THE DALLAS WORLD AQUARIUM

Mundo Maya:

A Resource for Teachers

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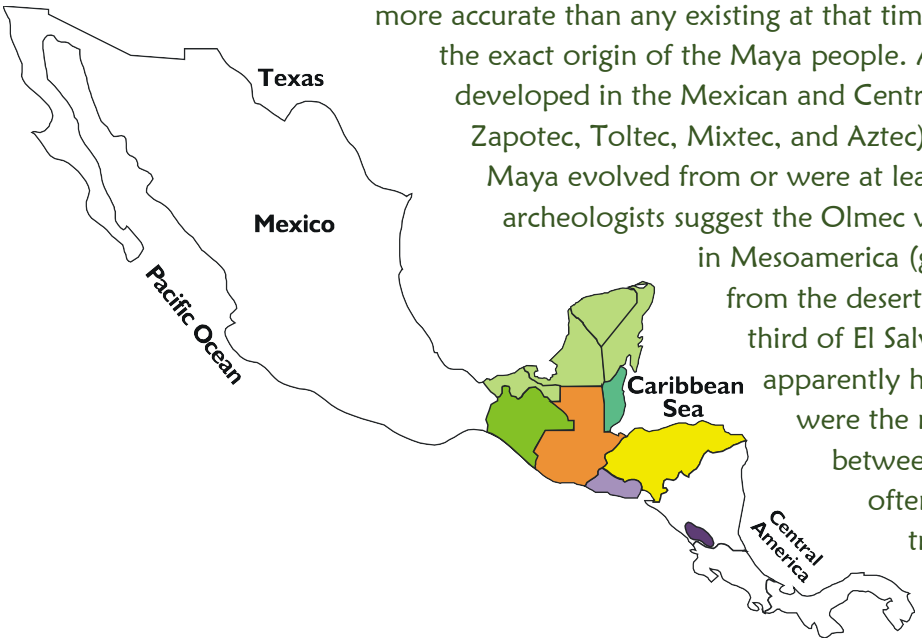
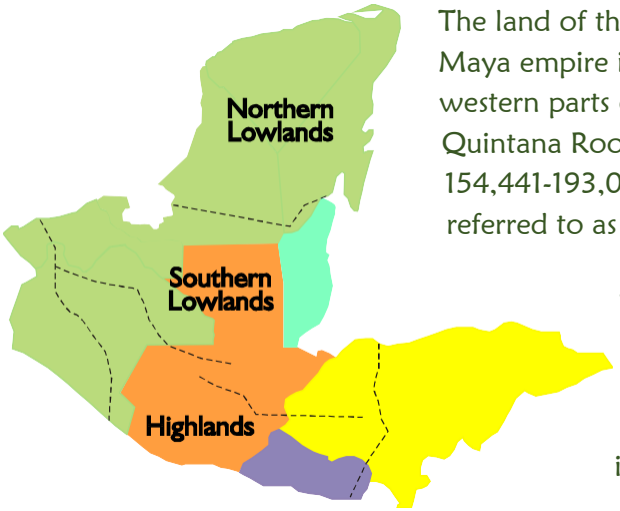
The Maya civilization was one of the great ancient cultures of the Western Hemisphere. Dominating the area from Mexico's Yucatan peninsula to the rainforest of Guatemala, the Maya civilization lasted several thousand years and presently survives in parts of Mexico and Central America.

The Maya civilization was not a single united empire like the ancient Romans or Chinese, but a group of city-states like the Greeks. Although these city-states were ruled by different kings and queens, they shared a common culture with the same religion, art, and lifestyle. Through the ages, different cities gained power and ruled large areas of land. Evidence of their wealth can be seen in their artwork and the monuments they built. Some of these are now quite famous, such as Tikal, Palenque, Coba, and Chichen Itza.

The wealth of the Maya was measured not only in the jewels and precious metals discovered in their temples, but also in their science and culture. The Maya built temples that, until very recently, remained the tallest man-made structures in the area. They also developed a sophisticated mathematical system, and their calendar was more accurate than any existing at that time. Archeologists differ in opinions as to the exact origin of the Maya people. Although many ancient civilizations developed in the Mexican and Central American region (such as Olmec, Zapotec, Toltec, Mixtec, and Aztec), the most common theory is that the Maya evolved from or were at least related to the Olmecs. Many modern archeologists suggest the Olmec was the first great civilization that existed in Mesoamerica (generally defined as the cultural areas from the deserts of northern Mexico to the eastern third of El Salvador and Honduras). The Olmec, apparently highly developed and well organized, were the most prevalent group in this region between 1200 B.C.- 600 A.D. Mesoamerica often refers more to the societal and cultural traditions of this land than to geography.





The land of the Maya occupied the eastern third of Mesoamerica. The ancient Maya empire included the countries of modern-day Belize and Guatemala, the western parts of Honduras and El Salvador, and five Mexican states (Yucatan, Quintana Roo, Tabasco, Campeche, and Chiapas). The area (approximately 154,441-193,051 square miles or 400,000-500,000 square kilometers) was referred to as El Mundo Maya or The Maya World.

