

# The Mayas

## The Territory of the Mayas

The Mayan culture spread throughout southern Mexico and Central America. It included the **Yucatan Peninsula** to the north as well as today's countries of Honduras, Belize, El Salvador, and Guatemala to the south. It stretched from the Pacific Ocean in the west to the Caribbean Sea in the east. This land included rugged highlands as well as dense swamps.

## The Mayan People

The Mayan people were short. The average height of the men was just over five feet. The women were about four feet eight inches tall. Mayas had straight black hair, and many painted their bodies black, red, or blue. They also often had tattoos. They valued crossed eyes and tied objects from their infants' foreheads to encourage their eyes to cross. Some Mayas also tied boards to the heads of their children to flatten their foreheads.

## Mayan History

Historians divide the story of the **Mayas** into three eras: the pre-classic, the classic, and the post-classic. The **pre-classic era** lasted from about 2,500 B.C. to A.D. 250. During this time, the Mayas came in contact with and borrowed from the Olmecs. The early Mayan settlements were fishing villages along the Pacific Ocean and Caribbean Sea; they moved inland when they learned to plant crops.

The Mayan **classic era** continued from A.D. 250 to A.D. 900. They built many great cities, most of which had majestic pyramid temples. **Tikal**, the largest Mayan city, may have had a population of 100,000 or more. During the classic era, the Mayas improved methods of agriculture. They also developed advanced mathematics and astronomy as well as a system of writing.

The **post-classic era** began with the collapse of the Mayan empire after A.D. 900. It lasted until the **Spanish conquest** in the 1500s. One of the world's greatest mysteries is what happened to the Mayan culture. It was the most important civilization in the new world in A.D. 900. Suddenly, however, the Mayas left their great cities and scattered throughout the countryside. We still do not know why the great Mayan civilization ended. The Mayas continued to farm and trade in the region after the great cities fell. Christopher Columbus met some Mayan traders in 1502. Mayan descendants still live in the region of their ancestors.



The Mayas created sculptures on large stone slabs called stela. These carvings reveal much about the Mayan people.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Knowledge Check

## Matching

- |                            |   |
|----------------------------|---|
| _____ 1. Yucatan Peninsula | a. period when the Mayas built many great cities  |
| _____ 2. Mayas             | b. time when soldiers from Spain conquered the natives of the new world                                     |
| _____ 3. pre-classic era   | c. the largest Mayan city   |
| _____ 4. classic era       | d. people who lived in the Yucatan Peninsula and what is today Belize, El Salvador, Honduras, and Guatemala |
| _____ 5. post-classic era  | e. period when the Mayas lived in fishing villages  |
| _____ 6. Tikal             | f. period after the collapse of the Mayan empire  |
| _____ 7. Spanish Conquest  | g. area of land that juts out into the Caribbean Sea; includes part of Mexico, Belize, and Guatemala        |

## Multiple Choice

8. What was one trait Mayan people did not have?
- |                  |                 |
|------------------|-----------------|
| a. straight hair | b. tattoos      |
| c. tall          | d. crossed eyes |
9. What allowed the Mayas to move inland?
- |                               |                                |
|-------------------------------|--------------------------------|
| a. they found fish in streams | b. they learned to plant crops |
| c. they began hunting         | d. they found an Olmec city    |
10. What were the most well-known structures in Mayan cities?
- |                  |                    |
|------------------|--------------------|
| a. burial mounds | b. deep wells      |
| c. level roads   | d. pyramid temples |

## Constructed Response

11. What evidence is there that the Mayas had an advanced civilization? Use details from the reading selection to help support your answer.

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## Mayan Cities

The ruins of Mayan cities remained hidden for centuries in the dense jungles. Scientists are still working to uncover and study most of these cities, but visitors can now explore the ruins of Tikal, Copán, Chichén Itzá, and several other cities.

### How Mayan Cities Were Organized

At first, scientists thought these locations were religious centers only.

After further study, they found these were complete cities. The ceremonial center formed the heart of each city. Tall pyramids topped with temples stood in large open **plazas**, and public buildings, palaces, and **ball courts** surrounded the plazas.

The rulers and priests likely lived in the city's center. The upper- and middle-class citizens built their homes just outside the city center, and the peasants lived in huts on the edges. Raised roads, called **causeways**, ran through the city. Mayas built the causeways two to four feet above ground level. Some causeways measured up to 15 feet wide.

