Mysteries of the Maya Calendar Museum
A Guide for Teachers & Librarians

uch’ab yak’abil
Mayan glyphs for “beginning” and “end”

Ben Leeming
The Rivers School, Weston, MA
Moses Mesoamerican Archive, Harvard University
A Letter from the book’s authors

Dear Teachers & Librarians:

We are a father and daughter team whose ethnic roots are in Mexico and whose lives are intertwined with the cultural patterns and legacies of the Maya and the Aztecs. We also descend from generations of school teachers from the US-Mexico borderlands and we dedicate part of our time to helping teachers get good educational information about Latin American lives and cultures. We’ve written and produced Mysteries of the Maya Calendar Museum with two goals: 1) help kids learn some fundamentals of the Maya Calendar and Maya culture and 2) ease fears and anxieties kids may have about the so called “Maya Prophecy of the End of the World in 2012”.

According to the Maya, this year does mark the end of a great cycle of time, which the Maya measured by their “Long Count” calendar. This complex mathematical calculation that goes back over 5,000 years measured every day in this long cycle of time and identified these days with particular gods, natural forces and events. The "end date" of this calendar is December 21st, 2012. This end date has stimulated some media sites to produce confusion and some fear that catastrophes in nature and society will happen around that date. We have noticed that kids in particular are curious and sometimes fearful about these rumors. We wrote this book to meet this curiosity and fear with attractive storytelling and good information about Maya culture and the calendar.

The result is Mysteries of the Maya Calendar Museum which tells the story of three children, Carlos (age 10), his sister Lucia (12) and their new friend Julia (13) who, worried about the rumors of the end date, educate themselves about the Maya calendar and go on a dream journey to find out the truth about end of the world! Along the way they meet the talking macaw bird Octavio, discover the secret of the Maya glyph for the end of time, fly down a portal to the ancient city of Chichen Itza, hear the calendar song from the wizard Smoking Parrot, and learn the magic of the phrase “the beginning is in the end”.

We believe this book combines good storytelling and education, and we hope to work with you to participate in both. We are fortunate to be teamed up with Ben Leeming who has led the way in creating this Guide for Teachers & Librarians which is enhanced with a colorful, informative power point presentation that will be attractive and useful to you and your students.

Laanna Carrasco & Davíd Carrasco
Writer, editor
Historian of Religions
Harvard University
A note from the author of the Guide

Welcome to the Guide for Teachers and Librarians accompanying the children’s book *Mysteries of the Maya Calendar Museum* by Laanna and David Carrasco. The Maya calendar event of December 21, 2012 is a world-class “teachable moment.” As I’m sure you know from experience, children of all ages are drawn to the ancient Maya people, fascinated by their hieroglyphic writing, their towering pyramids, and the wonder surrounding their mysterious calendars. These days, this natural sense of curiosity is tinged with anxiety due to the many sensationalized stories about so-called prophesies of the end of the world. *Mysteries…* was written so that you could take full advantage of this teachable moment and foster your students’ wonder at the ancient Maya as well as allay some of their fears.

What follows are a number of resources designed to help you make the most out of the Maya calendar event in the weeks that lead up to December 21st. Of course, as a teacher I understand that the best plans are often your own. Therefore, the materials gathered here are offered in the spirit of friendly collaboration: feel free to modify, tweak, rewrite, and otherwise make them your own. As you consider incorporating *Mysteries of the Maya Calendar Museum* into your curricula, please be in touch with me with any questions or comments you have about the book or the Guide.

Good luck as you begin this new school year!

Ben Leeming
The Rivers School
Weston, MA 02493
b.leeming@rivers.org
(339) 686-2428
# Table of Contents

Overview of the Maya Calendars .......................... 5  
Overview of the 2012 Phenomenon ......................... 6  
Enrichment Activities for 4th-5th graders ................. 7  
Enrichment Activities for 6th-7th graders ............... 11  
Recommended Web Links for Teachers .................... 16  
Appendices .................................................. 19  
An excerpt from *Mysteries of the Maya Calendar Museum* .......... 26  
References .................................................. 32
Overview of the Maya Calendars

The Maya were (and still are) the indigenous inhabitants of a region known as Mesoamerica, an area roughly consisting of the central and southern parts of Mexico, Guatemala, Honduras, Belize and part of El Salvador. Maya civilization flourished during the first millennium of the Common Era. The period of their greatest cultural achievements is today referred to as the Classic Period. Classic Maya civilization was marked by the construction of sprawling ceremonial centers with towering stone pyramids, the development of sophisticated mathematical and astronomical systems, a hieroglyphic writing system, and of course, highly complex calendars.

Like many ancient societies, the Classic Maya charted time according to cycles they observed in the world around them. However, instead of just one calendar, the Maya had as many as nine! Each calendar served a different, but critical, function in Maya society. The most important of these were the Haab, the Tzolkin, and the “Long Count” calendars. The Long Count calendar is the one that is reputedly coming to an end on Dec. 21, 2012. More on that later!