The Maya territory can be divided into three geographical areas. The Northern zone is covered by low, dense thornbush. Hardwood trees, such as mahogany, cedar and zapote can be found in the northeastern region of this zone. It is extremely arid and has only one chain of low hills.

Natural wells ("cenotes") are the main source of water on the Yucatan Peninsula. Cenotes are formed by the caving in of soil, exposing subterranean pools. Chultunes (or cisterns) were invented by the Maya as another source for collecting water.

The Southern Lowland or Central zone is from 500-4,000 feet (152-1,219 m) above sea level. Vegetation ranges from tropical to highland. Two rivers (Rio San Pedro Martir and Rio Usumacinta) cross this zone. Lush vegetation is home to flourishing wildlife. The climate is hot and humid, and the rainy season is usually from May to January.

In the highland or Southern zone, mountains are mostly of volcanic origin. They reach an altitude of more than 13,000 feet (4,000 m) in Guatemala, with the lower peaks being around 3,500 feet (1,067 m). The rainy season is usually from May to November. Summers are cooler than in the lowland zones. Winters are cold and dry, with frost in the higher mountains. This area contains beautiful lakes and is home to many reptiles, birds, and mammals.

Historical Development

The Maya era is divided up into three periods: the Preclassic Period (2000 B.C. - 300 A.D.), the Classic period (300 A.D. - 900 A.D.), and the Postclassic Period (900 A.D. - early 1500s A.D.). Each of the periods was distinctive due to the rise of specific city-states and technological advances unique to each respective period.

The Preclassic Period

The Olmec civilization is considered the first great civilization of Mesoamerica. The Olmecs developed many of the religious beliefs and artistic and agricultural techniques which made the Maya a great civilization. Some of the characteristics of the Preclassic period include the development of maize, use of stone in the architecture and the idea of kingship.

The oldest known Maya site is Cuello, in what is now Belize. It is a ceremonial burial site that is believed to date back to 2500 B.C. It was during this period that technological advancements allowed for growth in village sizes. The ability to increase the size of maize, along with the use of the nixtamal processing of the maize (which increased the nutritional value) allowed the farms the ability to provide for densely populated villages. Another innovation was clay pottery which led to the first true cooking vessels in the New World.

The evolution of villages brought about many social changes. One of the most important of these changes was the concept of kingship. Although the idea of kingship was not unique to the Maya, it was in Maya cities where this social structure was most important. The Maya city of Cerros is a good example of how this concept advanced the Maya society. In the span of 40 years, Cerros went from a small fishing village to an important trading center led by a king (or "ahau"). The king provided a reason for the unequal division of wealth that was becoming common due to increased farm production. The acceptance of the king also involved religion, as the king was the village's connection to the gods. With a structured society and newfound wealth, the people of Cerros developed a way to honor their gods. It is at Cerros that some of the oldest Maya temples are found. These temples differed from earlier pyramids in having stucco coverings and masks. This style of pyramid characterized Maya architecture for centuries.

Further south, deep in the Guatemalan rainforest, the city of El Mirador was growing in importance. El Mirador had a population of 80,000 people. Like Cerros, El Mirador owed its wealth to trade. The temples built here are the largest structures constructed by the Maya. The El Tigre complex is an artificial platform which covers more than 624,307 square feet (58,000 sq m). The Danta pyramid stands over 230 feet (70 m) tall. El Mirador had several roads radiating out into what is now an undeveloped jungle. However, even with its evolving social structure, complex architecture and apparent wealth, El Mirador left no record of hieroglyphs or a calendar.

The Classic Period

The Maya Classic period stretched from 300 - 900 A.D. This was the height of both the range of influence of the Maya and the development of their culture. Large populations, a flourishing economy and widespread trade were typical of the Classic Maya city. Few civilizations in the Old World (and none in the New World), could compare with the Maya at this time.

One of the most successful and prosperous cities of the Classic period was Tikal, located in the lowlands of present-day Guatemala. The political and military history of Tikal rivals that of Medieval Europe. Thanks to the extensive research at this site, we know the names of the 39 rulers of Tikal, spanning over 500 years. Tikal was also one of the largest Maya cities, covering over 47 square miles (123 sq km) and was inhabited by at least 40,000 people. Archeologists have identified over 3,000 structures in Tikal, ranging from huge monuments to simple thatch houses. Tikal is home to the tallest temples in the Maya world; Temple IV rises to a height of 229 feet (70 m).

Another important Classic site is Copan. It is situated in the Motagua River Basin on the border between Guatemala and Honduras. Sitting next to the Copan River, this may have been one of the most beautiful of the Maya cities. Among the many buildings is the Temple of the Hieroglyphic Stairway. Each of the sixty-three steps on this temple contains glyphs which tell the history of the city. It is here that the magnificent work of Maya artisans reached its peak. More than sixty "stelae" carved from limestone have been discovered at Copan. People lived on the land on the banks of the Copan River for 2,000 years before the Spanish Conquest. However, it was during the Classic period that Copan became a major population center.