### Construction Materials and Methods

The Mayas used carved stone for the main buildings of the city. They carved the giant building stones with simple tools that were also made of stone, since they did not have metal tools. They moved the stones to the building location using man power. They did not use animals or wheeled vehicles to help. A cement made of limestone provided mortar between the stones. The Mayas spread a limestone stucco or cement over stones to give the buildings smooth surfaces and then painted the buildings with bright colors.

### Tikal

**Tikal**, in northern Guatemala, is the largest and perhaps oldest Mayan city. It spread over 50 square miles. Tikal's population may have reached over 100,000 people. The central plaza in Tikal measures 250 by 400 feet. Two of the eight pyramid temples of Tikal face each other across the great plaza. The temple of the Giant Jaguar and its pyramid rise over 150 feet. Scientists discovered a tomb inside one of the pyramids. There they found jade, pearl, and shell jewelry. Inscriptions revealed that it was a tomb containing the skeleton of a ruler named Double Comb.

### Copán

**Copán** is the second largest Mayan city. It has five main plazas. The most famous ruin in Copán is the great staircase. It is 30 feet wide and has 63 steps. Picture writing covers each step. Copán also has a perfect example of a ball court.

### Chichén Itzá

The ruins of **Chichén Itzá** include several plazas, pyramid temples, and ball courts. The great pyramid of Chichén Itzá is visible from miles away. An important ruin is the large observatory tower used by ancient astronomers. Chichén Itzá is the location of **The Well of Sacrifice**. The Mayas threw many live men into the well as sacrifices to the gods.



The Pyramid of Kukulcan at Chichén Itzá

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Knowledge Check

#### Matching

- |                                |  |
|--------------------------------|--|
| _____ 1. plaza                 | a. largest and perhaps oldest Mayan city   |
| _____ 2. ball court            | b. ruins of this city include a great pyramid, observatory tower, and a sacred well                  |
| _____ 3. causeway              | c. a raised road two to four feet above ground level   |
| _____ 4. Tikal                 | d. an open area in a city for public use   |
| _____ 5. Copán                 | e. second largest Mayan city   |
| _____ 6. Chichén Itzá          | f. place where Mayans played a game that has similarities to modern basketball, soccer, and football |
| _____ 7. The Well of Sacrifice | g. place where live men were thrown to please the gods   |

#### Multiple Choice

8. Mayan tools were made of what material?
 

a. iron	b. stone
c. bronze	d. steel
  
9. Astronomers used what structure in Chichén Itzá for their work?
 

a. observatory	b. pyramid temple
c. plaza	d. ball court
  
10. Picture writing covers what famous ruin in Copán?
 

a. Giant Jaguar temple	b. The Well of Sacrifice
c. observatory tower	d. giant staircase

#### Constructed Response

11. Describe how a Mayan city was organized. Use details from the reading selection to help support your answer.

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## Mayan Writing

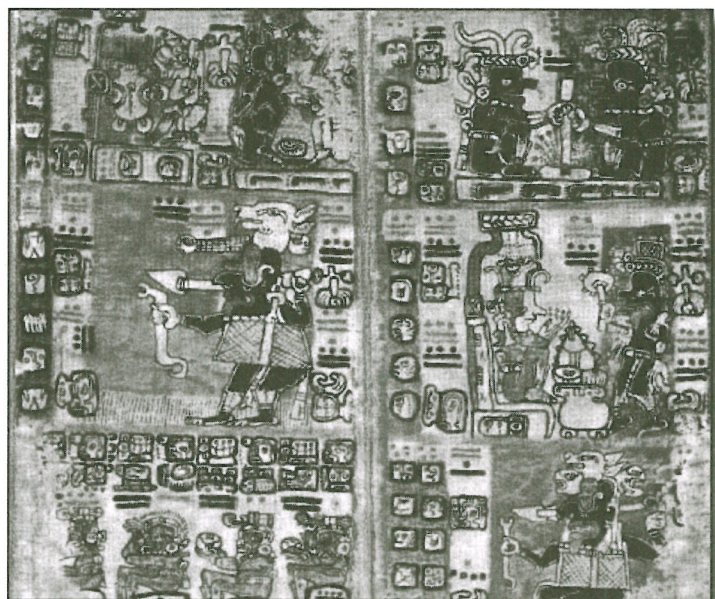
### Glyphs

The Mayas used the most advanced system of writing of the ancient Americans. They probably borrowed the idea of picture writing from the Olmecs. They then developed their own system of writing based on that.