The Haab (pron. hob) was a 365 day solar calendar consisting of 18 “months” made up of 20 days each (18 X 20 = 360), plus a “month” of five remaining days known as the Wayeb or “nameless days.” These days were thought to be unlucky, and people born during this period were believed to be doomed to a miserable life.

The Tzolkin (pron. sole-keen) was a 260 day calendar that was used for ritual and divinatory purposes. It consisted of 20 named days (such as Deer, Crocodile, Death, Eagle, etc.) that intermeshed with the numbers 1 – 13 to form a 260 day cycle (20 X 13 = 260). The Tzolkin was used by ritual specialists to make predictions about the future, especially regarding the lives of individuals. Maya infants were given as one of their names the combination of number and day sign, for example 4 Ahau (“lord”).

The Long Count was the most elaborate of all the Maya calendars. THIS is the calendar that so many people are making a fuss about these days, the one that is supposedly coming to an end on December 21st of this year. We’ll get into the issue of “end of the world” prophesies in a moment, but for now let’s focus on what the Long Count is and how it worked.

The Long Count calendar measured enormous spans of time, according to some scholars as long as 9 million years! Unlike the other calendars, the Long Count measured time in a linear fashion, with the current count beginning around the year 3114 BC and progressing forward in a complex counting system based on units of 20 days. According to this system, the current count is scheduled to conclude on the 21st of December of this year, nearly five thousand years after it began!

The Long Count system allowed Maya priests to measure time with extreme precision. Each day of the Count received its own unique annotation consisting of 5 digits, read from right to left, with each digit representing an increasingly longer unit of time. The five units of time were:
1 k’in = 1 day
1 uinal = 20 days (or 20 k’in)
1 tun = 360 days (or 18 uinals)
1 k’atun = 7,200 days (or 20 tuns)
1 bak’tun = 144,000 days (or 20 k’atuns)

All Long Count dates record a certain number of days since 3114 BC, or the creation of the current world. Therefore, a date of 9.10.5.1.1 means 9 bak’tuns, 10 k’atuns, 5 tuns, 1 uinal, and 1 k’in since 3114 BC. Maya priests used Long Count dates to record important events in the lives of Maya royalty like weddings and funerals, births and deaths, battles, important rituals, and anniversaries. The so called “end date” of the Maya calendar on December 21, 2012 corresponds to the Long Count date of 13.0.0.0.0, which is also the date of the very first day of the current creation back in 3114 BC. What will happen when the Long Count reaches this very significant moment? Keep reading...

Overview of the “2012 Phenomenon”

A recent Google search for “Mayan calendar 2012” returned such headlines as “2012 Extinction: Doomsday Prophecies Proven By Scientists!” “Doomsday 2012 Fact Sheet” and “100 days till Mayan apocalypse?” Perhaps you watched the 2009 Roland Emmerich sci-fi disaster flick “2012”? There are a lot of doomsday predictions out there including a supposed shift in the magnetic poles of the earth, a collision with a planet called Nibiru, cataclysmic solar flares, the eruption of “supervolcanoes,” and a “Galactic Alignment.” Some less apocalyptic forecasts see the dawning of a new age of heightened consciousness and world peace. Common to all of these theories are supposed “prophecies” made by the ancient Maya surrounding the “end date” of the Long Count calendar on December 21, 2012. While this isn’t the place to engage in a thorough debunking of these prophecies, the bottom line is that the Maya didn’t predict that the world would end on this date. Instead, it would result in the beginning of a new Long Count cycle that would continue marking days one kin at a time for many thousands of years to come. In the “Recommended Web Links” section of this Guide there are links to excellent sources of accurate information for those who want to understand the issues better.

However, as far as our kids are concerned, we need to assume that they’ve heard of these doomsday predictions and that they may be anxious or downright scared as a result. I know from talking to my own children (ages 7, 9, 11, and 13) that this is an issue of concern for them. They are looking to us as the adults in their lives to provide them with calm reassurance that the world is NOT coming to an end on Dec. 21st. The purpose of Mysteries of the Maya Calendar Museum is to provide this reassurance to them in the form of an exciting adventure story. As Smoking Parrot the Maya Day Keeper says, “The beginning will be in the end.” Approaching the Maya 2012 phenomenon with our children with the emphasis on “new beginnings” rather than cataclysmic ends is not only anxiety-reducing, it’s more historically accurate. We hope the enrichment activities that follow will help you as you read through Mysteries of the Maya Calendar Museum with your students.
A Note About Reading Level

*Mysteries of the Maya Calendar Museum* was written with children in the upper elementary and lower middle school grades in mind, roughly grades four through seven. Children in the lower grades will undoubtedly find some of the concepts and vocabulary more challenging and may require support from their teachers while reading the book. Written as an adventure story spanning eleven chapters, the characters and plot twists of *Mysteries*... are sure to keep children on both ends of the age spectrum engaged.