The most studied of all Maya ruins are those at Palenque. Stretching out from the Chiapas highlands in Mexico, it occupies a position on the southwestern edge of the Maya area. Some of the most famous Maya buildings can be found here. These include: the Temple of the Cross, the Temple of the Foliated Cross, the Temple of Inscriptions, and the Palace. Measuring 300 feet (91 m) in length and 240 feet (73 m) in width, the Palace consists of a series of galleries and vaulted rooms arranged around interior courtyards. A four-story square tower, with an interior stairway, is the focal point of the complex. It is believed the Palace was an administrative building and the tower was used as an observatory.

Although Palenque reached its height in the seventh century under the reign of Pacal the Great and his son Chan Bahlum, it was during this time that many of these buildings were constructed with inscriptions depicting the history of Palenque. It was these inscriptions which were used to decipher Mayan hieroglyphs. One of the most important pieces was Pacal's sarcophagus lid with his lineage.

The Postclassic Period

By the end of the tenth century, the Maya had fallen under the rule of people from the highlands of central Mexico. This period has traditionally been defined by militarism, secularism, and urbanism. The shift in culture was mainly due to the invasion of the Yucatan peninsula by the Toltecs from central Mexico. As the power and wealth of the highlands and southern lowlands diminished, the northern lowlands began to flourish as the Classic period was coming to an end.

The most important of all Postclassic cities was Chichen Itza. It was founded around 850 A.D. by the Itza people. In Mayan, Itza means "people who speak our language brokenly." Chichen Itza means "opening of the wells of the Itza," referring to the two cenotes located in the city. The centrally located Cenote Xtoloc provided the city with a supply of freshwater. The Yucatan has very little surface water so the cenotes (underground lakes) were essential for survival. The second cenote was named the Well of Sacrifice and served a different purpose. It was here that sacrifices, including jade, gold, pottery, and humans, were offered to the gods.

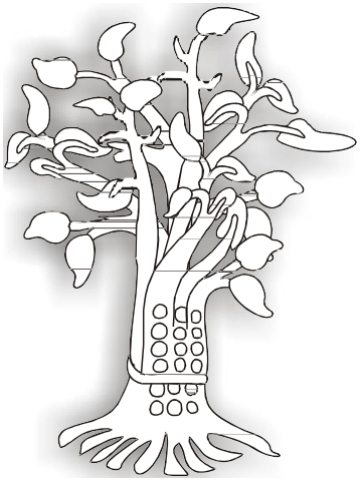
Chichen Itza was a truly cosmopolitan city with many cultural influences. Although the rulers of Itza favored frescos and sculpture to recount their history instead of stelae, traditional hieroglyphics were used. The architectural style of many of the buildings was that of the Puuc Maya, located to the east. The Temple of the Warriors, the Temple of the Jaguar, the Caracol, and El Castillo are all buildings at Chichen Itza that show the diverse styles. By 1224 A.D., Chichen Itza had been abandoned and the Yucatan was dominated by the city of Mayapan.

However, the Maya civilization was near its end. The buildings there were shoddy imitations of Chichen Itza and its maximum population was only about 12,000. The best-preserved architectural remains of this period are those of Tulum. Located on the east coast of the Yucatan, Tulum stands on sea cliffs overlooking the Caribbean Sea. Founded in the early 1200s, it was surrounded on three sides by a fortified wall. Within the walls were colonnaded palaces and elevated temples. The interiors of many of the buildings were decorated with fresco murals.

Tulum was a major trading center and was occupied until the Spanish conquest. In 1441, an internal revolt led to the destruction of Mayapan. With the loss of its capital and civil unrest, the Mayapan empire collapsed. As a result, the last of the Maya cities became isolated and the Maya civilization came to an end.

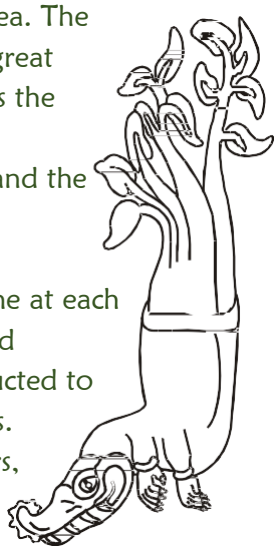
One hundred and fifty years later, this was what the Spanish encountered when they arrived on the island of Cozumel. Although there were no longer any great cities or armies, the Maya people still lived in their villages, practiced their religion, and followed their ancient traditions. It was at this time that some of the Maya books were written in their own language but using the Spanish alphabet. The Popol Vuh and the Chilam Balams are examples. However, during the Spanish Conquest many of the original codices were destroyed.

