natural processes;

—understand and apply how natural processes influence the formation and location of resources;

—use basic climatic and other physical data to understand how natural processes shape environmental patterns; and

—explain local and world patterns of ecosystem distribution.

Standard 11: Human Systems

Educational experiences in Grades 5 to 8 will assure that students:

—explain the patterns and characteristics of human migrations at various levels;

—explain how patterns of international trade change technology, transportation and communication, and affect economic activities and human migration;

—identify processes that divide Earth's surface into different political and economic units from local to international levels.

Standard 12: Human and Environment Interactions

Educational experiences in Grades 5 to 8 will assure that students:

—explain the essential features and functions of maps, globes, photographs, geographic models and satellite images;

—make maps, globes, models, charts and geographic databases;

—compare and contrast differences among…photographs…for solving geographic problems;

—use maps, globes, models, graphs, charts and databases to analyze distributions and patterns;

—describe human and natural characteristics of places and how they shape or place identity;

—demonstrate and explain ways that humans depend on, adapt to and alter the physical environment; and identify the ways ecosystems are transformed through physical and human activities, and can predict the consequences of these activities.

Standard 13: Limited Resources

Educational experiences in Grades 5 to 8 will assure that students:

—compare the resources used by various cultures, countries and/or regions throughout the world;

—explain that households, businesses, governments and societies face scarcity just as individuals do;

—illustrate how resources can be used in a variety of ways.

Standard 14: Economic Systems

Educational experiences in Grades 5 to 8 will assure that students:

—explain how different economic systems (traditional, market and command) use different means to produce, distribute and exchange goods and services;

—explain that all countries' economies reflect a mix of market, command and traditional elements;

—identify governmental activities that affect the local, state, national and international economy;

Standard 15: Economic Interdependence

Educational experiences in Grades 5 to 8 will assure that students:

—explain how specialization leads to more efficient use of economic resources and economic growth.