

CATEGORY: MEXICO: PRECOLUMBIAN











CONCEPTS: EDUCATION, race/ethnic make-up

ACTIVITY: UNDERSTANDING THE MAYAN NUMBER SYSTEM

OBJECTIVES: To illustrate the high cultural level achieved by the Mayans in their pre-Columbian societies by focusing on their system of arithmetic which they perfected in order to study astronomy and calendrics. The Mayans whose great cities of Tikal (Guatemala), Copan (Honduras), Palenque (Mexico) rivaled other ancient cities like Alexandria, Athens and Rome, were more advanced in mathematics than the Greeks who were the greatest mathematicians of Western civilization. The Mayans invented and used the concept of zero (unlike the Greeks) and a place value system. Their number system was vigesimal (base 20) and was written in two ways: with dots and lines and in glyphs (drawing of faces). A secondary objective of this lesson will be to re-inforce concepts of zero, place value and the idea that number systems can be based on numbers other than ten.

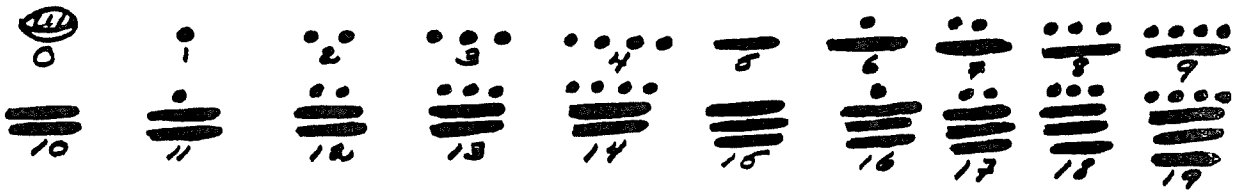
MATERIALS: Large paper or chalkboard
Pencil, paper
Pictures, map of Western Hemisphere or Central America

PROCEDURE: Draw on a large tagboard or the chalkboard the Mayan numbers of 0 through 19 using the shell, dot and bar as shown below. Explain to the students that they are going to learn about an advanced number system different from our own that was used over a thousand years ago (using maps, photos, etc., to give them an idea of what Mayan society was like). Have the children copy the 0 through 19 numbers and ask if anyone can figure out how to write twenty (suggest that they think of our number system). Also explain that they were read vertically, not horizontally. To go beyond twenty we must think in groups of twenty. Show the following numbers in Mayan notation:

8000					
400					
20					
units					
	} 20	} 40	} 460		} 8,812
					
					
					
					
					

Make a bulletin board with the Mayan numbers on it. Each day put up a Mayan number and a different Arabic number and have the children attempt to translate the two. For the most advanced students you might wish to challenge them with math problems.

HELPFUL HINTS: Here is the count to 19:



RESOURCES: Ruth Karen, Song of the Quail, The Wonderous World of the Maya, Four Winds Press, 1972.
Barbara Beck, The First Book of the Ancient Maya, Franklin Watts, 1965.