Enrichment Activities

The activities that follow are intended as enhancements of the experience of reading *Mysteries of the Maya Calendar Museum*. All of them presume that students are actively engaged in reading the book themselves – or having it read to them. Depending on teacher preference and student age, the book can either be read aloud in “reading circle” format, in smaller student-led “book groups,” or alone by individual students. Due to the range of the book’s target audience, the enrichment activities have been arranged in two levels: 4th-5th and 6th-7th grades.

Enrichment Activities: Grades 4-5

**ACTIVITY #1: Creating & Using a Reading Journal**

Objective: Teachers may choose to read the book aloud to children in a reading circle over a number of days, the duration of which can be determined by the teacher. After each reading session, children will respond to the book in reading journals that they create themselves, either by writing, drawing, painting, or coloring, etc. Once the teacher has finished reading the book, children will share their journals w/ the class. (Teachers who feel this activity is too elementary for their students should instead consider the more advanced activity titled “Creating a Maya Screenfold Codex Reading Journal” on p. 11.)

Materials needed:

- six sheets of plain white 8.5 x 11” paper (per journal)
- one sheet of colored construction paper (per journal)
- colored pens, crayons, paints, or other crafting materials
- hole puncher or stapler
- colored yarn (optional)
- *uch’ab yák’abil* glyphs, printed out for each student (optional, see Appendix 1)

Directions:

1. Take six sheets of plain white 8.5 x 11” printer paper, fold in half cross-wise to form twelve pages. Crease w/ a pen or ruler.
2. Fold the sheet of colored construction paper in a similar fashion. Crease.

3. Place the folded sheets of white paper inside of the colored sheet. Bind them together either by stapling the spine or punching three holes along the spine and tying pages together with colored yarn.

4. In the first session, children will make the book. If there is time, they can also illustrate the cover by writing “Mysteries of the Maya Calendar Museum Reading Journal” on it. They can also glue the uch’ab yak’abil glyphs on their covers if the teacher so chooses.

5. In the second and subsequent sessions, children will respond to the daily reading with drawings or written work. Teachers can prompt children’s responses with questions based on the reading they have done each day.

6. After the book is finished, children can present their journals to the class by choosing one of their responses, explaining it to the class, and reflecting on how their understanding of the Maya and the calendar event has changed since reading *Mysteries of the Maya Calendar Museum*.

**ACTIVITY #2: Maya Math for Elementary School Students**

**Objective:** To teach kids the basics of the Maya numerical system (and reinforce basic math skills to boot!)

**Materials needed:**
- worksheets reproduced from the “Mayan Mathematics and Architecture” program (see Recommended Web Links p. 16)
- popsicle sticks
- buttons, beads, pebbles or other small, round objects
- black/white board and chalk/markers

**Directions:**
1. Preparation: Teachers will want to prepare by first informing themselves about how the Maya numerical system works. An excellent resource can be found at [http://spaghettiboxkids.com/blog/mayan-numbers-for-kids/](http://spaghettiboxkids.com/blog/mayan-numbers-for-kids/). Also see p. 16 for additional links. You may want to find some sort of illustration to use in this activity, such as the diagram in Appendix 4.
   a. The Maya number system was a “base 20” or “vigesimal” system. This can be easily explained to kids by using fingers (and toes). First, ask them to count to ten out loud; then count to 100 by tens; tell them our whole number system is based on 10; ask them why (ten fingers!); tell them that the Maya based their system on 20, not 10; ask them where they think this came from (fingers *and* toes!)
2. Teach them the Maya numerical system.
   a. Consider using props with younger kids: buttons or beads for the 1s and popsicle sticks for the 5s
   b. Consider showing them some images of real Mayan numbers taken from ancient monuments or codices (painted books). Have them pick out the Mayan numbers and convert them to Arabic numbers.
   c. Teachers can reproduce the image in Appendix 5 or they can gather their own images from the internet.

3. Reinforce their understanding by leading them in a game. Divide the class into two teams. In each round, one member of each team approaches the board at a time. The teacher calls out a number and the first student to correctly draw it in the Maya system gets a point for their team.

4. Teachers can choose to have their students work on a number of Maya Math worksheets from the “Mayan Mathematics and Architecture” website (see Recommended Web Links). Choose worksheets based on age and skill level.
   a. Have them use the props for further reinforcement. They can arrange the props in order from 1-10 (or 20!) and even perform some rudimentary addition and subtraction.

ACTIVITY #3: Make a Tzolkin calendar wheel

Objective: This activity introduces children to the Maya ritual calendar known as the Tzolkin. Before attempting this activity teachers should familiarize themselves with the Tzolkin, beginning with the short paragraph in the section above and then proceeding to some of the recommended links at the end of the Guide. However, one doesn’t need to know about the Tzolkin in great detail in order to lead students in this fun activity!

