Explorations
EDUCATOR GUIDE

To book your field trip: 617-723-2500, mos.org/educators
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Encounter the richness of Maya culture by examining centuries-old authentic artifacts and traditions. Experience immersive life-size re-creations of Classic Maya architecture, and explore the hidden worlds of the Maya—past and present.

Your students will have the opportunity to:

• Engage in hands-on explorations building arches, deciphering hieroglyphs, translating a Maya calendar, and more.

• Understand that contemporary Maya people maintain many cultural practices and beliefs that link them to their ancestors.

• Take part in the process of discovery to learn how archaeologists use science, technology, and contemporary Maya voices to interpret the past.

• Find evidence that shows the relationship between writing, mathematics, astronomy, architecture, urban planning, and the sophisticated worldview of the Maya.

Objects from the collections of the National Institute of Culture and History, Belize; Harvard University’s Peabody Museum of Archaeology and Ethnology; the University of Pennsylvania Museum of Archaeology and Anthropology; the Science Museum of Minnesota; the Denver Museum of Nature and Science; and the San Diego Museum of Man.

Special thanks to the National Endowment for the Humanities, for support of the interactives lent by the Penn Museum.

Exhibition Partners: Science Museum of Minnesota
Denver Museum of Nature and Science
Museum of Science, Boston

Field Trip Information
Exhibit Halls: $10 for students, $5 for chaperones, complimentary Exhibit Halls admission for teachers ($5 for students during October and January for schools with 35% or more free and reduced lunch participation)

Maya: Hidden Worlds Revealed school add-on price: $4 per person

Mystery of the Maya in the Mugar Omni Theater add-on price: $4 per person

Tales of the Maya Skies in the Charles Hayden Planetarium add-on price: $4 per person

TO BOOK YOUR FIELD TRIP: 617-723-2500.
For more information on field trip planning: mos.org/educators.

A Maya warrior, with black body paint and dressed in jaguar robes and headdress, adorns a ceramic plate that is over 1,200 years old.
Collection of DMNS.
BEFORE YOUR VISIT

• Do some preparation activities before your visit. Use suggestions in this guide and the resource list for more ideas.

• Review this guide for connections to your curriculum. Choose the activities that meet your needs best. Jigsaw groups to provide fewer questions for each student, but still cover topics you need.

• Add your own page(s). Bring journals or composition notebooks if you use these in classroom work. Bring sturdy cardboard to write on if you plan to use single pages during your field trip.

• Share expectations, plans, and schedules for the visit with students and chaperones. Give chaperones copies of any activities students will do.

• Encourage students to spend time in each section to go beyond simply answering questions.

DURING YOUR VISIT

• Ask students to add their own questions and observations that arise during their exhibit explorations.

• Flash photography is NOT allowed in the exhibition. Photographs without a flash are permitted and encouraged.

• Students must be with their chaperones to enter the exhibition, and should stay with the chaperones throughout.

• Divide your class into small groups to work together in the exhibition.

Don’t Miss these Special Offerings!

**Mystery of the Maya**

*Now Showing in the Mugar Omni Theater*

Deep within the jungles of Mexico, Guatemala, and the Yucatan Peninsula lie the fabled pyramids, temples, and palaces of the Maya. Without the advantage of metal tools, beasts of burden, or even the wheel, the Maya were able to construct vast cities with an amazing degree of architectural perfection and variety. Filmed on location at numerous sacred sites through Central America, *Mystery of the Maya* explores the culture, science, and history of this amazing civilization.

**Tales of the Maya Skies**

*Now Showing in the Charles Hayden Planetarium*

Immerse yourself in the beauty of the “seventh wonder of the modern world,” Mexico’s Chichen Itza. Experience *Tales of the Maya Skies*, a new digital fulldome planetarium show produced by Chabot Space & Science Center. Narrated by Grammy Award-winner and Oscar-nominee Lila Downs, *Tales of the Maya Skies* transports you to the jungles of Mexico, presenting the rich history and culture of the ancient Maya.

**Maya: Hidden Worlds Revealed Teacher Workshop**

*Saturday, January 10*

Join Museum educators to begin planning a field trip to *Maya: Hidden Worlds Revealed*. Preview the exhibition and learn about related Museum resources that will support your curriculum goals.

Capacity: 30. Time: 9:00 a.m. – 12:00 p.m. For updates and registration: mos.org/educators
Learn how scholars have begun to unlock secrets of life long ago in Maya lands and read inscriptions carved hundreds of years ago. New techniques allow archaeologists to study sites that were previously inaccessible, adding greatly to our knowledge of daily life among the Maya. Scientists begin to understand Maya culture by excavating cities and house mounds, interpreting objects recovered, deciphering glyphs, and learning from Maya people living today.