They did not use an **alphabet**. Instead, they used a combination of pictures to represent ideas and symbols to represent sounds. The pictures and symbols used in their writing are called **glyphs**. The Mayas combined glyphs into groups. These groupings have a square or oval shape. We know of about 800 different glyphs.

### Understanding the Glyphs

Scientists study Mayan writing in the few remaining Mayan books and examples carved on stones. Many of these stones are from ancient Mayan buildings. Scientists know the meaning of some of the Mayan symbols. Much of the Mayan writing system still remains a mystery. So far, we know the meaning of fewer than half the glyphs discovered.



These are pages from the Mayan Codex in Madrid, one of the few remaining samples of Mayan writing.

Here are some examples of Mayan glyphs:



fish



vulture



dog



wife



death

### Paper and Books

The Mayas had a process for making paper that used fibers from the bark of the **figus tree**. They pounded the fibers into a **pulp** then glued the pulp together with tree sap. When the paper dried, they coated it with white lime. This made a smooth, white surface on which to paint.

The Mayas also made books. The name for a Mayan book is **codex**. Mayas used ficus-fiber paper or deer hide for pages. The pages of Mayan books folded from side to side and unfolded like a screen. They painted colorful glyphs and pictures of gods, animals, and objects on the pages of the codex. The Mayas used decorated boards for covers.

Spanish conquerors found great collections of Mayan books, but according to the beliefs of the Spanish, Mayan books were evil, so the conquerors destroyed most of them. Only three complete Mayan books survive today. They are located in museums in Europe. Only fragments of other Mayan books remain.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Knowledge Check

### Matching

- |   |   |
|---|---|
| <p>_____ 1. alphabet</p> <p>_____ 2. glyphs</p> <p>_____ 3. ficus tree</p> <p>_____ 4. pulp</p> <p>_____ 5. codex</p> | <p>a. tree fibers pounded into a soft mass that, when dried, forms paper</p> <p>b. a writing system where each character stands for a letter</p> <p>c. a writing system where pictures and symbols represent ideas and sounds</p> <p>d. the name for a Mayan book</p> <p>e. the Mayas used fibers from the bark of this plant to make paper</p> |
|---|---|

### Multiple Choice

6. What did the Mayas use to make their paper white?
- |              |           |
|--------------|-----------|
| a. tree bark | b. glyphs |
| c. tree sap  | d. lime   |
7. How many complete Mayan books still exist today?
- |       |       |
|-------|-------|
| a. 3  | b. 5  |
| c. 11 | d. 16 |
8. Where do scientists get many of the samples of Mayan writing that they study?
- |                                  |  |
|----------------------------------|--|
| a. letters written by the Mayans | b. books in the Mexican national library |
| c. stones from Mayan buildings   | d. paintings in caves                    |

### Constructed Response

9. Why did the Spanish destroy Mayan books? Give details from the reading selection to support your answer.

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## Mayan Mathematics and Astronomy

### Mathematics

The Mayas developed an important system of mathematics. It was more advanced than the systems used by the ancient Egyptians, Greeks, or Romans.

### Zero and Other Numbers

The Mayas were perhaps the first people to use the idea of a **zero**. This was an important invention. They used a picture of a shell to equal zero. They also used a dot to equal one. A bar equaled five. The Mayas used a base of 20 the same way we use a base of ten. However, they wrote their numbers from top to bottom instead of from left to right as we do.



The Mayas built observatories in many of their cities to aid in their study of astronomy. This observatory in Chichén Itzá still stands today.

Mayan numbers looked like this:



### Astronomy

An advanced system of **astronomy** was also developed by the Mayas. The priests studied the movements of the sun, moon, planets, and stars. They could predict **eclipses** and the orbit of the planet Venus. The Mayas believed that the heavenly bodies were gods. If they studied the sky, the Mayas hoped to learn to predict events on earth that these gods controlled.