Materials needed:
- card stock or poster board
- 2” x 9” strips of stiff cardboard w/ holes punched 1” from each end
- brass-plated round head fasteners (“brads” or “brass tacks”)
- colored pencils or crayons
- glue
- photocopies of the “Day Signs” handout (see Appendix 3)
- scissors, rulers, mathematical compasses
- “Hello, My Name Is” nametag stickers (optional)

Directions:
1. You will need to begin the activity with a short explanation of the Tzolkin calendar, preferably with some form of visual image as illustration.
   a. If you Google image search for “Maya Tzolkin Calendar” you will find many useful images. The best of these clearly depict two cogged wheels, a smaller one containing numbers 1-13 and a larger one with hieroglyphic
images representing the 20 day names. (See Appendix 2 for an example.)

Note: the Tzolkin wasn’t actually two wheels; this is simply a handy way to imagine how the numbers and signs interacted to form dates.

b. Consider opening with a discussion of what a calendar is and why we have calendars. Tell them that the Tzolkin was used to make predictions about how lucky or unlucky each day would be; it was also used in the naming of children. Explain the Tzolkin to them, using visual aids.

c. Tell them that they are going to make their own Tzolkin calendar wheel and learn how the Maya wrote their numbers as well.

2. Each student will need two circles cut out of card stock or poster board, one that is 8 inches in diameter and one that is 6 inches in diameter. Teachers should carefully poke a hole at the exact center of each of the two wheels with a pencil.

   a. Teachers of 5th graders might consider having them use a ruler and a compass to draw and cut out their own circles; teachers of 4th graders may want to pre-cut the circles before class.

   b. All teachers should have pre-cut and hole-punched the 2” x 9” strips of cardboard.

3. Next, have students cut out each of the 20 individual day signs from the photocopied sheets and glue them onto the larger wheel with even spacing all the way around. Then, they should write the numbers 1-13 on the smaller wheel, taking care to evenly space the numbers here as well.

   a. The day signs can be colored in with colored pencils or crayons if the teacher so desires.

   b. If teachers have already done the “Maya Math” activity, students can write the numbers 1-13 using the Maya numerical system instead!

4. Fasten the wheels to the cardboard strips using brass tacks. The two wheels should just touch at the center and spin easily on the tacks.

5. Using the Tzolkin calendar wheels. Tell them that one of the two names Maya children received when they were born was the name of the Tzolkin day on which they were born.

   a. Have them experiment with their own calendar wheels, spinning them and seeing how the numbers combined with the day names.

   b. Tell them to choose one to be their own Tzolkin calendar name consisting of one number and one day sign.

   c. Optionally, have them write this name on their name tag and wear it for the rest of the day or perhaps keep it and put it on each time they read from the book.
Enrichment Activities: Grades 6-7

ACTIVITY #1: Creating a Maya Screenfold Codex Reading Journal

Objective: This activity is a more advanced version of the “Creating and Using a Reading Journal” activity for 4th and 5th graders. It presumes students are reading the Mysteries of the Maya Calendar Museum, either individually or in small reading groups. After each reading session, students will respond to the book in their “screenfold codex” reading journals, either by writing, drawing, painting, or coloring, etc.

Materials needed:
- plain brown cardboard book covers cut to 8.5” x 8.5” (2 per student)
- ten sheets of paper per student cut to 8.5” x 8.5” (ideally this would be light brown or parchment-colored paper)
- clear scotch tape
- art supplies for drawing, painting, coloring, etc.
- uch’ab yak’abil glyphs, printed out for each student (see Appendix 1)

Directions:
1. Teachers should begin by showing students some images of Maya screenfold codices and teaching them briefly about their history (see Recommended Web Links). Images can be pulled off of the internet via a Google image search.

2. Begin assembling the pages first. Lay out all ten pages in a row and tape along the seams where each page touches the other. You will now have a long strip of paper. Then flip over the strip and tape the other side of the seams. Finally, fold up the sheets of paper accordion style.

3. Attach the pages to the covers with tape or staples, fixing the right-hand edge of the top page to the right-hand edge of the top cover. Repeat for the bottom cover, too.

4. The cover can be decorated with the uch’ab yak’abil glyphs, which can be cut out and pasted on. Students may wish to add their name and additional decoration to their covers.

5. After each reading period, students can respond to the daily reading with drawings or written work. Teachers can prompt students’ responses with questions based on the reading they have done each day.

6. After the book is finished, they can present their journals to the class by choosing one of their responses, explaining it to the class, and reflecting on how their understanding of the Maya and the calendar event has changed since reading Mysteries of the Maya Calendar Museum.
ACTIVITY #2: Maya Math for Middle Schoolers

Objective: As with the Maya Math activity for elementary level students, this activity seeks to teach kids the basics of the Maya numerical system as well as reinforce basic math skills. Concepts taught include base, place value, and symbol; math skills reinforced include addition, subtraction, multiplication, and division.

