Indigenous People of the Americas: Maya Cultures across Time
Yale Peabody Museum-PIER-CLAIS 2012 Summer Institute for High School Teachers
Title: Regarding Maya Apocalypse 2012: The End of the World?

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Subject Area: Ancient World History
Grade Level: 9th Grade
Number of lessons: three
Time Frame for each unit: 40 minutes

Introduction:

This unit will examine the pop culture proposal that 2012 will mark the end of the world according to the Maya long count calendar, and will include the three following lessons:

1. Teach students Mayan math by utilizing Anna Blume’s lesson on Maya counting and teach students to count to 2012 from 3114 B.C.

2. Show the connection between Mayan caves and apocalyptic notions imported from Spain in the 16th century.

3. Connect the first two lessons on 1. the calendar, and 2. Mayan caves and Medieval Apocalypse to contemporary images on the 2012 phenomenon.

Unit Objectives:

1. Students will learn to utilize the Mayan Math System to count from 3114 B.C. to 2012.
2. Students will also learn to distinguish between different cultural uses of cave images by using Heather Hurst's posters, Constance Cortez’ PowerPoint slides, the book 2012 and the end of the world: the western roots of the Maya apocalypse (a serious academic study) by Matthew Restall and Amara Solari, and websites: including Mexicolore, Famsi, Smithsonian, and Mesolore in order to create their own document based questions. My goal is for students to find caves in the images, compare the cultural context around the meaning of caves, and discover what they mean in that context. In Medieval Europe, caves could be thought of the “mouth of hell” vs. Mayan caves as places of both birth and death (not apocalypse). We can also refer to the Palenque sarcophagus lid, in which Lord Pakal is seated underneath a World Tree. 3. Finally, Students will connect what they have learned from Medieval and Mayan sources to contemporary images of 2012.

Essential Question: How did we get to Dec. 21 2012 (winter solstice) as the end of the world? It’s a convoluted story involving Math, Mesoamerican and Church History as well as more contemporary mythologies.
Unit Lesson One: Mayan Math for the Mayan Calendar.

Objective: Introduce the concept of math in general, then Mayan math and Mayan notational system specifically. Apply counting in Mayan base 20 to get to 2012 or the 13th Baktun.

Essential Question: How can we understand 2012 as the end of the Mayan calendar? It is simply the 13th Baktun, an important milestone, as we shall see:

Incorporate Anna Blume’s worksheet (attached) to introduce the Mayan numbering system to count from the beginning of the Mayan calendar (3,114 BC) to 2012.

Share class notes:

The American system of numbering is base 10; it’s a positional system.

1 – 10 – 100 – 1000 = each power is x 10, a base 10 positional system. We have 10 numerals that are the building blocks. We call these Arabic numerals, but they were invented by the Indians or Hindus. In the Middle East, Hindus were called “Hind”. This technology is a Hindu invention. They began to be used widely around 1500 when an increased capital economy needed “double book” entry.

Now the Maya system: The invention of writing is very different from speaking, but all cultures have ways of talking about quantity. One or Two are words written phonetically. Whereas writing 1, 2, 3, is an entirely different system from phonetics. We are talking here about the history of numerical notation amongst the Maya.

The Maya had only three numerals: * (a dot for one) ---- (a horizontal bar for five), and a shell for a place holding zero for base 20. The Maya had a base 20 system (based on fingers and toes - ten fingers and ten toes - base 20 counts hands and feet. The Mayan word for 20 is the same as the word for a whole person). When they moved to a higher order it would be times 20 and they moved from bottom to top or vertically upward. The Maya were always recording calendrical phenomena. 20 x 18 months = 360 days to give us one year plus five unlucky days (or a special 5-day month called the Wayeb). Everything else is times 20. The 365 day calendar was called the Hab. The Mayans observed, recorded and understood solstices and equinoxes.

5 cycles of Venus = 8 cycles of the sun = 2,920 days. This is commensuration which the Maya recorded. The Maya had a fascination with abstract number. Number shows structure in nature, and they could understand this structure with their numerical system. That clearly gave them pleasure as shown in their monuments. Today we still observe and calculate in order to explain the unexplainable. For the Maya, time had no beginning or end. This gives the lie to the 2012 phenomenon.
3,114 BC is the Maya year zero – used to commemorate the domestication of corn.

The 260 day calendar = 20 name days x 13 numbers is a non astrological calendar. There were day keepers who kept the 260 calendar which possibly marked conception to birth = 260 days. They would know the specific day and associated astrological animal you were born with - this had an astrological component. Today web sites can correlate your birthday to the 260 calendar.

From nasa.gov: (http://www.nasa.gov/topics/earth/features/2012-guest.html):

What exactly is the Maya calendar about to do? On Dec. 21, 2012, it will display the equivalent of a string of zeros, like the odometer turning over on your car, with the close of something like a millennium. In Maya calendrics, however, it's not the end of a thousand years. It's the end of bak’tun 13. The Maya calendar was based on multiple cycles of time, and the bak’tun was one of them. A bak’tun is 144,000 days: a little more than 394 years.