To study the heavens, the Mayas built large **observatories** in many of their cities. The observatory at Chichén Itzá is one of the important Mayan buildings that still stands.

### Calendars

The Mayan priests used their knowledge of astronomy and mathematics to develop accurate calendars. They had two different calendars. One was a sacred calendar, and the other was used for planning regular events.

The **sacred calendar** had 260 days. It used 20 day names, and each day had a god or goddess associated with it. They did not divide the sacred calendar into months. The Mayas used this calendar to determine religious events.

A **365-day calendar** based on the movement of the earth around the sun was also used. This calendar had 18 months of 20 days each. The Mayas believed the five extra days at the end of the year were unlucky. The Aztecs later based their calendar on that of the Mayas.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Knowledge Check

### Matching

- |   |   |
|---|---|
| <p>_____ 1. zero</p> <p>_____ 2. astronomy</p> <p>_____ 3. eclipse</p> <p>_____ 4. observatory</p> <p>_____ 5. sacred calendar</p> <p>_____ 6. 365-day calendar</p> | <p>a. place where the Mayas studied the heavens</p> <p>b. based on the movement of the earth around the sun; had 18 months of 20 days with five extra days at the end</p> <p>c. studying the movements of the sun, moon, planets, and stars</p> <p>d. had 260 days with 20 day names, each associated with a god or goddess; used to plan religious events</p> <p>e. the idea of using a symbol to represent the absence of all quantity</p> <p>f. when the sun or moon is blocked by another heavenly body and its light does not shine on earth</p> |
|---|---|

### Multiple Choice

7. Mayas wrote their numbers from
- |                   |                   |
|-------------------|-------------------|
| a. left to right. | b. right to left. |
| c. top to bottom. | d. bottom to top. |
8. What did the Mayas use to equal the number one?
- |           |        |
|-----------|--------|
| a. shell  | b. dot |
| c. square | d. bar |
9. The Mayas' regular calendar had 18 months with 20 days each and five extra days at the end of the year. What was special about those five days?
- |                              |                            |
|------------------------------|----------------------------|
| a. They were feast days.     | b. They were lucky days.   |
| c. They were sacrifice days. | d. They were unlucky days. |

### Constructed Response

10. How did the Mayan priests use their knowledge of astronomy and mathematics? Use details from the reading selection to help support your answer.

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Explore: Mayan Math Exercise

The Mayas used a shell to equal 0, a dot to equal one, and a bar to equal 5. Fill in the missing Mayan number symbols below.

0	●		● ● ●		—	
	1	2	3	4	5	6
● ●					● ●	
—			—		—	
7	8	9	10	11	12	13
		●			● ● ● ●	
		—			—	
		—			—	
14	15	16	17	18	19	

Write in the answers to the following math problems, using Mayan numbers.

1.	2.	3.	4.
 +  _____	 -  _____	 +  +  -  _____	 +  -  _____

On your own paper, make up and answer four Mayan math problems.

## Mayan Trade

### Merchants

The Mayas became great traders. The Mayan name for merchants was *ppolm*. These *ppolm* became highly respected and important members of Mayan society. They even had their own god, Ek Chaub.



The Mayas used large, seagoing canoes to carry on trade in the Gulf of Mexico and the Caribbean.

### Trade Routes

Trade routes developed throughout the Mayan lands. Later, trade went as far south as Guatemala and Belize. Trade also extended to the Caribbean Islands.

Human **caravans** carried the trading goods. The Mayas did not use animals or wheeled vehicles to move goods. Instead, slaves did most of the carrying.

In the interior, small pathways criss-crossed the land. The Mayas did not build major road systems, but they did build **canoes** for river travel. The rivers provided a faster and more efficient way to move goods.

On the coastal regions, Mayas used large seagoing canoes. Christopher Columbus saw a Mayan canoe in 1502, during his fourth voyage to the Americas. He recorded that it was over 50 feet long and about eight feet wide and had a cabin structure and a crew of about 12 men.



The Court of a Thousand Columns was a market in Chichén Itzá.

### Marketplaces

Most of the Mayan trade was directly between merchants, who then resold goods. Some villages became major trading centers. The villagers built large stone warehouses in which goods were stored. Larger Mayan cities had great marketplaces. One of the most famous markets was in the **Court of a Thousand Columns**. This was a plaza next to the Temple of the Warriors in Chichén Itzá.