Materials needed:
- worksheets reproduced from the “Mayan Mathematics and Architecture” program (see Recommended Web Links p. 16); for middle schoolers the more advanced worksheets may be necessary
- visual aids for teaching Mayan math (Google image search for “mayan math” or use Appendix 4)
- sets of dice for math game

Directions:
1. Preparation: As with the elementary level activity, the teacher must first familiarize him- or herself with the principles of Maya math and the Maya numerical system. An excellent overview is provided at http://spaghettiboxkids.com/blog/mayan-numbers-for-kids/.

2. Teach them the Maya numerical system. Be sure to cover the following topics:
   a. Bases (base 10, base 20); refer to the website mentioned above.
   b. place holders, why we have them and how they work in the Maya system; again, refer to the website above.
   c. Consider showing them some images of real Mayan numbers taken from ancient monuments or codices (painted books). Have them pick out the Mayan numbers and convert them to Arabic numbers. Teachers can reproduce the image in Appendix 5 or they can gather their own images from the internet.

3. Reinforce the lesson with the following activities
   a. Mayan math worksheets from the “Mayan Mathematics and Architecture” website
      http://www.outreachworld.org/Files/florida_internatl_u/MayanMathematicsandArchitecture.pdf
   b. Maya Math Board Race Game: Divide the class into two teams. In each round, one member of each team approaches the board at a time. The teacher calls out a number and the first student to correctly draw it in the Maya system gets a point for their team.
   c. Play the “Maya Math Game” with dice at http://spaghettiboxkids.com/blog/more-math-games-with-dice/
ACTIVITY #3: Understanding the Maya Long Count Calendar

Objective: Understand the Maya Long Count calendar and the significance of the so-called “end date” on December 21, 2012. NOTE: This activity ideally requires that students have been introduced to Maya math though Activity #2 above. However, if that is not possible, a variation has been provided below that can be done in isolation from Activity #2. Also, this activity is more correctly a “teaching unit” that will require a more extensive role by the teacher/librarian leading it. The end result for students will be a good understanding of the Maya Long Count calendar and, more importantly, a “stress-reliever” for kids worried about the so-called “end of the world.”

Materials needed:
- Visual aids, either from the internet or those in Appendices 4-6
- Handouts based on Appendix 6
- Some of the websites found on Recommended Web Links pages

Directions:
1. Preparation: Teachers will need a basic understanding of the Maya Long Count calendar. Begin with the short paragraphs above then proceed to the Recommended Links page for more in-depth information.

2. Introduction: Begin the teaching segment by discussing whether students have heard of the December 21, 2012 “end date” and the rumors about prophesies concerning the end of the world. Ask them what they’ve heard or seen. Make sure some mention is made of the “Maya calendar.” Then tell them the goal of this activity is to understand the Maya calendar in question, the Long Count calendar, how it worked, and what the Maya may have thought of this Dec. 21, 2012 “end date.”
   a. Then ask them, “Does anyone know what the odometer in your car is?” After making certain everyone does, then ask, “Has anyone ever watched it roll over from some big number ending in 9s to another big number ending in 0s?” Establish that it’s kind of exciting to watch. Then ask, “What happens to the car when the odometer hits, say, 100,000 miles? Does it immediately blow up? Do the wheels all of a sudden fall off?”
   b. Tell them that the Maya calendar known as the Long Count – the calendar that is supposedly coming to an end on Dec. 21, 2012 – is sort of like the odometer in your car. It’s going to reach a very significant numerical milestone on Dec. 21, 2012, but after that moment, it’s just going to keep on counting the years, just like the odometer in your car. So, bottom line is, no need to worry!

3. Teaching the Long Count: Now that you’ve established that the world isn’t going to end on Dec. 21, tell them we’re going to try to understand how the calendar works and see what lessons we can learn from the ancient Maya.
a. Review Maya math, especially the concepts of “base 20” and “place value.” Some visual aid might be necessary, such as the image found in Appendix 4.

b. Explain that the Long Count was a way for Maya priests to record very precise dates that stretched far into the past as well as far into the future. Some scholars think that the Maya Long Count may have measure time spans as long as millions of years!

c. Introduce them to the basic place values of the Long Count, the key terminology, and numerical values. Use a visual aid for this (see Appendix 6) and/or the web link “New York Times Long Count Interactive” on the Recommended Web Links page.

d. Discuss the beginning date (Aug. 11, 3114 BCE) and its significance as the most recent out of numerous “creations” of the world; discuss the projected “end date” (which is really not an end, but the reaching of a major milestone); show them the annotation for the beginning date (13.0.0.0.0 – we don’t know why the Maya began the Long Count like this as opposed to 0.0.0.0.0) and the Dec. 21, 2012 date (13.0.0.0.0). As you can see, the reason this date is seen as significant TODAY is that the calendar returns to the beginning date. However, the next day – Dec. 22, 2012 – is simply 13.0.0.0.1, in other words, a new beginning and NOT an end.