Scholars have deciphered how the Maya calendar worked from historical texts and ancient inscriptions, and they have accurately correlated so-called Maya Long Count dates with the equivalent dates in our calendar. Just as we number our years counting from a historically and culturally significant event (the presumed birth year of Christ), Maya times were numbered from a date endowed with religious and cosmic significance: the creation date of the present world order. A Long Count date is the tally of days from that mythic startup. Most experts think the start point corresponds to Aug. 11, 3114 B.C.

Most of the Maya calendar intervals accumulate as multiples of 20. An interval of 7,200 days (360 × 20) was known as a k’atun. It takes 20 k’atun to complete a baktun (20 × 7,200 = 144,000 days). Although some ancient inscriptions turn 13 baktun into an important reset milestone, others imply that the calendar simply keeps running. For instance, it takes 20 bak’tun to make a pic’tun.-------------------------------------

Blume, Anna. "Maya Hieroglyphics, Cosmology and Numerology: Basis and Meaning in Art." Unpublished manuscript, Yale University, New Haven, CT, July 2012.

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Unit Lesson Two: Caves as seen in Mayan and 16th Century Western Culture.

Objective: Compare images of caves (and serpents as caves) as presented in Mayan and Western Culture.

Essential Question: How did cave images found in Mayan culture help missionaries import ideas about the apocalypse or "the end of the world"?

Activity: Use guided observation and ask object based questions to analyze the images cited below:

Assessment: Have students write a three paragraph essay on the following topic:

Make the connection between insights gained in lesson 1 on the Mayan Calendar and Lesson 2 on how 16th century missionaries imported ideas about the apocalypse into Mayan culture to reach a 21st century pop culture embrace of a 2012 apocalypse.

Bibliography: all images (except "hell mouth" cited from Wikipedia) are copied with permission from Constance Cortez - Yale Summer Institute.

Heather Hurst’s San Bartolo poster can be purchased from Boundary End Archaeological Center for $15 (http://www.precolumbia.com/bearc/order.html)

Use the Guided Observation worksheet (attached), which asks:

- What do you see?
- What do you notice?
- What do you think about what you see? What are your interpretations of the evidence you observe?
- What makes you say that?
Use the scene from Lintel 25 at Yaxchilan (now at the British Museum) where Lady Xoc appears before the serpent. Repeat your object based questions. Then ask guided questions pointing out the human figures, their relationship, the vision serpent, noting how the war deity is coming out of the mouth of the serpent.

Guide students to see the mouth of the serpent, and the relationship between the war deity and Lady Xoc.
Repeat the activity with the following image:

http://www.famsi.org/spanish/research/pohl/pohl_aztec1.html
Compare the previous image to the following medieval image from an illuminated manuscript called the “Last Judgment” from the Psalter of Henry of Bloise or “Hellmouth”.

What conclusions can we draw about the similarity or differences between a sacred cave image found in 16th century Europe and cave images depicted in the Maya world? Show how when teaching about Christianity, Spanish missionaries incorporated an indigenous understanding of Mayan cave images into Christian images like this one:

Notice that the war deity proceeds from the mouth of the vision serpent, whereas the angel is locking up souls within the mouth of the medieval serpent. Note the difference between birth and death. Note any student observations below:
Notice also how caves (or sacred cenotes) are both a source of life and birth (water) and death (burial) for ancient Mayans.
Make the connection between how cave images were related to the idea of apocalypse in the Medieval Europe and how these ideas were disseminated in the Mayan world by the Catholic Church.

When the Spanish came to the New World, they brought ideas about the apocalypse or the end of the world with them. Note how their church is built to appear like a sacred cave.
Note also how one enters the cave/church vs. the image of the first New World people coming out of a sacred cave above.

Chichen Itza (an important Maya site on the Yucatan) is near both a sacred cenote (underground water cave) and the open Catholic Church near Merida that is consciously built in the shape of an open cave (see Dzibilchaltun below). Can you find Cancun (a popular vacation destination), Chichen Itza (an important Maya city), Merida, and Dzibilchaltun on the map below?
Provide students with the opportunity to conduct their own research, and write a one paragraph essay on what they have learned.

Consider the following words and questions while researching: prophecy, destiny, catastrophe, apocalypse, extinction, secret, mystery.

- Why are the Maya considered both mysterious and scientific?
- Why is the Mayan calendar and astronomy important for 2012 predictions?
- Why do post-modern people long for wisdom from lost civilizations?

Students should know how to find and cite online resources and make connections between the articles cited.

All images besides "Hellmouth" were supplied by Constance Cortez at Yale PIER Summer Institute, July 12, 2012. Used with permission.
The following images could also be incorporated into their research:

http://www.yucagaga.ifastnet.com/?p=26

Bibliography


Blume, Anna. "Maya Hieroglyphics, Cosmology and Numerology: Basis and Meaning in Art." Unpublished manuscript, Yale University, New Haven, CT, July 2012.

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