### The Barter System

The Mayas used the barter system. **Barter** is the exchange of certain goods for others. Money is not used in this system. The Mayas did not have money. At times, they used cacao beans instead of money. One record shows that a slave was worth 100 cacao beans.

The Mayas traded fruits and vegetables as well as salt, honey, dried fish, turtle eggs, deer meat, and birds. They also exchanged many non-food items. Popular goods included cotton cloth, animal skins, feathers, shells, gold, emeralds, jade, and other valuable stones. The Mayas also bought and sold slaves at the markets.

No other ancient American group became as involved in trade as the Mayas. It was not until modern days that trade again became as important to our culture.



Quetzal feathers were prized by the Mayas.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Knowledge Check

### Matching

- |   |   |
|---|---|
| <p>_____ 1. ppolm</p> <p>_____ 2. caravans</p> <p>_____ 3. canoe</p> <p>_____ 4. Court of a<br/>Thousand Columns</p> <p>_____ 5. barter</p> | <p>a. groups of traders and slaves traveling together for safety</p> <p>b. the exchange of certain goods for others</p> <p>c. the Mayan name for merchants</p> <p>d. a plaza in Chichén Itzá where a large market was set up</p> <p>e. a narrow boat with both ends pointed that is usually moved by paddling</p> |
|---|---|

### Multiple Choice

6. Who carried most of the trade goods from place to place?
 

a. merchants	b. donkeys
c. llamas	d. slaves
  
7. Who saw and described a Mayan seagoing canoe in 1502?
 

a. Vasco da Gama	b. Ferdinand Cortés
c. Christopher Columbus	d. Francisco Pizarro
  
8. What did the Mayans NOT use in their trading system?
 

a. money	b. barter
c. cacao beans	d. slaves
  
9. Which Mayan god was important to the merchants?
 

a. Chac	b. Ix Chel
c. Ek Chaub	d. Buluc Chabtan

### Constructed Response

10. List some of the items the Mayas traded. Use details from the reading selection to help support your answer.

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# The Great Mayan Mystery

## What Happened to the Mayas?

One of the great mysteries in the history of civilization is what happened to the Mayas. The Mayas suddenly abandoned their cities about A.D. 850. The Mayan society collapsed, and the people scattered through the countryside. Scholars have formed many theories about the cause of the collapse. However, not one bit of proof of any of these theories exists.

## Natural Disaster

Some people believe that a natural disaster caused the Mayas to desert the cities. Perhaps an earthquake or a hurricane forced them to leave suddenly. Was an **epidemic** of a disease such as yellow fever the cause? Perhaps they had to leave so quickly that no one had time to carve stones that would tell the story.

## Agricultural Failure

Others believe that the Mayas left due to agricultural reasons. Perhaps the Mayan system of farming exhausted the soil. The crops could no longer feed the large population. The Mayas did not develop new planting methods. They always used the planting stick. They never discovered how to use a plow. This limited the size of the crops. The Mayas did not use animals nor wheeled vehicles. The only way to transport food from the fields to the cities was by **man power**. This limited how far away from the city the Mayas could plant crops. If this theory is true, the people had to leave the cities to avoid hunger.

## Peasant Revolt

Another theory is that the **peasants** may have revolted against the rulers. The peasants worked very hard. Most of their labor provided food and wealth to the upper classes. Did the peasants refuse to continue their work? The upper classes would have had to leave the cities to survive if the peasants left the farms.

## Outside Attack

Still other people believe that invaders attacked and conquered the cities. Perhaps other tribes such as the **Toltecs** took over the cities and forced the Mayas to leave.

The mystery of the last days of the Mayas is still being debated. We have no proof of any one of the theories. Will scientists discover something in the Mayan ruins that will give us a clue to the answer? Will we ever find the answer to the great mystery of the Mayas?



Tikal, in northern Guatemala, was the largest Mayan city. It and the other Mayan cities were abandoned in about A.D. 850.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Knowledge Check

### Matching

- |                    |  |
|--------------------|--|
| _____ 1. epidemic  | a. an outbreak of disease that affects a large number of people at the same time |
| _____ 2. man power | b. people who became the most important tribe in the region after the Mayas left |
| _____ 3. peasants  | c. the poor people who worked the land   |
| _____ 4. Toltecs   | d. human strength or effort without the help of machines                         |

### Fact/Opinion

Place an *F* on the line if the statement is a fact. Place an *O* on the line if it is an opinion.