- An activity will let you see the gorgeous cities of the ancient Maya, introduced to the rest of the world by early explorers to this region.
- Learn why scholars and Maya people alike are excited about our ability to read ancient glyphs.
- Try your hand at some Maya mathematics.
- Examine two massive replica stelae—once unreadable, but now a wellspring of information about Maya rulers and their relationships.

Maya hieroglyphs carved into stone stelae, only recently deciphered, tell of great and powerful dynasties. Get a sense of how to read a stela and how Maya rulers placed themselves at the center of the cosmos as living “world trees.”

- A name glyph generator allows you to title yourself, Maya style.
A video, set against a star field and cityscape, describes how and why the Maya charted the 365-day solar cycle, predicted solar and lunar eclipses, and precisely tracked the complex orbit of Venus. Astronomical phenomena are closely associated with seasonal changes that inform important agricultural practices for planting maize. Knowledge of the skies could ensure a good harvest—and power.

- Artifacts and replicas illustrate the interaction of astronomy and human responses.
- A calendar translator shows you how the Maya calendar cycles intersect, allows you to correlate important dates in our time to the cycles of Maya time, and lets you print out a personalized stela.

The Maya were excellent urban planners, organizing their cities according to practical needs, environmental constraints, and religious beliefs. Architects, artists, and laborers—who had no wheels or metal tools—incorporated the Maya worldview and social hierarchy into city plans and buildings. And the Maya modified every inch of their landscape. Explore city size, layout, population, and specific features—such as roadways, agricultural terraces, and reservoirs—that served the tens of thousands who lived in the shadows of these cities. A life-size frieze that once surrounded the top of El Castillo pyramid at Xunantunich, in Belize, is bathed in what archaeologists believe may have been the original colors.

- Explore construction techniques and build a Maya arch.

More than a thousand years ago, Maya artists painted the walls of three small rooms in Bonampak with scenes of war, celebration, and life at court. Today, the murals of Bonampak provide an unparalleled view of elite life and warfare in ancient Maya society.

- Step into a re-created mural space to explore courtly life in the late 8th century.
- Match objects with their counterparts in the murals. Use the pictures and artifacts to examine themes of elite privilege, ceremony, responsibility, connection, and competition.
- Take a photograph of yourself and see how you’d look wearing the costumes of various court figures.
Examine the Maya ball game—believed to be one of the first team sports in human history. Watch a video of the ball game as it’s played today, learn how archaeologists think it was played, and pick up a ball game ball—it’s heavy!

Hidden beneath the land of the living lay the underworld: Xibalba. Caves were physical portals to the underworld and prayers and sacrifices were offered inside. But Xibalba was a place of creation as well as death. It was the birthplace of the Sun and Moon, and life sprang from its depths. As priests ventured underground, they drew nearer to the gods and their prayers took greatest effect.

Artifacts recovered from these caves give a glimpse into rituals that helped priests and kings transcend the earthly world and speak with the gods of the underworld.

- Experience Actun Tunichil Muknal through a re-creation of this ritually important cave.
- Learn to decipher stone carvings from the Chiapas region in Mexico.

Explorations of Maya burials tell us about the structure of Maya society, their worldview, and even their diet and lifestyle.

- Witness a re-created tomb and see the spectacular objects that accompanied elites on their journey through the underworld.
- Examine photographs of human skeletons and find out what the histories written in our bones tell archaeologists about us.

During the 3rd – 10th centuries, cities were densely populated, in some cases supporting many more people than the same areas do today. Individual households were the engine of the economy. Their residents worked together to produce and process food, raise children, and properly honor their ancestors. But many households also produced goods such as textiles, tools, jewelry, or pottery for market.

- Try your hand at creating a weaving pattern with blocks.
- See examples of traditions still practiced by Maya people today.
TEACHER PARTNER PROGRAM

Pre-Planning Visit to
Maya: Hidden Worlds Revealed

Teacher Partners who book a school visit to view Maya: Hidden Worlds Revealed are invited to reserve a pre-planning visit to the exhibition in advance of visiting with their students!

TO RESERVE YOUR PRE-PLANNING VISIT TICKETS:

1. Reserve tickets for you and your students to visit Maya: Hidden Worlds Revealed. A coupon for each teacher will be generated and mailed to your school with the confirmation.

2. Enroll in our Teacher Partner Program at least 72 hours prior to your preferred pre-planning visit date. Registration is free! To enroll, visit: mos.org/teacher-partners.
   - The Teacher Partner Program is open to licensed K – 12 teachers actively employed in a public or private New England school.
   - Already a Teacher Partner? Check to make sure that your card is still valid and proceed to step 3.
   - If your Teacher Partner card is no longer valid, contact library@mos.org for assistance.

3. Call Science Central at 617-723-2500 at least 24 hours in advance of your pre-planning visit with the following information:
   - The confirmation number of your reserved school visit for Maya: Hidden Worlds Revealed.
   - Your preferred date and time for the pre-planning visit.
   - If you are planning to bring a guest with you, additional tickets may be purchased at $29 for adults, $27 for seniors, and $25 for children 11 and under. Price includes Exhibit Halls admission. Please have your MasterCard, Visa, American Express, or Discover card on hand at the time of your call.

