

# THE MAYA

## Background Information

The ancient Maya civilization flourished in what is now known as Central America and southern Mexico. When the Maya civilization was at its peak, it was one of the most populated and culturally dynamic civilizations in the world, with a fully developed written language, sophisticated mathematical and astronomical systems, monumental architecture and art, and a 365-day calendar system.

An unsolved mystery is why the ancient Maya civilization collapsed. Was it uncontrolled warfare? Was it the ever-increasing strictness of the priests? Was it the influence of religious conversion brought by early European explorers? Historians are still not sure. This is one of the reasons that makes the Maya so interesting as a topic for student research.

This section uses the basic research questions as a guide for the teacher presenting information about this fascinating civilization and inspiring students to conduct more detailed research. Before the students start their research, it is recommended that they be presented with activities introducing the basic research questions and other topics discussed in the Historical Research section near the end of the manual.

## Note to the teacher

The Maya refers to both the people and their culture and can be both plural and singular. Some history books refer to Mayas, and some to Maya. Both are correct. Mayan refers to the languages of the Maya people.



*Maya Temple*

## Historical timeframe

- According to archeological evidence, the Maya civilization may have started developing around 2000 BCE.
- Eventually, numerous independent Maya communities formed, each agriculture-based and with a large population.
- Later, large cities began to develop, and then city-states, each with a king as ruler.
- Most historians agree that the height of the Maya culture took place from about 200–800 CE and that the civilization had collapsed by around 1400 CE.

## Natural environment

- The Maya lived in an area of Mexico known today as the Yucatán Peninsula (pronounced “You-ka-tan,” with the emphasis on the “You”). The peninsula was situated in **Mesoamerica**, an area within parts of Central America, Mexico, and South America. These were the homelands of several early civilizations, including the Maya, Inca, and Aztecs.
- The natural environment of the area is tropical rain forest. Although this hot and moist environment is a good place for plants, it is not supportive to large, centralized populations of people. The Maya had to spread out in order to raise enough crops to feed themselves.
- The weather was oppressively hot and humid in most areas except the coast where fresh ocean breezes made life comfortable. The area inhabited by the Maya had beaches on three oceans — the Pacific, the Caribbean, and the Atlantic.
- The region was home to hundreds of species of birds and other animals unique in the world.
- Descendents of the Maya culture still exist today in Guatemala, Honduras, and Belize, and in the Mexican states of Chiapas, Tabasco, Quintana Roo, Campeche, and Yucatán. The last three states were the original homelands of the Maya.
- There are over 50 volcanoes within traditional Maya territories.

## Daily life

- Maya workers lived in single-family, thatched-roof houses. These families were close-knit. Fathers taught their sons how to farm and hunt. Mothers taught their daughters how to cook and weave. By law, boys had to marry by age 20.
- The Maya lived in time with the sun. Among workers, women were up first to get the fires going and make breakfast. Men and their sons would work in the fields after eating.
- The Maya used irrigation to manage their sometimes-swampy fields. Because the Maya practiced irrigation, workers could plant and tend several fields at once, including communal fields near villages.
- When workers finished in the fields, they would do some hunting, using spears and blowpipes armed with clay pellets.
- In addition to working in fields, some workers made wooden or jade crafts for possible use in trading.
- Women workers spun and wove cotton for clothing as well as for trade.
- For clothing, male workers wore a loincloth and female workers wore loose-fitting dresses. Priests and royalty wore clothes decorated with beads and shells. Most notable were headdresses or hats worn for ceremonies. The Maya measured social standing by the size of one’s hat.
- The Maya were fond of tattooing and body piercing. For special occasions, they would paint their bodies. They also

liked to file their teeth to points, then fill the gap with jade.

- The Maya also saw a sloping forehead as attractive. Babies would have a board tied to their heads to reshape their foreheads.
- Corn was in nearly everything the Maya ate or drank. There was corn porridge in the morning and corn tortillas with vegetables for lunch and dinner. Much of the Maya diet, especially among workers, consisted of vegetables. Meat came from turkeys, monkeys, deer, and ducks. Fish was also on the menu.
- The Maya enjoyed drinking chocolate, referring to it as “the drink of the gods.”