Thoughts about the Maya have changed over the years. The religion of the Maya has been viewed in many ways. Over time, worshipping the earth changed to worshipping numbers, and what was once a peace-loving culture turned into a thirst for blood. Each of these depictions has some truth, but the Maya religion is much more complex. For the Mayans, there was little separation between religion, politics, war, science, and everyday life. Astronomy, mathematics, and engineering were all tools used in the practice of religion.



The Maya believed in a cyclical universe which was created and destroyed numerous times. The Maya universe was divided into three parts: the underworld, the earth, and the heavens. Each division was represented by animals in the Maya world. Spanning the three levels was the Tree of Life, which was depicted as a stylized Ceiba tree. The nine roots of the tree represented the nine layers of the underworld and thirteen branches at its crown, signified the thirteen layers of heaven. The trunk of the tree resided on earth.

The Mayans believed that the earth was flat and that it floated on water. The turtle and the crocodile were often used to represent this idea. The turtle plays an important role in which the earth rests on a great turtle in a vast sea. The crocodile was sometimes depicted as the world tree. The earth had four corners to represent the four directions. Each direction was associated with a color: east was red, north was white, west was black, south was yellow, and the center was green.



Mayans believed that the celestial world rested above the earth, supported by five trees, one at each corner of the earth and the Tree of Life at the center. The sky was the home of the gods and unapproachable by mortal man. The magnificent temples built by the Mayans were constructed to bring them closer to the gods. Only the kings and priests were allowed to enter the temples. Like the ancient Greeks and Romans, the Maya viewed the celestial bodies (sun, moon, stars, and planets) as gods. The movements of these bodies controlled the universe.

The Mayan name for the underworld “Xibalba” means “the place of fright.” Unlike the heavens, the underworld was accessible to humans. Caves and cenotes were passages to the underworld. As such, they became sacred places for the Maya. Many building entrances represented the opening of caves.

The Mayas belief in creation and afterlife was intertwined. Creation myths differed from place to place and through the ages. The most well-known version comes from the Quiche Maya in the book called the Popul Vuh. This was originally written in Mayan hieroglyphics and later transcribed into the Roman alphabet in the sixteenth century. Over 100 years later, it was translated into Spanish.

The Popul Vuh recounts the birth of the Hero Twins by their father, the maize god. It was believed that mankind could not exist without maize. The book recounts the deeds of the Hero Twins, extolling the ideas of sacrifice and rebirth. The twins eventually become the sun and morning star (Venus), which die each night and reappear each morning. With only a few exceptions, all people went to Xibalba after death. The dead traveled through the underworld in a canoe, with the hope of outsmarting the gods of Xibalba, to enter the Place of Rest. Among those that went directly to the Place of Rest were kings, priests, warriors killed in battle, those who were sacrificed, mothers who died during childbirth, and those who died by suicide. Those who entered the Place of Rest had an abundance of food and drink and could rest in the shade of the Ceiba tree, free from labor.

The Maya believed the gods demanded sacrifices for the creation of man and were necessary to receive good fortune. Although precious stones and chocolate were used as offerings, the most valued sacrifice came from the human body. This included bloodletting and human sacrifice. Bloodletting consisted of piercing the tongue or other body appendages with a stingray spine and collecting the blood in a bowl. The blood was then burned with paper, as an offering to the gods. Bloodletting could be either forced on captives or taken from volunteers. Human sacrifices usually involved warriors defeated in battle. In the Yucatan, the sacrifice was most often thrown into a cenote.

An extremely ritualized form of human sacrifice involved a ball game. The game consisted of two teams trying to get a heavy rubber ball into a goal without the use of their hands. This game was somewhat of a cross between soccer and basketball. However, in many cases, the losing team would be sacrificed. Sometimes these games were predetermined, and the losing team was typically a group of captured warriors.

It is inaccurate to say the Maya civilization ended with the Spanish Conquest in the early sixteenth century. Numbering seven to eight million, the Maya of today are a large, homogenous group living in Mexico, Belize, Guatemala, and Honduras. They still speak many dialects of the Mayan language, practice a mixture of the old religion with Christianity, and many still use the old methods of agriculture. Most of the Maya today live in poverty. In the past few decades, there has been a movement in Mexico, Honduras, and Guatemala to return ownership of land back to the Maya so their way of life can continue like that of their ancestors.

The Maya civilization was not a single monolithic entity. It spanned both time and a variety of environments. It is impossible therefore to talk about a typical Maya society. Even though each city had a different agriculture, system of trade, and societal organization, there were some common threads that linked all Maya.

The majority of ancient Maya lived in a one or two-room thatched hut called a “na.” The hut was shared with immediate family members. Huts were built on a raised mound and were at least 215 square feet (20 sq m) in size. Huts were constructed out of perishable materials, adobe, masonry stone, or for extremely important people, dressed stone. The house was usually divided lengthwise into a back room and a front room. The residents slept together on beds made of wooden rods and cotton mats in the back room. Cooking and other household chores were conducted in the front room. Close relatives lived in nearby houses. A cluster of houses was called a “nalil”.