4. Upon arrival on the day of your pre-planning visit, please use the yellow express line at the Museum of Science box office to pick up your reserved Teacher Partner Maya: Hidden Worlds Revealed exhibition ticket.
   - Please note, you will need to present your teacher coupon, valid Teacher Partner Program card (or temporary pass), and a photo ID at the box office to pick up your complimentary ticket.
   - If your Teacher Partner card has expired and you have renewed your enrollment, please bring your expired card with you to the box office as back-up identification.

IMPORTANT TIPS:

- It is highly advised to plan as far in advance as possible; ticket availability will be limited for this exciting opportunity.
- Requests for Teacher Partner pre-planning visit tickets must be made at least 24 hours in advance. Same-day requests will not be honored.
- Enrollment in the Teacher Partner Program often takes 24 hours for processing. Plan ahead to enroll at least 72 hours in advance of your preferred Maya: Hidden Worlds Revealed pre-planning visit.
- Additional field trip planning support is available: 617-589-0174 or library@mos.org.
ABOUT THE MAYA

The term *Maya* comes from the Yucatec Mayan word that describes the language spoken by indigenous people of the Yucatan Peninsula, Mexico. Western scholars have ascribed this term to all Maya people. Ancient Maya culture is characterized by monumental architecture; by symbols, images, and hieroglyphic writing; and by complex mathematical and astronomical systems.

The Maya were never a single empire, but lived in various densely populated cities and surrounding regions that shared many aspects of culture throughout this region. As a whole, the Maya people created the longest lasting civilization of the New World. Their culture endured through wars, disasters, and other changes until it was suppressed by the Spanish conquest in the 16th and 17th centuries. However, the Maya survived and today there are millions of Maya living in Mexico, Belize, Guatemala, El Salvador, and Honduras.

Vocabulary

Review of these terms would be helpful before your visit to *Maya: Hidden Worlds Revealed*. See the Connecting with the Classroom section (page 11) for suggestions.

Artifact, Archaeologist, Excavate

Artifacts are objects made, used, or changed by humans. Archaeologists are people who excavate (reveal, record, retrieve) and study artifacts from the past.

Ceiba (*Ceiba pentandra*), also known as the silk cotton or kapok tree

Trees of the Ceiba genus can grow up to 50m tall, with swollen trunks and large buttresses. As the sacred world trees of the Maya, Ceibas represent the intertwined celestial and earthly underworlds.

Classic Period of Maya Culture (250 – 900 AD)

Much of *Maya: Hidden Worlds Revealed* focuses on this time period of Maya culture. But research indicates that distinctive signs of Maya culture first start appearing around 1800 BC.

Corbel Vault

Typical Maya architectural features included the corbel vault. The corbel vault has no keystone, as European arches do, making the Maya vault appear more like a narrow triangle than an archway.

Elite

A small group of people who control the major share of wealth and/or political power in a given society.
Glyph
A symbolic figure or character, also called a hieroglyphic. All Maya glyphs are formed from various combinations of nearly 800 signs in the forms of humans, animals, supernatural creatures, objects, and abstract designs. These signs can express meaning, denote sound values, or be pictorial (the picture is the word), and are used to write words, phrases, and sentences.

Glyphs appear as very intricate squares laid out in a grid-like pattern. Each square is a glyph block that actually contains one to five glyphs, often forming a word or even a phrase. You will see glyphs on many objects throughout the exhibition.

Huitil (we-peel)
A traditional garment made of a piece of rectangular cloth folded and usually stitched down the sides, worn as a blouse. Huitils have been made and worn in this region for centuries. Huitils are still worn by the Maya today.

Maize (corn, Zea mays)
A staple food of Maya, past and present, with a major role in all aspects of Maya life. The Maize God story introduces you and your students to Maya: Hidden Worlds Revealed in the introductory theater. Many images or partial symbols of the Maize God occur on artifacts you will see in the exhibition.

Scribe
Scribes prepared art and text for public displays glorifying the ruler's triumphs. Most Maya could not read and write during Classic times, so scribes had a very important role in Maya society to reinforce the power and authority of Maya rulers. They were from the noble class, sometimes from the royal family of the city.

Stela (plural: stelae)
Freestanding stone pillars, often made of limestone, with figures carved in relief and hieroglyphic text.

You and your students may choose to visit deyoung.famsf.org/files/collectionicons/index1.html. This interactive website helps students understand several aspects of Maya art and culture (symbols, glyphs, mathematics, materials) through investigation of a stela in the DeYoung Museum’s collections. Upper elementary and above.
CONNECTING WITH THE CLASSROOM

Field trips are most effective when integrated with your curriculum. Below are activities that can be used as an introduction to topics included in the Maya: Hidden Worlds Revealed exhibition. Many can also be used after your trip or as ongoing topic explorations.