## Economic activities

- Agriculture was a major feature of the Maya economy. The principal crop was corn. Other crops included avocados, melons, beans, chili peppers, sweet potatoes, beans, and squash.

- The areas in which the Maya traded are now known as Mexico, Honduras, and Guatemala.
- Among their city-states, the Maya traded cotton, cacao, ceramics, gold, copper, jade, honey, exotic bird feathers, granite, marble, and **obsidian**, a hard black volcanic glass formed by the rapid cooling of lava. Obsidian can be chipped into sharp blades or arrows.
- Getting enough salt was of particular importance to the Maya, especially those who lived in the highlands. Salt was obtained from enormous lagoons in the northern area of the Yucatán peninsula. The Maya transported and traded huge quantities of salt.
- Historians think that the rudimentary currency in Maya culture was cacao beans.























*obsidian*

## Social development

- The Maya considered the king as a supreme and sacred ruler in all matters. In the latter years of the Maya culture, a hereditary ruling council assisted kings in making decisions.
- The Maya had a hierarchical class society. At the top was the **aristocracy**, a group of people consisting of royalty, religious leaders, and others considered to be of high social standing, such as the



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

*Maya number system*

very wealthy. In the middle were craftspeople, traders, and warriors. At the bottom were workers and slaves.

- The Maya viewed warfare conducted on a limited and ceremonial basis as an important part of cultural growth.
- Young nobles played a sacred ball game on special courts. Without using their hands, the young men had to try to get a hard rubber ball through a vertical stone ring. At special matches, the Maya would sometimes sacrifice losing players to the gods.

## Expressions of civilization

- Earlier Mesoamerican civilizations, such as the Zapotec and the Olmec, developed writing systems that were later adopted and perfected by the Maya.
- The Maya writing system, often referred to as Maya hieroglyphs, remained in use up to the arrival of the first Europeans. **Hieroglyphic writing** uses symbols or pictures to represent sounds, objects, or

ideas. The system disappeared only a few generations after the arrival of the Spanish conquistadors.

- The best examples of Maya writing that remain are found on **stelae**, stone slabs or pillars used to record information such as wars and members of dynasties. Each stele was painted, engraved, or inscribed with information, and then was usually placed in an upright position. It is not known whether literacy went beyond the aristocracy.



- There were many Mayan **dialects**, or regional differences in spoken languages. Modern ancestors of the Maya still speak some of those dialects today.
- Maya mathematics used a base-20 system (the number of all fingers and toes added together) and a base-5 (the number of fingers on one hand). By about 359 CE, the Maya had developed the concept of zero, which Europeans did not acquire until the 12th century from India. Inscriptions show that the Maya could count into the hundreds of millions.
- Maya astronomers mapped out the phases of celestial objects, in particular the moon and Venus, which were even

more important to them than the sun. Their observations were extremely accurate, perhaps more so than any other civilization working without sophisticated technology.

- Accomplishments in astronomy led to a Maya calendar system that consisted of four different cycles. One cycle was called the Vague Year, which consisted of 18 months that were 20 days long, plus five “unlucky days” at the end, for a total of 365 days.
- The Maya believed that every day was a god that carried the day on its back. Every 20th day, there was a religious festival.
- The Maya were very religious and believed in an afterlife. Workers would bury their dead under the floor of their homes so they could live with their ancestors.
- The Maya had many gods and goddesses and believed that their priests could talk with all the gods. This put priests into a prominent role in Maya society. Priests kept track of the days and the gods and made most of the decisions required for everyday life.
- Art honored the Maya gods and royalty, as did the huge statues and pyramids built.
- The Maya loved to make music and to dance. Musical instruments included wooden flutes and wooden or clay trumpets. More than 5,000 dances were used for celebrations and religious ceremonies.

- Religious ceremonies often focused on making live sacrifices, and human sacrifices to the gods were common. These would take place on the great stone pyramids. Those sacrificed were usually children, slaves, or people captured in war.