The diet of the ancient Maya was quite diverse, though the main staple of the diet was maize. Before the maize is cooked, hard, mature kernels are soaked overnight in water and lime. The kernels swell and soften as they soak up water. The lime causes the seed coat to come off, giving the corn a high level of calcium. This increases the availability of iron to the human body and provides niacin for the body's use. The kernels are then thoroughly washed to remove the milky limewater and the rubbery seed coats. The hominy-like, moist, soft, puffy corn kernels are known as “nixtamal”. The nixtamal is ground into a moist, cream-colored paste called “masa”. It was ground by using a “metate” (stone mortar and pestle).

Although some Mayans continue to grind corn in this manner, many use a hand-turned, metal grinder mounted on the side of a table or cabinet. It is also common to see women carrying pans of nixtamal to shops where it is processed into masa with electrically powered grinders. Maize was also used with agave to produce alcoholic drinks. Meat was obtained from deer, peccaries, fish, turtles, turkeys, and dogs. Turkeys and dogs were the only two animals known to be domesticated by the Maya. Besides maize, other plants that were cultivated include breadfruit, beans, avocado, sapodilla, papaya, and cacao. Another important agricultural product was honey. Even today, the Maya cultivate bees to produce honey for income. In ancient times, the Maya used the native stingless bee but present-day Maya use European bees which produce more honey.

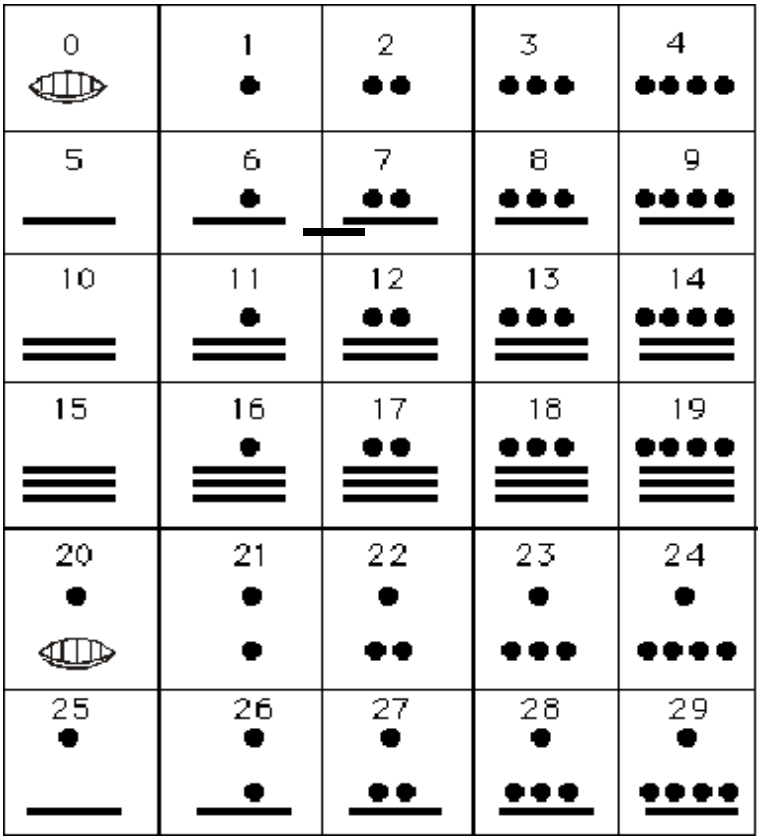
With the emergence of cities came a diverse economy. Although agriculture was still the mainstay of the economy, not every Maya was a farmer. Maya society was divided between the elite class and the common people. Royalty, priests, scribes, masons, warriors, and civil administrators were the Maya elite. Slaves, laborers, and farmers made up the common class. It is believed that sons followed in their fathers’ footsteps. Although it is recorded that two women ruled as queens in Palenque, the traditional role of women in Maya society was that of keeping the house, rearing the children, cooking, and making clothes and other textiles.

Although the writing system and mathematics of the Maya are well known, not much is known about their education. Were only members of the elite class taught to read and write? Was writing restricted to the royal scribes? It is believed that at least a minimal education was available, if not required, for members of royalty, including women. In Maya religion, man was put on earth to proclaim the work of the gods and one needed to be able to read and write to accomplish this task. For this reason, scribes were much admired in Maya society. Civil administrators and traders also needed some mathematical skills. After reaching puberty, boys left home and lived with others of the same age until marriage. It may have been during this time that boys received a more formal education.

Marriage for the Maya was decided by the stars. In most cases, marriages were arranged by the fathers. The father of the boy would choose a girl from the same class and village. A priest or village elder would be consulted to make sure their stars were properly aligned. If the stars approved, the father would then discuss the terms of the marriage with the father of the prospective bride. For the lower classes, monogamy was the rule. In upper classes, although not a common practice, some men had multiple wives.