BEFORE YOUR VISIT

All Grades
Preparation for the visit:

- Review the exhibit's components to determine any vocabulary that will be new to students. A suggested list of vocabulary can be found on pages 9 and 10. Add others that may be new to your students.
- Ask students to find the meaning of each word and make a drawing to help them remember its meaning. Discuss each as a class.
- Locate the Maya region on a world map.
- Use images from the websites listed in the Resources section (page 33) to discuss what students will be seeing when they visit the exhibition.
- Gather class questions about the exhibit topic. What do students want to know? What do they think they will see and experience? What do they know or think about the Maya? Use their questions as a basis for your field trip guiding questions, or choose from the Maya Investigations pages (13 – 26) in this guide.
- Review the floor plan (page 8) of the exhibition with your students before your field trip. You can also provide floor plan copies to chaperones or individual students.
- Maya Mathematics (page 27) is a page for students in any grade to use. Use all or several of the questions on the Maya mathematical notation system.
- Review the schedule for the day with students, and share behavior expectations.

Grades K – 2

There are no pages in this guide specifically for students in grades K – 2. Please use the Chaperone Page (29) for suggestions for discussing the exhibits and activities with students. Chaperones can also provide paper and pencils for drawing in the exhibition. Drawing is a great tool for students in an exhibition to focus attention, support observation skills, and provide a change of pace for young students. Drawings can also be used for many post-trip follow-up activities. Also refer to Maya Mathematics (page 27), which is for students in any grade.

Grades 3 – 5

Preparation for the visit:

- Identify questions, activities, and experiences students are expected to complete during the visit. There is a lot to see and do.
- Use the Maya Investigations questions (pages 13 – 17) as guiding questions for students during your visit to the exhibition. Questions should be used minimally at the Museum to allow students to more fully experience the exhibits and activities. We recommend that students complete their answers after they return to school or as a homework assignment.
- Consider dividing into smaller groups with different questions for each group, then sharing answers after returning to school. Using all of the questions on each page may be overwhelming for some students.
- Ask students to bring a journal, notebook, or folder to provide a writing surface as they take notes for their responses.
Grades 6 – 8
Preparing for the visit:

- Identify questions, activities, and experiences students are expected to complete during the visit.
- Use the Maya Investigations questions (pages 18 – 22) as guiding questions for students during your visit to the exhibition. Questions should be used minimally at the Museum to allow students to experience the exhibits and activities. We recommend that students complete their answers after they return to school, or as a homework assignment.
- Consider dividing into smaller groups with different questions for each group, then sharing answers after returning to school. Using all of the questions on each page may be overwhelming for some students.
- Ask students to bring a journal, notebook, or folder to provide a writing surface as they take notes for their responses. Copy the question pages (18 – 22) to use all of the questions, or ask students to answer specific questions.
- Maya Mathematics (page 27) is a page for students in any grade to use. Use all or several of the questions on the Maya mathematical notation system.

Grades 9 – 12
Preparing for the visit:

- Identify questions, activities, and experiences students are expected to complete during the visit.
- Use the Maya Investigations questions (pages 23 – 26) as guiding questions for students during your visit to the exhibition. Questions should be used minimally at the Museum to allow students to experience the exhibits and activities. We recommend that students complete their answers after they return to school, or as a homework assignment.
- Ask students to bring a journal, notebook, or folder to provide a writing surface as they take notes for their responses. Copy the question pages (23 – 26) to use all of the questions, or ask students to answer specific questions.
- Divide students into small groups or pairs and ask each group to develop a question that explores Maya culture, past or present. As students go through Maya: Hidden Worlds Revealed, each section can help them with background information, ways to refine or revise their questions, and sources that provide evidence in developing answers or hypotheses. Question pages can be used to guide students to resources that will help them in working on their own question.
- Tradition: then and now. Ask students to find examples of things that people used in Classic Maya times and still have or do now. There are examples of contemporary Maya life for comparison, or they can compare Classic Maya life to their own lives today.
- Maya Math (page 27) is a page for students in any grade to use. Use all or several of the questions on the Maya mathematical notation system.
MAYA INVESTIGATIONS Grades 3 – 5

Find the title sign for each space in the Maya exhibition.

- On these pages, read the questions for that space.
- Take notes to answer the questions.
- Use the notes to write a complete answer to the question after you return to school.

Unlocking the Maya Past
Use your pencil to shade in the map at right where most of the Maya towns and cities were.

Histories in Stone
Look at the stone stelae or other stone sculptures. How many images of people can you find?

Draw a picture of one of them.

Draw a picture of yourself in the same style.

Watching the Skies
The Maya observed the movement of objects in the sky. Which ones were important to them?
Master Builders

Caracol was a city in what is now the country of Belize.

Which of these exhibit components gives you the most information about Caracol? Look at the components in this section, then choose one. Explain why you chose the one you did.