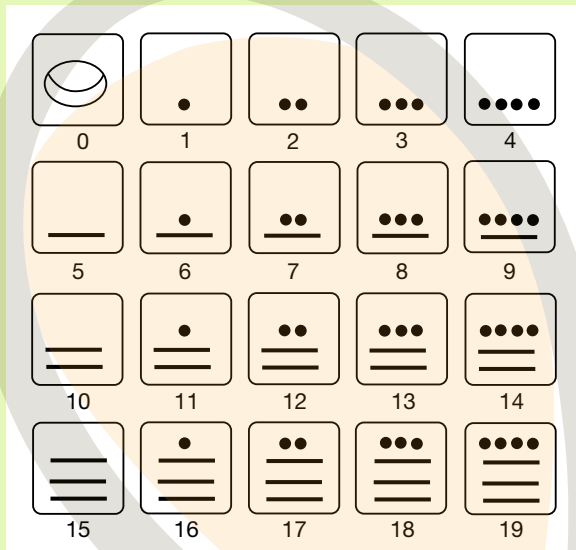
## Archeological evidence

- Today there are more than a dozen archeological remains of Maya culture. Ruins of Maya temples, pyramids, and cities can be found in the present-day nations of Guatemala, Belize, western Honduras, El Salvador, and the Yucatán Peninsula of Mexico.
- The temples in Tikal, Guatemala, are said to be magnificent.
- Perhaps the most famous Maya ruin is in Chichen Itzá (pronounced “Chee-chen Eat-za,” with the emphasis on “Chee” and “Eat.”) in modern-day Mexico.



## ACTIVITY 2

# Working with the Maya Number System



### Purpose

To introduce the Maya mathematics system.

### Material

Ten paper shells the size of a peanut.

Forty black paper dots the size of a penny.

Thirty black paper bars about two inches long.

Chart showing examples of 10 or more numbers as they would be represented by the Maya number system, starting with 19, 20, and 53. (It is strongly recommended that the teacher practice using the system before presenting it to the students.)

Reference materials (including illustrations of the Maya number system).

World History journals and pencils.

### Presentation

- Most Montessori teachers present this concept in Year 5, after the Maya civilization has been introduced to the students.
- Announce that the students will have an opportunity to learn about the Maya number system.
- Ask the students to name a number system different from their own (they have likely worked with Roman numerals). Explain that the Maya also had a unique number system.
- Point out that the number system the students usually work with is based on the decimal, or base-10 system. Explain that the Maya number system was based on units of 20 — even their months were 20 days long. Invite the students to explain why the Maya based their number systems on 20. (If needed, provide hints in the form of questions. Examples: What kind of shoes do people wear in warm climates? How many fingers and toes do people have?)
- Demonstrate the shell symbol, explaining that it represented zero in the Maya system. Add that the Maya were one of the first people to discover the concept of zero, something Europeans did not learn until the 12th Century (from India).

- Demonstrate the dot and bar symbols, explaining that the dot represented 1 unit and the bar 5 units in the Maya system.
- Invite the students to work with you to count from 0 to 19 using a series of dots and bars.
- With the students, lay out the shell to represent 0 units, then one dot to represent the number one, two dots for 2, three dots for 3, four dots for 4, then a bar for 5, a bar and dot for 6, a bar and two dots for 7, a bar and three dots for 8, a bar and four dots for 9, two bars for 10 and so on, until there are three bars and four dots for the number 19. Place dots side by side horizontally, with bars under dots horizontally. Be sure to make each number separately rather than adding dots and bars to the previous number.
- Explain that the next hierarchy is placed over the lower hierarchy. Demonstrate how to make the number 20: put down a black dot and under it the shell symbol for 0 units. Then demonstrate how to make the number 53: put down two dots side by side (which equal 40) and underneath it, three dots and two bars (which equal 13).
- Invite the students to work together to make a larger number (suggest a number

from the prepared chart). Demonstrate the chart and encourage the students to refer it to check their numbers.

- Repeat until the students have had an opportunity to make several larger numbers.
- Ask the students to use their journals to record the Maya number system, then give themselves several numbers to convert.

### Extensions

- Create a Maya numbers board game using a board, a set of Maya number cards, and markers for each player. The board needs a start and finish square and lots of squares in between. The cards instruct the player to move forward or backward on the squares, but use the Maya number system to show the number of squares. Markers can be made of paper or modeling dough, each one representing some aspect of Maya culture.
- Create a worksheet with simple addition and subtraction equations to be performed with Maya numbers. Exchange worksheets with a classmate.