4. Playing around with Long Count dates: Once the students have understood the workings of the Long Count, have them do some simple calculations. Using the handout made from Appendix 6, write a few long count dates on the board and have them convert it into number of years. Tell them they need to show their work, as in this example:

   a. 7.4.3.2.6 (7 x 144,000)+(4 x 7200)+(3 x 360)+(2 x 20)+(6 x 1) = 1,037,926 days or 2843.63 years
   b. You can also have them convert this into a date in our own system. Remember the Long Count dates are number of years since “creation” which was 3114 BCE. The above date corresponds to approximately 271 BCE.

5. Examining an actual Long Count inscription. Hand out the image in Appendix 7, which is a reproduction of a real Long Count date from a Maya monument. Have them write the date out in the manner used today, a series of numbers corresponding to the place counts, in this case 12.19.19.13.6. NOTE: they will need an understanding of the basics of the Maya numerical system in order to do this activity. See Activity #2 above.

6. VARIATION of Activity #3: This variation presumes students have NOT completed Activity #2 (in other words, they don’t understand the basics of Maya math). Follow steps 1-4, omitting the review of Maya math. You may need to explain the idea of place values, but you don’t need to get into discussing the base 20 aspect of Maya numbers. If you are able to teach them just the basics of how numbers were written (dot = one, bar = five) then you should be able to also include step 5 above.
ACTIVITY #4: Make a Tzolkin calendar wheel

Follow the directions for this activity on pp. 9-10 above. The following additions can be made to increase the complexity of this activity for older students.

1. Follow steps 1-4 of the Grades 4-5 Enrichment Activities above.

2. Once the calendar wheels have been made (after step 4), use the wheels to understand how the 260 day period was calculated.
   a. Set the wheels so that the number 1 and the day sign Imix are touching. This is the "start date" of the Tzolkin calendar.
   b. Pair students with a partner. Tell them that they have to try to figure out how the 260 day period was calculated using their calendar wheel. Have them write down the first ''trecena'' or 13 day period on a sheet of paper so that they begin to get a feel for how numbers and day signs combined to form Tzolkin dates.

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Recommended Web Links for Teachers

The links listed here can be used by teachers to expand their understanding of the ancient Maya people, their calendars, and the 2012 phenomenon. A word of caution about researching the ancient Maya on the internet: simply put, there is a lot of garbage out there. Especially given the frenzy leading up to the 2012 date, it seems that all manner of absurdity has bloomed in the web. Be very skeptical of the information returned by general Google searches. The websites below, while few, are trusted resources and make good places to begin. The links below also contain recommended books.

IF YOU WOULD LIKE AN ELECTRONIC COPY OF THE LINKS BELOW, EMAIL YOUR REQUEST TO THE GUIDE’S AUTHOR AT BLEEMING@GMAIL.COM.

General Information on the Maya

The Mesoamerican Ballgame
http://www.ballgame.org/main.asp

Maya Codices at Wikipedia
http://en.wikipedia.org/wiki/Maya_codices

Maya Codices at Famsi.org
http://www.famsi.org/mayawriting/codices/introduction.html

“Cracking the Maya Code” (the decipherment of Mayan hieroglyphic writing)
http://www.pbs.org/wgbh/nova/ancient/cracking-maya-code.html

The Maya “Collapse” (the abandonment of major sites by around 900 CE)
http://www.learner.org/interactives/collapse/index.html

Casa K’inich – A Teacher’s Guidebook
http://www.famsi.org/reports/03075/CKguidebook_english.pdf

Mesoweb – An exploration of Mesoamerican cultures
http://www.mesoweb.com/

“A Forest of Kings: The Untold Story of the Ancient Maya” by Freidel and Schele
http://www.amazon.com/Forest-Kings-Utold-Story-Ancient/dp/068812048/ref=sr_1_1?ie=UTF8&qid=1348337829&sr=1-1&keywords=forest+of+kings

“Religions of Mesoamerica: Cosmovision and Ceremonial Centers” by David Carrasco
http://www.amazon.com/Religions-Mesoamerica-Cosmovision-Ceremonial-Traditions/dp/1577660064/ref=sr_1_1?ie=UTF8&qid=1348337928&sr=1-1&keywords=religions+of+mesoamerica+cosmovision+and+ceremonial+centers
“Aztec and Maya Myths” by Karl Taube
http://www.amazon.com/Aztec-Maya-Myths-Legendary-Past/dp/029278130X/ref=sr_1_1?ie=UTF8&qid=1348337884&sr=1-1&keywords=Aztec+and+Maya+Myths

The Maya Calendars and Math

“Mayan Mathematics and Architecture” at outreachworld.org
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http://spaghettiboxkids.com/blog/mayan-numbers-for-kids/

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“The End of Time: The Maya Mystery of 2102” by Anthony Aveni