Divorce was easy and common in Maya society. Either a husband or wife could divorce their spouse by simply disclaiming the marriage. The Maya prized children, and new brides often had an image of Ix Chel, the goddess of fertility, under her bed. At birth, the child was taken to a priest to be given a name. Once again, the priest would consult the stars. Soon after birth, the mother bound the baby’s head between two boards. The purpose of this was to help flatten the forehead (a highly desirable trait for the Maya).

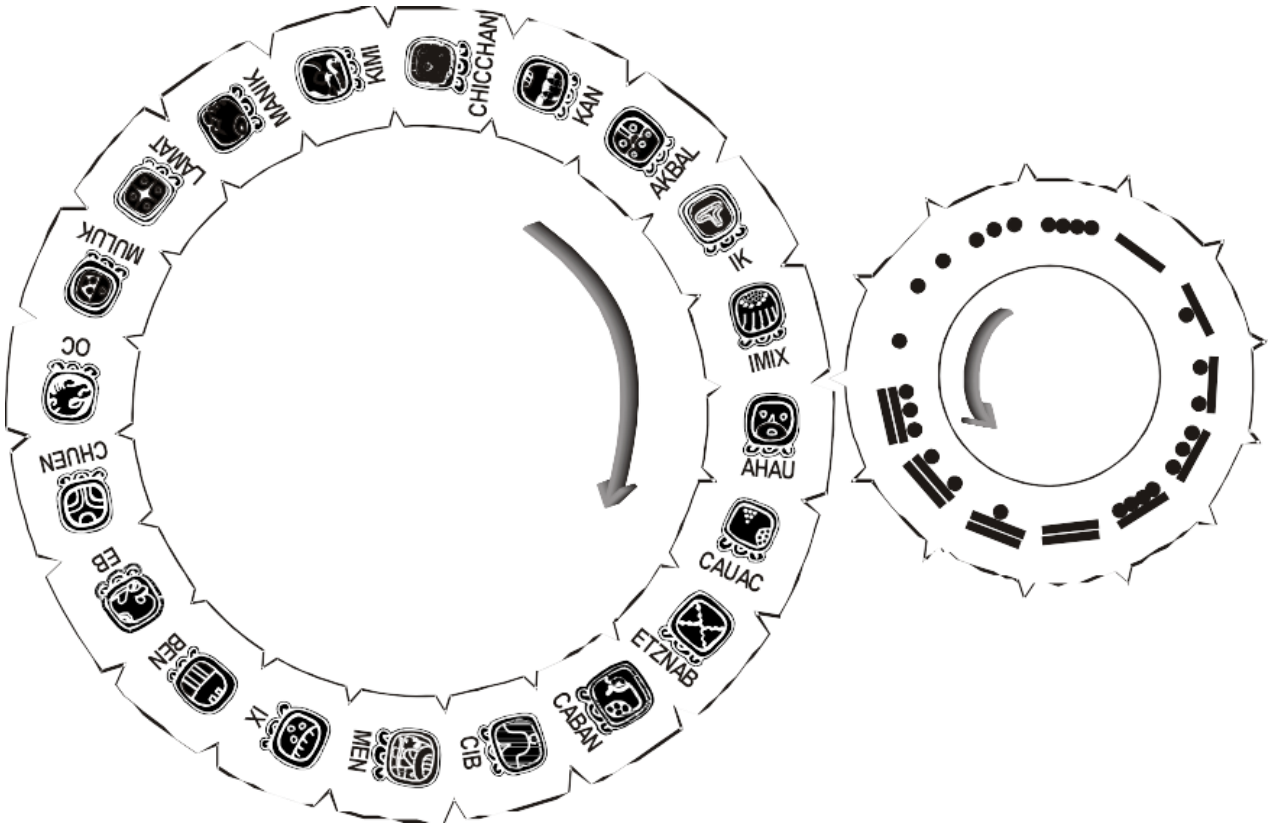
Both time and the planets played important parts in the Maya religion. A number system and a calendar were essential to keep up with the passage of time and the movements of the planets. The Maya used a positional numbering system like ours in which the place of the number determines its value. This type of system requires the concept of zero which has been developed by very few civilizations.



Unlike our present-day number system, which is based on the number ten, the Maya based their number system on the number twenty. We use ten symbols for our numbers zero through nine, however, the Maya only used three symbols: a dot, a line, and the symbol for zero (a stylized shell). Each dot had a numerical value of one. Dots would be used up to the value of five, which was represented by a line. Using these two symbols, one can go up to nineteen in the first position. Unlike our system, which increases in value by ten going from right to left, the Maya system increases in value of twenty from top to bottom. For example, to write twenty, the symbol for zero would be placed in the bottom position and a dot in the next position. A line in the second position would represent five "twenties" (or one hundred). As with our numerical system, this could go on forever. This numbering system was used in trade, with merchants using cacao beans as counters for making computations.