What did the builders of Caracol need to build and use this city?

How did they change the land?

Write some ideas here: ________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Try building a corbel arch.

Draw a picture of a corbel arch. Write a caption for your drawing.

What was this used for in the past? ________________________________________________

How could you use this in your life today? ____________________________________________
**Explorations**

**A Story in Pictures**

Look at all of the pictures that artists painted 1,300 years ago (about 800 AD). Find one item in a picture that tells you about life in that time and place.

What is the item you chose? ______________________________________________________________

Draw it here: ______________________________________________________________

What does that item tell you about life in that time and place?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Is there an **object** in this section that is similar to the **item in the picture**? YES NO

**Death and Rebirth and The Dead Tell Tales**

Archaeologists study objects to learn about the past. Find artifacts in this section that help you learn more. Complete this chart with your notes. Find an object you like, tell where it is from, and list an interesting fact, idea, or observation. (Hint: Unless there is one object mentioned, you can choose from many possibilities!)

<table>
<thead>
<tr>
<th>Object</th>
<th>Location</th>
<th>Interesting fact, idea, or observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torch holder</td>
<td>CAVE, Belize</td>
<td>CAVE in: This shows an animal from the region, it is a:</td>
</tr>
<tr>
<td>Shells</td>
<td>BURIAL, Belize</td>
<td></td>
</tr>
</tbody>
</table>

**MAYA**

**HIDDEN WORLDS REVEALED**
Explorations

Making a Living

Imagine that you were living in this city/region about 1,000 years ago. Look around—find examples that show what your life might have been like. Add the examples to your notes in the questions below.

What kind of job would you do? Choose one—most Maya people may have had several of these jobs at the same time.

Choose one:  
☐ farmer  
☐ weaver  
☐ shell artist  
☐ scribe  
☐ king  
☐ ball player

Draw or describe your house:

What food would you eat? Find examples.

_________________________________________________________________________________________________

_________________________________________________________________________________________________

If you were doing activities on your own or with other members of your family, where would you go? What would you do?

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________
Closing Thoughts

Think of photos or exhibits you saw that show something about Maya life today. It could be in this section or somewhere else in the exhibition.

What is the same as in the past? _____________________________________________

What is different? __________________________________________________________
Unlocking the Maya Past

There are many ways to learn about the “hidden worlds” of the Maya.

Describe a fascinating discovery by archaeologists in this region. 
________________________________________________________________________________
________________________________________________________________________________

What did they discover? Be sure to add details. ________________________________
________________________________________________________________________________
________________________________________________________________________________

What helps YOU understand this discovery? Check any that you used. You may learn more by seeing things in other sections.

☐ map
☐ artifact
☐ video
☐ written description
☐ model
☐ activity

Describe “Maya Lands”

Record details about what the land looks like as you find evidence. Include details about water, cities, forests, type of terrain, and other things you find in photos, maps, artifacts, models, or video.
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
Histories in Stone
Find a story shown in a stone carving, artifact, or painting. There are many possibilities. Look at the object and read the information to help answer the questions.

Who is the main character? __________________________________________________________

Where did he live? __________________________________________________________________________________

When did he live? _____________________________________________________________________________________

Sketch a glyph from that object. What do you think that glyph might mean?

Watching the Skies
The Maya observed the movement of objects in the sky. Compare their experiences 1,000 years ago to ours today. What is different and what is the same? Use the Venn diagram to make notes.

AD 2014

Maya AD 250 – 900
Explorations

Master Builders and Making a Living

Make notes to describe a city in the Maya region. When you get back to school, you will use your notes to write a travel blog.

Where is the city located? ________________________________

Add details so that someone reading your blog will want to visit the place you describe! Below are some ideas—you can use these or come up with your own details.

- What is in the city?
- What do the buildings look like?
- Are there different buildings?
- Are there neighborhoods?
- How big is the city?
- What materials are used?
- Who lives here?
- What does the land look like?
- What kinds of food do people eat?
- What do people do for work? For fun?
- What would you do if you visited this city?

_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________
_________________________________________________________________________________________________

Try out this activity: **Build a Corbel Arch**

Describe how it works.

What was this used for in the past?

What could you use this for in your life today?

How would you change it to make it better for your purpose?
Death and Rebirth, The Dead Tell Tales, and A Story in Pictures

Archaeologists use objects to learn more about the past. Find artifacts in these sections that help you understand Maya life. Complete this chart with your notes. (Hint: Unless there is one object mentioned, you can choose from many possibilities!)

<table>
<thead>
<tr>
<th>Object</th>
<th>Location</th>
<th>Interesting fact, idea, or observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torch holder</td>
<td>CAVE, Belize</td>
<td>Animal images are symbols of Maya beliefs. This one shows:</td>
</tr>
<tr>
<td></td>
<td>CAVE in:</td>
<td></td>
</tr>
<tr>
<td>Shells</td>
<td>BURIAL, Belize</td>
<td>This artifact shows that elite people used jewelry to show status.</td>
</tr>
</tbody>
</table>

Sketch and describe a favorite object from this section.
(Use words that describe color, shape, texture, use of space, pattern, repetition, and size.)
Closing Thoughts

Describe one or two observations from the exhibition that provide evidence that:

• Maya people today have contact with people from other places and other cultures.