- \_\_\_\_\_ 5. Mayan peasants may have revolted against their rulers.
- \_\_\_\_\_ 6. The Mayas never developed new farming methods, such as using plows, animals, or wheeled vehicles.
- \_\_\_\_\_ 7. A hurricane could have destroyed the Mayan cities and food supply and forced them to leave suddenly.
- \_\_\_\_\_ 8. Another tribe, such as the Toltecs, may have forced the Mayas to leave.
- \_\_\_\_\_ 9. The Mayas suddenly abandoned their cities about A.D. 850.
- \_\_\_\_\_ 10. A disease might have wiped out most of the Mayas.

### Critical Thinking

11. Knowing what you do about the Mayas, which theory in the reading selection do you think is the best explanation for what happened to them? Why? Use details from the reading selection to help support your answer.

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## The Mayas and the Spanish

### Mayapan

After the fall of the great Mayan cities, the Mayan people continued to live in both the highlands and lowlands of their ancestors. However, they never again achieved the greatness of the earlier Mayan civilization. **Mayapan** became the new capital in the 13th century. It was the only walled city built by the Mayas. Mayapan lasted only until about 1441, when it was destroyed.

### Small City-States

The Mayas settled in several other small villages. They no longer had a central government. Many independent tribes formed separate **city-states**. The Mayas continued to fight amongst themselves. These civil wars, as well as epidemics, droughts, and hurricanes, continued to weaken the Mayan tribes.

### The Mayas Meet Europeans

The first meeting of Mayas and Europeans occurred in 1502. During his fourth voyage, Columbus wrote of seeing native trading canoes. Other white men came through the Mayan lands during the next few years, searching for gold and slaves.

The white men brought with them diseases that were new to the native people of the Americas. **Smallpox** was the worst of these. The natives had no resistance built up against the deadly disease. The vaccine against smallpox was not developed until centuries later, and hundreds of thousands of Native Americans soon died of the disease.

### The Spanish Conquer the Mayas

The death of so many Native Americans and fighting between the tribes helped the Spanish conquer the land. Hernando Cortés led several conquest groups through the Mayan lands between 1519 and 1525. Other Spanish expeditions followed. By 1542 the Spanish had built their own capital city, Mérida. Mérida is now the capital of the state of Yucatan, Mexico.

The conquest of the Mayas lasted for many years. It was a bloody and brutal defeat. The Mayas could not compete against the superior arms and **cavalry** of the enemy. Often, some Mayan tribes joined the Spanish against other tribes. The Mayan armies also lost many warriors to disease.

After a short battle, the Spanish conquered the last Mayan kingdom, **Tayasal**, in 1697. With the fall of Tayasal, the Spanish destroyed the last remnants of the once great Mayan civilization.



Some tribes joined the Spaniards to attack the Mayas.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Knowledge Check

### Matching

- |                      |   |
|----------------------|---|
| _____ 1. Mayapan     | a. soldiers mounted on horses   |
| _____ 2. city-states | b. independent units of government formed around cities                             |
| _____ 3. smallpox    | c. the last Mayan kingdom   |
| _____ 4. cavalry     | d. the new Mayan capital in the 13th century  |
| _____ 5. Tayasal     | e. a deadly disease brought by the Europeans to which the natives had no resistance |

### Multiple Choice

6. What was different about the city of Mayapan?
 

a. It was destroyed.	b. It was in the Yucatan Peninsula.
c. It was a walled city.	d. It was built by the Mayas.
  
7. What were the white men from Europe searching for in the Mayan lands?
 

a. food	b. gold and slaves
c. lumber	d. salt and cacao
  
8. What was the name of the Spanish capital in this region?
 

a. Tayasal	b. Mayapan
c. Tikal	d. Mérida
  
9. Often, Mayans joined the Spanish to fight against
 

a. other white men.	b. other Mayans.
c. jaguars.	d. the Toltecs.

### Constructed Response

10. What four things continued to weaken the Mayan civilization? Use details from the reading selection to help support your answer.

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