The calendar was much more complicated. In fact, the Maya used different calendars. The basic unit of the calendar was a day, called a "kin". Instead of a seven-day week, the Maya had a twenty day "uinal". The calendar differs from the mathematical system in that eighteen uinal, rather than twenty, make up the "tun". This adds up to 360 days or "kins." From there it goes back to twenty, with twenty tuns making up a "katun". The turn of a "baktun" (or twenty katuns), was an extremely special event to the Maya. Since a baktun lasted 400 years, one can understand its significance. In this way, the Maya could keep a relative date from the starting point of the calendar. However, for everyday use, the Maya used three cycles.

The oldest Mesoamerican calendar is the Calendar Round. It consisted of two cycles: the numbers one through thirteen, and twenty name days. This would lead to a 260-day count. The first day of the year would be 1 "Imix" and the last would be 13 "Ahaw". This is like the day and month in our calendar (January 1, for example).



This calendar was used for ceremonial purposes. A third cycle was also used, called a "Vague Year" or "Haab". The Haab was composed of eighteen 20-day months and one five-day month. This totaled 365 days but did not account for the slightly longer solar year which is the reason for leap year in our calendar. Combining the 260-day cycle with the haab led to a 52-year cycle of the Calendar Round. Most Mesoamerican civilizations used the calendar round.

The Maya were the first people to have a system in which each day had a unique designation. They believed the earth was renewed every 13 baktuns (a period of 5,128 years). The beginning of the present cycle corresponds to a day in 3114 B.C. The end of the present cycle will be December 21, 2012. The long count was used on stelae and other monuments to record events in time. It may seem confusing, though it is not very different from our system. In our everyday use, we use either of two-name days (Friday, or May 13th).

In some modern religions, some days are holy, such as Easter. These names do not replace the day in a historical timeline. When we want to place a day in history, we use the longer May 13, 2002, which is a singular day in history. The Maya used their calendars much the same way, however, the "day" name had much more significance to them. Imagine not being able to marry on a Tuesday, or that it was bad luck to be born on Thursday. Mayas believed the days, along with the stars, controlled a man's destiny.

kin(s)	uinal(s)	tun(s)	katun(s)	baktun(s)
1 (day)				
20	1			
360	18	1 (approx 1 yr)		
7200	360	20	1 (approx 20 yrs)	
144,000	7200	360	20	1 (approx 395 yrs)

Throughout the ages, many different cultures have used the heavenly bodies for guidance. From the ancient Greeks and Romans to the Chinese and Celts, the great civilizations of the world studied the stars. However, perhaps no other civilization in history has revered the stars and planets as much as the ancient Maya. A cross between astronomy and astrology, this study was a blend of science and religion. The great achievements of the Maya civilization, such as their temples, their art and their mathematical system were all directly related to the study and worship of the stars.

The Maya had neither glass nor lenses with which to view the stars and planets. Instead, they used simple wooden devices to measure their movements across the night sky. To view these movements, a relatively long line of sight was required. This was achieved by building observatories of great height, such as those at Palenque and Chichen Itza. By carefully recording their observations and using mathematics, the Maya were able to comprehend the movements of the planets and predict occurrences such as solar eclipses.

Although the Maya understood more about the movements of the stars and planets than any other civilization at the time, they still believed they were watching the movements of gods. The three most important heavenly bodies to the Maya were the sun, the moon, and the planet Venus. These, along with other planets, had animal representatives on earth. The Jaguar was the sun at night, aquatic birds and rabbits were closely associated with the moon, and the quetzal represented Venus. They believed that animals were the reason for celestial events, such as that solar eclipses happened when ants ate the sun. The Maya also had their own zodiac with three types of birds, a fish, a scorpion, a turtle, a rattlesnake, an ocelot, a skeleton, a peccary, a bat, and a frog as the constellations. It is unknown what was the equivalent to Virgo.

There is some disagreement as to the Maya level of literacy. Did ordinary people know how to read and write? It was once believed that only the ruling class was literate. Since it is much more difficult to write than read, it is most likely only the scribes, priests and lords knew how to write. It is now believed that a small percentage of the rest of the population, such as merchants, warriors, and administrators, could read.

Most of the writing left by the Maya was created by a special class of people called scribes. Being a scribe was a sacred profession to the Maya. The Mayan word for scribe is "Ah ts'ib" which means "he of the writing". The highest of the scribes were called "Ah k'u tun", meaning "he of the holy books". These scribes were advisors to the king. Many younger sons of kings and other relatives often became Ah k'u tuns. Scribes received many years of training, usually under their father, and they could be either male or female.

The Mayan script is quite different from our present-day alphabet. Experts call the Mayan writing system "logosyllabic." This type of writing combines pictures (which express whole words or ideas) with symbols (representing sounds or syllables). There are 800 recorded glyphs. The majority of these are logographic, meaning they are pictures which represent an entire word or idea. Examples of these include glyphs representing numbers, name days, and divisions of the Mayan calendar (baktun, katun, etc).