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

• Maya people today still value tradition.

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________

_________________________________________________________________________________________________
MAYA INVESTIGATIONS  Grades 9 – 12

Find the title sign for each space in the Maya exhibition.

• On these pages, read the questions for that space.
• Take notes to answer the questions.
• Use the notes to write a complete answer to the question after you return to school.

Unlocking the Maya Past

There are many ways to learn about the “hidden worlds” of the Maya.

What scientific technologies and methods have been used to understand life 1,200 years ago?
________________________________________________________________________________

Keep track of other methods as you continue throughout the rest of the exhibition and list them here:

________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________

Histories in Stone

Find a story shown in a stone carving, artifact, or painting. There are many possibilities.

What is the name of this artifact? ____________________________________________________

What is the story? _________________________________________________________________

Sketch one of the glyphs on this object.

What kind of information does this glyph provide?
________________________________________________________________________________

Write your own label for the object, adding the parts that you think are the most important.
________________________________________________________________________________

________________________________________________________________________________

________________________________________________________________________________
Are cities in the Maya region more like cities in the Roman Empire or Greek city-states? Explain your choice:

_________________________________________________________________________________________________
_________________________________________________________________________________________________

Watching the Skies and Master Builders

In these two sections, consider this quote:

“Maya architects and planners combined their engineering skills with their religious understanding of the world. They organized their cities to reflect social values and reinforce political and religious power.”

Find 3 examples that provide evidence for this statement.

<table>
<thead>
<tr>
<th>Example</th>
<th>Evidence for which part of the quote?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
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<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>

A Story in Pictures

Bonampak, occupied from 600 – 800 AD, was an important Maya city in what is now Chiapas, Mexico. Look at the reconstructed room, as well as the artifacts and activities.

Make sketches and/or notes that would help you tell a story of the elite class during Classic Maya times.
Explorations

Death and Rebirth, The Dead Tell Tales, and A Story in Pictures

In these sections, look at exhibits, watch videos, and do activities to complete the chart.

Archaeologists use objects to learn more about the past. Find artifacts in these sections that help you understand Maya life during Classic times. Complete this chart with your notes.

<table>
<thead>
<tr>
<th>Object</th>
<th>Where was this object used?</th>
<th>Interesting fact, idea, or observation</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Making a Living

How did the Maya use their environment?
Find an example for each of the categories.

<table>
<thead>
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<th>Example</th>
<th>What part of the environment was used?</th>
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<td>Other</td>
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Closing Thoughts
Describe one or two observations from the exhibition that provide evidence that:

- Maya people today have contact with people from other places and other cultures.
  
  
  
  
- Maya people today still value tradition.
  
  
  
  

Explorations

MAYA MATHEMATICS All Grades

As you explore Maya: Hidden Worlds Revealed, practice your understanding of Maya math. Write the numbers as Maya glyphs, unless the question mentions another way to answer.

Maya Math Key

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Unlocking the Maya Past and Histories in Stone

Find a Maya number in any of the exhibits in this area.

Write the Maya number:

How would you write this number today? ___________________
Explorations

Watching the Skies
Look for Maya numbers in this section. What is the name of the artifact on which you found an example of Maya numbers?

Master Builders
Build a corbel arch. How many blocks did you use?
Ask a friend. How many did they use?

Making a Living
Use Maya numbers for your answers.
If you were a ballplayer, you would need to lift a ball that weighed pounds. Pick up the ball.
How far do you think you could throw this ball? feet.
Explorations

CHAPERONE PAGE

• Encourage students to look closely at the exhibits, try the activities, and share their discoveries and ideas with the rest of the group.
• Enjoy the exhibits with your group! Share your own discoveries and questions.
• Allow time for student exploration. The suggestions below encourage exploration in the exhibition. Check with the teacher for their expectations.
• Teachers may have provided students with guiding questions or question sheets to use. Check with the teacher for your own copy.
• Please stay with your group throughout the exhibition.
• If you have questions, please ask any of the staff in the exhibition.

Look for the section intro signs to help with orientation:

Here are some questions to share with your group. Develop your own exploration questions too!

- Archaeologists have many ways to learn about the past. Find examples of different ways they have learned about the ancient Maya.

- How does Maya writing look different from our writing? How is it the same?

- In any area, ask students to find an interesting object to describe to the rest of the group. Can the others identify the object from their description? Take turns sharing descriptions throughout the exhibition.

- Find examples of traditions contemporary Maya keep that are similar to ancient traditions.

- Try one or many of the activities. Ask students to compare what they learned from this activity with the rest of the group.