“The Order of Days: The Maya World and the Truth About 2012” by David Stuart

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“Maya Scholar Deciphers Meaning of Newly Discovered Monument”
http://www.utexas.edu/know/2012/06/28/la-cortona/

“The End of Time: The Maya Mystery of 2102” by Anthony Aveni

“The Order of Days: The Maya World and the Truth About 2012” by David Stuart
Appendix 1: uch’ab yak’abil glyphs

The top glyph, uch’ab, means “beginning” and the bottom one, yak’abil, means “end”

source: Marcus Eberl/Tim Knowlton
Appendix 2: Tzolk'in Calendar Wheel


source: http://www.freewebs.com/mayandecryption/rrrobinsonsw125-1.jpg?0.11973777119347428
Appendix 3: Tzolkin Day Signs

source: http://www.ancientscripts.com/maya.html
Appendix 4: Maya Numerical System

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source: [http://static.ddmcdn.com/gif/mayan-calender-5.jpg](http://static.ddmcdn.com/gif/mayan-calender-5.jpg)
Appendix 5: Maya Numbers in the Dresden Codex

source: http://www.world-destiny.org/maya/Dresden43b.jpg
Appendix 6: The Long Count Calendar

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144,000 days (20 K’atuns)

7200 days (20 Tuns)

360 days (18 Winals)

20 days (20 kins)

1 Day

Appendix 7: A Long Count Inscription

source: http://research.famsi.org/date_mayaLC.php

Instructions for making the handout:

1. Print this page.
2. Crop the image above, taking care to crop OUT the written dates (ex. “12 Bak’tun,” etc.). You may want to keep an un-cropped copy for yourself.
3. Enlarge, if needed.
4. NOTE: be sure to instruct students in the correct reading order of the glyphs, and that the last three glyphs (kimi’, G5, and Ch’en) can be ignored.
Chapter 1— The Maya Calendar Museum

“Shiver me timbers! Ahoy, viene una tormenta! A storm’s coming! Manos a la obra! All hands on deck!” shouts my brother, Carlos. He shoots his arm up into the air with the fake plastic knife he won at the “walk the plank” pirate game at the fishing pier. His long black cape sails in the wind around him, and a black bandanna is knotted around his head. A red sash around his waist is barely holding up his baggy shorts.

Carlos has been on a pirate kick since we visited a pirate museum last summer. As we walk along the boat dock, Carlos yells, “Lucia, watch me take down Calico Jack, that buccaneer from the Caribe!”

He runs to the edge of the dock and starts sparring with an imaginary foe. What if he loses track of where he is and falls into the choppy water? The wind is gusting violently, and the clouds are ominous rolling shades of grey.

My black hair whips around my face, and I find myself edging protectively closer to Carlos as he dances along the brink of the wooden dock. I’m nearly thirteen and can’t wait to be called a teenager, but Carlos is ten and has to be watched out for sometimes. At least that’s what Abuela says!

We’re visiting our grandparents—Abuelos as we call them—in California for the Christmas holidays and love that it’s warm and sunny. This week, though, something besides the sun seems to be in the air.
“Hey, Carlos,” I shout, “We’d better get out of this wind before it rips off your cape!”

Looking around for shelter from the storm, I notice the old house on the corner. It used to be rundown, with boarded up windows. It gave Carlos and me the creeps, with a few shutters falling off, a porch that sagged dangerously, and spider webs keeping anyone away. But now, as if magically transformed, the house is painted bright yellow and seems to glow in the darkening light of the coming storm. We race over to it and pass a sign that says Maya Calendar Museum. Under the words are three
funny-looking symbols with the captions “Jaguar,” “Eagle,” and “House.” We reach the porch just as a heavy rain starts to fall. Looking back at the sign, Carlos says,

“That must be Maya writing.” Carlos points to the sign with one hand and reaches for the doorknob of the Maya Museum with the other.

“The museum is closed,” I say. “I guess we’ll just have to hang out on the porch until it stops raining.”

Carlos and I put our noses to the glass door and peer in. At first, I only see my own wide blue eyes turned black by the reflection of the glass. I am nervous that someone will be on the other side looking back at me, but there is no one. Out of the corner of my eye I notice a funny greenish glow that slowly brings the room into view. There are some Maya artifacts: a large turquoise mask, a tall stone column with symbols on it, and a photograph of a Maya woman with a fancy blouse. A large model of a pyramid stands in the center of the display floor. I recognize it!

“Carlos, do you see it? The pyramid?”

It is a replica of the Feathered Serpent pyramid at Chichen Itza—we saw it when we visited Mexico last summer with our mom, the anthropologist.

“Super cool, Lucia!” he says. “It looks like a big cake to me! Yummy!”

The green glow seems to come from behind a far door. What could be behind it? On the door is a poster that says “Secret Maya Worlds” and shows an image of a pathway leading to a huge tree.