"Emblem" glyphs were a special type of glyph. These glyphs represented the lineage of rulers for each city. It was the identification of these glyphs which allowed for the understanding of how a glyph is constructed. What is usually referred to as a glyph is a glyph group. The biggest and most central symbol in a glyph is called the main sign. Usually there is a smaller sign to the left, called a prefix. If there is a symbol above the main sign, it is called a superfix, and a symbol below is called a subfix. Finally, any symbol to the right of the main sign is called a postfix. When reading a glyph group, the order is as follows: prefix, superfix, main sign, subfix and postfix.

Not all glyph groups contain each of these components. Variation was present, depending on the individual scribe. Approximately 125 glyphs represented syllables which, written together in a glyph group, produced a word. The Mayan text was written vertically in paired columns. The sequence would be the top glyph group on the left, followed by the top glyph group directly to its right. The next group would be the second from the top in the far-left column, followed by the group directly to its right. This would go on until the first two columns are finished. The reader would then proceed to the third and fourth columns. For example:

1	2	7	8
3	4	9	10
5	6	11	12

Mayan scribes used many different surfaces on which to write. The most impressive were the stone facades of the pyramids and temples. Entire staircases, wooden lintels above doors, stone, paper, pottery, bones, and shells were also used as writing surfaces. Stone monuments (stelae) were often located in the center of the city and recorded the lives of rulers or historical events. One stela, located in the city of Quiriquá, is 39 feet (11.9 m) tall. The majority of Maya writing was found in books.

The Maya used lime to manufacture paper from tree bark. The paper was bound and then folded in an accordion style and could measure over 28 feet (6.1 m) in length. Sadly, out of the thousands of books created by the Maya, only four remain. During the Spanish conquest, most books were burned. The four surviving texts are called "codices" and are named for the places in which they now reside: Paris, Dresden, Madrid, and the Grolier Club.

For hundreds of years, the Maya ruled their universe. Nature not only provided food, shelter, and clothing for the Maya, but also embodied the gods which they worshiped. Whether it was a ceiba tree (representing the Tree of Life) or the jaguar (symbolizing the sun as it journeys through the underworld during the night), life inhabiting the Mundo Maya was sacred.

USEFUL VOCABULARY

agave	plant with narrow spiny leaves and tall flower spikes
archeologists	people who excavate and study ancient physical remains
baktun	(Maya) twenty katuns or approximately 395 years
celestial	positioned in or relating to the sky, outer space, or heaven
cenote	a deep sinkhole in limestone with a pool at the bottom
chultune	a cistern or artificial reservoir (such as an underground hole for collecting rainwater)
civilization	the stage of cultural development at which writing and written records is attained; a high level of cultural and technological development
colonnade	a row of evenly spaced columns used for support
cosmopolitan	composed of people or elements from many locations
culture	the customs, arts, social institutions, and achievements of a particular nation, people, or other social group
cyclical	a series of events that are regularly repeated in the same order
decipher	convert a text written in code, or a coded signal, into normal language
dialects	a form of a language which is particular to a specific region or social group
diverse	differing from one another; unlike
empire	a group of states ruled over by a single authority; a supreme political power
entity	something with distinct and independent existence
evolution	the process by which living organisms develop
frescos	the art of painting on freshly spread, moist, lime plaster using water-based pigments
glyph	a symbolic figure or a character (as in the Maya system of writing)
hieroglyphic	a system of writing mainly in pictorial characters
highland	elevated or mountainous land
homogenous	of the same or a similar kind or nature; of uniform structure or composition throughout
inhabit	to occupy or live in a particular place
inscription	something written, engraved, or printed as a record
katun	(Maya) 7,200 kin (day); 20 tun; 1 katun (approximately 20 years)
kin	(Maya) day
lime	alkali containing calcium
lineage	a sequence of organisms, each of which evolved from its predecessor
lowland	low or level country
maize	a plant that yields large grains (corn)
masa	a dough made from maize, which was dried, treated with a lime water solution, ground, and used for making tortillas

Mesoamerica	the areas from the deserts of northern Mexico to the eastern third of El Salvador and Honduras
metate	(Maya) mortar and pestle for grinding maize
militarism	belief that a country should maintain and use armed forces
monogamy	having one spouse or sexual partner at any one time
monolith	a structure formed from a single, large block of stone
mortar	a bowl that contains items to be ground or crushed by a pestle
myth	a traditional story of a natural or social event, often involving the supernatural; a widely held but false belief
nalil	(Maya) a cluster of huts or homes
nixtamal	(Maya) hominy-like, moist, soft, puffy corn kernels
peninsula	a long, narrow piece of land projecting out into a sea or lake
pestle	a tool with a rounded end used for crushing and grinding items in a mortar
relief	type of sculpture in which form projects from a background
sarcophagus	a stone coffin
stela	a carved or inscribed stone slab or pillar
subterranean	existing under the earth's surface
tropical	relating to the tropics; very hot and humid
tun	(Maya) 360 days; 18 uinals (approximately one year)
uinal	(Maya) 20 kin (days)
urban	relating to or characteristic of a town or city