- Read labels in Spanish and English. What words are similar in both labels?
AFTER YOUR VISIT  Grades 3 – 5

Ask students to write complete responses to the Maya Investigations questions, based on their notes. Review their answers as appropriate. Discuss in class to share insights, reactions, and perceptions.

Additional follow-up discussions and extensions for exhibition reflection.

• Discuss what features of Maya style your students used for drawing—compare to the pictures they saw in the reconstructed room at Bonampak (A Story in Pictures).

• What objects in the sky are important to you? For us all? Why? How do we use our calendar? Do you remember how the Maya use their calendar?

• Compare what the builders of Caracol needed to build and use their city to what it takes to build a city today.
  • Grade 4: How does a city change the land it is built on? What changes do you think the Maya people noticed over the years as the city got bigger?
  • Grade 5: Compare the monuments of the Maya to ones students know (e.g., Capitol, public monuments, etc.). How do they look different? Why do you think they were built differently?

• What objects from the student's life would tell future archaeologists the most about their life? What information could those future archaeologists understand from the objects the students chose?

• Ask pairs or groups of 3 – 4 students to write a narrative (archaeological interpretation) of life in Bonampak in about the year 800, then compare the versions. What evidence would help support your interpretation?

• Discuss: Does your family have a special tradition? Did your grandparents have the same tradition? Has it changed since they were your age? If so, why do you think it changed?
AFTER YOUR VISIT Grades 6 – 8

Ask students to write complete responses to the Maya Investigations questions, based on their notes. Review their answers as appropriate. Discuss in class to share insights, reactions, and perceptions.

Additional follow-up discussions and extensions for exhibition reflection.

- If you could create an additional display or room for Maya: Hidden Worlds Revealed, what would it be? Why would you choose this focus? What would it include?

- Select one of the interactive activities. Describe what you did. Record three things about the Maya you learned as a result of the activity. List student choices, along with things they learned. In a class discussion, determine if there are things they learned that are common to everyone. Are some things unique to a student and their own personal experience?

- Make a Venn diagram to compare a Maya public building with a public building in the US. What features would make the buildings last centuries? What features would disintegrate?

- Write a travel blog description of one Maya city. Where is it located? Why do you think this was a good place for this city? Use the details you gathered at the Museum so that someone reading your blog would want to visit the place you describe!
  A US example is shown below:
  
  On the banks of the Mississippi River are two of America’s great cities: Minneapolis and St. Paul, Minnesota. We caught a ride on a paddle boat down the Mississippi River, and saw the five-story Science Museum of Minnesota, reflecting the sunlight off its limestone-and-brick building. We hopped off the boat in Minneapolis, and walked through the riverside park to the ruins of the flour mills that used to grind wheat into flour and made Minneapolis the flour capital of the US. The ruins are made of gray stone blocks.

- Describe the role of caves in the life of the Maya. Research caves in Massachusetts. Where are they located?

- Discuss: What is the most interesting thing you have learned about the Maya culture?

- Think–Pair–Share: As an archaeologist working to understand more, what question would you pursue next? What parts of the exhibition would be most valuable for you to revisit?
AFTER YOUR VISIT Grades 9 – 12

Ask students to write complete responses to the Maya Investigations questions, based on their notes. Review their answers as appropriate. Discuss in class to share insights, reactions, and perceptions.

**Additional follow-up discussions and extensions for exhibition reflection.**

- What technologies or techniques that archaeologists use in the Maya region were new to students?
  
  *Mentioned in the exhibition: epigraphy, analogies with contemporary people, LiDAR (Light Detection And Ranging), lake cores, and pollen analysis*

- How did the Maya use their environment?
  
  *Review student answers. Discuss: What impact would this use have on the environment? How does this compare with current life? Did students find any evidence in the exhibition that indicates major changes in the type of environment throughout time?*

Ask students to summarize their observations of the exhibition in response to the following categories:

- Social organization: class structure and differences between class expectations and traditions
- Political organization: was the structure similar to any political situations in the world today?
- Relationship of religious beliefs to other parts of life
- Artistic expression
- Changes over time in the Maya region

- **Think-Pair-Share:** As an archaeologist working to understand more, what question would you pursue next? What parts of the exhibit would be most valuable for you to revisit?

- If you could create an additional display or room for *Maya: Hidden Worlds Revealed*, what would it be? Why would you choose this focus? What would it include?