My imagination soars, and I am walking down that pathway, surrounded by dense jungle, trees, and flowers. Ahead in the distance is a four-sided Maya pyramid with feathered serpent heads on the stairways. Instead of the rushing wind of the coming storm, I hear the buzz of insects, the calls of birds of the Yucatan, and maybe a jaguar’s roar.
“Hey, stay away from there!” someone shouts roughly from behind us.

I feel a tingle rush up my spine as we both jump. Behind us at the bottom of the stairs, pointing his finger at us, is a guy with bulging muscles. He has an angry expression and his body seems ready to explode in our direction. He’s soaking wet and his tight black t-shirt has the words “End of Days Pact” written on it in white letters.

He lunges toward us, his hand cutting through the air like a sword as he shouts, “This place is a hoax, not a museum, and I’m warning you! If kids like you start believing what this guy is teaching in there, you’re all going to die sooner than you think! The end of days is coming! It’s up in flames—toast for the most—for everyone! Get to the shelters, kids. Otherwise that’s all you’ll ever be—foolish, burnt up kids! This is the beginning of the end!”

An impulse to dart down the porch, jump the railing, and run comes over me. I’m the school sprint champion, and last year I blew by everyone in the 100-yard dash. I bet I can leave Mr. Muscles in the dust. Instead, I grab Carlos’s wrist and pull him to my side with our backs up against the door. The End of Days menace mumbles something that sounds like “weaklings,” grunts, and runs off in the rain. He reminds me of a frightened pit bull.

“Whoa! WHO was THAT?” Carlos yells. We look at each other with very wide eyes, the goose bumps still showing on our arms.

“You mean, WHAT was that! Let’s get outta here—ASAP!” I say, leading Carlos on a sprint to los abuelos’ house.

As we near an abandoned dock near the house, we pass Carlos’s makeshift pirate ship, which he calls La Perla. It’s perched up on some planks above the water. It looks more like a tent to me because of the way Carlos has tilted two of the sails together.

“I’m going to lose La Perla if this storm keeps up!”
“Chill it for now, hermanito. We could lose our lives if that Mr. Hulk comes back after us.”

“No te crees lo que vimos! It was unbelievable!” shouts Carlos to Los Abuelos who are waiting for us on the front porch. They can’t hear him over the gusting wind and rain. I grab his cape to pull him toward me and whisper loudly, “We gotta be careful how we tell them. I don’t want them to keep us from going back to the Maya Calendar Museum!”

“Ahh, sí! I got you, Lucia,” he says as we go chugging up to the front porch.

Carlos and I glance at each other during dinner until I give a wink to tell about our little adventure at the museum.

“Did you know, Abuelo Prieto, that there’s a new Maya museum right here?” Carlos asks. He is clean and in his pajamas (they have pirate ship anchors on them), with a yellow bandanna around his head.

“A Maya museum?” Abuelo Prieto asks, his eyebrows high in expectation.

“The sign said it was a Maya calendar museum,” I correct Carlos.

“Ahh,” Abuelo Prieto says. “You know, my compañero Señor Julio has been planning to make the museum for some time so he could share the wisdom of the ancient Maya. He wanted to tell the truth about the calendar end date.”

“What calendar end date?” I ask. “We learned about the Maya and their calendars in school and I don’t remember any end date.”

Abuelo’s eyes widen in excitement. “You two have got some learning to do. As it turns out, I can teach you a thing or two about the Maya calendar, too. But first, you’d better go see Sr. Julio at his museum and see what you can discover.”

“That’s messed up, Abuelo,” I say. “Please tell us what you mean about this ‘end date’ thing. You know there was a strange guy outside the museum today when we
were looking through the window. He had on a shirt that said “End of Days Pact” on it and he said freaky things like “This is the beginning of the end!” So you gotta fill us in. Is the world really going to end?”

“I heard about that guy and his group camping out near the museum. I’ll talk to Sr. Julio about it, but you should know that people like that guy believe that the ancient Maya predicted that the world would come to an end on December 21st, 2012.”

“Wait! That is only three days from now!” I say.

Carlos’s eyes get as big as baseballs, and I feel that tingle rush up my spine again. “Tell us, tells us!” we both yell.

“You’ll learn about this as soon as you get to the Museo Calendario de Maya, niños, but I will leave you with one thing to think about until then.” Abuelo rocks back in his chair and closes his eyes like he’s thinking some deep thought. Then he leans forward until his face is very close to ours and whispers mysteriously, “When someone tells you it’s the beginning of the end, just remember, the beginning is in the end!” Before we can even ask what that means, he snaps out of it and says, “Now it’s time for dessert and then off to bed.” Abuelo closes his mouth and pretends to zip his lips shut.

I scrunch up my face, because I want to stay and find out if the world is ending three days from now! But Abuela tells us it is time for chocolate ice cream. Carlos and I hustle into the kitchen before she remembers that we had ice cream at the plaza earlier in the afternoon.
References


http://www.famsi.org/research/vanstone/2012/index.html