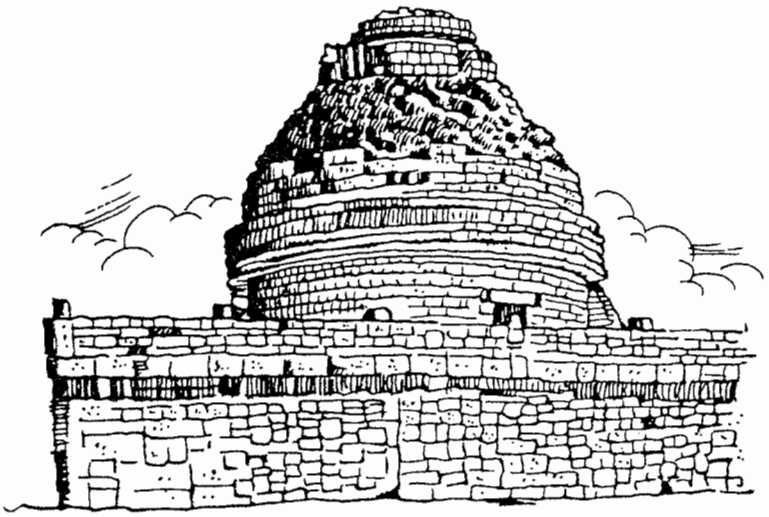
MAYAN MATHEMATICS AND ASTRONOMY

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

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:

0 4 7 10 13 19

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.

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 _____

QUESTIONS FOR CONSIDERATION

1. What did a drawing of a shell represent?

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2. We use a decimal system using a base of ten. What base did Mayan mathematics use?

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3. Write the numbers "eight" and "twelve" the way the Mayas would have written them.

_____ _____
eight twelve

4. What did priests study?

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5. Describe the use of the important Mayan building still standing in the city of Chichén Itzá.

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6. Describe the two Mayan calendars.

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7. How did the two Mayan calendars differ from each other?

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8. How were astronomy and mathematics useful to Mayan priests?

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9. What did Mayas consider the five extra days at the end of the regular calendar?

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10. Who based their calendar on the Mayan calendar?

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