- Discuss: What is the most interesting thing you have learned about the Maya culture?
RESOURCES for Teachers and Students

Maya: Hidden Worlds Revealed Teacher Workshop
Join Museum educators to begin planning a field trip to Maya: Hidden Worlds Revealed. Preview the exhibition and learn about related Museum resources that will support your curriculum goals.
mos.org/maya

Caracol, a Maya City in Belize
caracol.org
Arlen and Diane Chase are archaeologists who have been working at Maya sites for over 30 years. Some of their research is highlighted in sections of the Maya: Hidden Worlds Revealed exhibition. Their website includes the main city of their research, Caracol, and includes current photos, videos, and field reports, as well as this overview for young people:
Archaeology for Kids
caracol.org/kids/what_is_archaeology.php

Living Maya Time: Sun, Corn, and the Calendar
maya.nmai.si.edu
This website includes sections about Maya people, past and present, locations of cities and population centers, worldview, the importance of corn, the Maya mathematical and calendar system, as well as further resources for educators. Developed by the National Museum of the American Indian, Smithsonian Institution. This site also includes a very complete glossary:
Glossary of Terms
maya.nmai.si.edu/sites/default/files/resources/site-glossary-en.pdf

Seeing Maya Culture through Examining a Stela
deyoung.famsf.org/files/collectionicons/index1.html
This interactive website helps students understand several aspects of Maya art and culture (symbols, glyphs, mathematics, and materials) through investigation of a stela in the DeYoung Museum’s collections. Upper elementary and above.

Maya Glyphs
famsi.org/research/pitts/MayaGlyphsBook1Sect1.pdf
Maya glyph workbook.

Maya Glyphs and Other Scripts
ancientscripts.com/maya.html
Background information about the Maya glyphs (as well as other scripts).

Maya Scribes
Massachusetts History and Social Studies Curriculum Framework

Connections

Grade 4
HISTORY AND GEOGRAPHY
Mexico

4.23 On a map of North America, locate Mexico and its major cities.
4.24 Describe the climate, major physical characteristics, and major natural resources of Mexico and explain their relationship to the Mexican economy.
4.25 Identify the language, major religion, and peoples of Mexico.

Grade 5
HISTORY, GEOGRAPHY, AND ECONOMICS
Pre-Columbian Civilizations of the New World and European Exploration, Colonization, and Settlement to 1700

5.2 Identify the three major pre-Columbian civilizations that existed in Central and South America (Maya, Aztec, and Inca) and their locations. Describe their political structures, religious practices, and use of slaves.

Grades 8 – 12
HISTORY, GEOGRAPHY, AND ECONOMICS
World History 1: The Origins of European Western Expansion and the Civilizations of Central and South America

WHI.13 Identify the three major pre-Columbian civilizations that existed in Central and South America (Maya, Aztec, and Inca) and their locations. Describe their political structures, religious practices, economies, art and architecture, and use of slaves.

WHI.14 Identify the major economic, political, and social effects of the European colonial period in South America.

Massachusetts Science and Technology/Engineering Curriculum Framework

Grades 3 – 5
EARTH AND SPACE SCIENCE
The Earth in the Solar System

ES-14. Recognize that the earth revolves around (orbits) the sun in a year's time and that the earth rotates on its axis once approximately every 24 hours. Make connections between the rotation of the earth and day/night, and the apparent movement of the sun, moon, and stars across the sky.

TECHNOLOGY/ENGINEERING
Materials and Tools

1.1 Identify materials used to accomplish a design task based on a specific property.
1.2 Identify and explain the appropriate materials and tools to construct a given prototype safely.
1.3 Identify and explain the difference between simple and complex machines.

Grades 6 – 8
EARTH AND SPACE SCIENCE
The Earth in the Solar System

ES-9 Describe lunar and solar eclipses, the observed moon phases, and tides. Relate them to the relative positions of the earth, moon, and sun.

LIFE SCIENCE (BIOLOGY)
Changes in Ecosystems Over Time

LS. 17 Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions of humans.
Massachusetts Curriculum Framework for Mathematics

Grades 3 – 5

NUMBER AND OPERATIONS IN BASE TEN

3.NBT.1
1. Use place value understanding to round whole numbers to the nearest 10 or 100.

4.NBT.1
1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700/70 = 10 by applying concepts of place value and division.

5.NBT.1
1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

ENGAGING IN ARGUMENT FROM EVIDENCE
Engaging in argument from evidence builds on experiences and progresses to critiquing the scientific explanations or solutions proposed by peers, by citing relevant evidence about the natural and designed world(s).

EARTH’S PLACE IN UNIVERSE
5 – ESS1-2: Represent data in graphical displays to reveal patterns of daily changes in the length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Next Generation Science Standards

Next Generation Science Standards encourage a learning approach with the integration of three dimensions: practices, cross-cutting concepts, and disciplinary core ideas. While visiting the Maya: Hidden Worlds Revealed exhibition, consider the following related practice and standards.

THE UNIVERSE AND ITS STARS
MS-ESS1.A: Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.

ENGINEERING DESIGN
3-5-ETS1-1: Influence of Engineering, Technology, and Science on Society and the Natural World
People’s needs and wants change over time, as do their demands for new and improved technologies.

LIFE SCIENCES/BIODIVERSITY AND HUMANS
3 – LS4-4: Populations live in a variety of habitats, and change in those habitats affects the organisms living there.