Painted Metaphors:  
Pottery and Politics of the Ancient Maya

Educator Resource Guide & Activity Ideas

The activities in this resource guide are designed to supplement student visits to a traveling exhibition arranged by the Penn Museum called Painted Metaphors: Pottery and Politics of the Ancient Maya. Please use them in whatever way best supports your education program, and let us know when you find innovative ways to expand any of the projects described here.

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Lesson #1: Introduction Pre-visit Discussion
Maya Brainstorm

Outcomes:
Students will write three lists that detail what they know about the Maya; what they
want to know about the Maya; and questions they have about the Maya.

Directions:
Divide the blackboard into three sections with these three headings: What do we
know about the Maya? What information would we like to learn? What questions
would we like to have answered during our museum visit? Have students respond
to each category.

Extension Activity:
In small groups or individually, students can complete an online quiz about the Maya
(Note: this website occasionally includes Aztec words and material without
identifying them as such.)

Lesson #2: Post-visit Classroom Activity
Chama Polychromes: The Politics of Pottery

Outcomes:
Students will review the design, function, and creation process of Chama
polychrome pots, and identify ways information and experiences may be interpreted
by people from diverse cultural perspectives and frames of reference. Students will
illustrate a current event in the style of a Chama polychrome pot.

Standards: Historical and cultural contexts of visual art; aesthetic response; art
production; comprehension and interpretation; research.

Vocabulary:
1. polychrome: decorated in several colors. The polychromatic color scheme of
Chama pots are white, red, yellow, black, and orange
2. incising: the act of scratching or carving into a hard surface to make a design
or mark
3. motif: a recurring image, design, or color scheme that may be associated
with a particular culture, time period, geographic region, etc. For example,
monkeys and jaguars are motifs of the Maya.

**Materials:**
- Heavy-weight manila or white paper, cut into 8” x 16” rectangles, one per student
- 6” circles, cut from mid-or light-weight paper, one per student (plastic lid from a 3 lb. coffee can makes a good template for this)
- Several 4 3/4” plastic lids from deli containers for another template
- Oil pastels or crayons, natural tones (white, red, yellow, black, orange)
- Images of Chama polychrome pots (included in this guide)
- Current newspapers
- Pencils
- Scissors
- Stapler
- Clear tape

**Directions:**

1. Have students discuss what they learned about Chama polychrome pots. As a class, review the design, function, and creation process of Chama polychrome pots.
2. Instruct students to look over several newspapers and select a headline to illustrate.
3. Ask students to sketch a story in pencil onto the rectangular sheet of paper. (Use “landscape” orientation for paper.)
4. Have students add designs and color to the sketches.
5. Ask students to use the following directions to construct their pot:
   - Form the sheet of paper into a cylinder shape, overlapping and stapling the shorter edge (overlap by approx. 3/4”).
   - For the base: center one of the 4 3/4” deli lids on the cutout 6” circle. Use a pencil to trace the lid, then make cuts, every inch or so around the circle, from the edge of the paper to the pencil-line. Fold and crease the cut edges up to the pencil-line, fit it inside the cylinder as a base, and tape in place.
6. In pairs, ask students to decipher each other’s headline illustrated on the “pot.” Once each has had a guess, students reveal their headlines to the group.
Extension Activity:
Students research the current event headline they have chosen and write a brief summary.

Alternate Extension/Variation:
(Objective: greater understanding of the archaeological process of piecing together uncovered sherds and reconstructing the original object. Note: slight variation in materials.)

1. Instead of forming their illustrated headline into a cylinder, have students tear or cut the paper into roughly 24 pieces of varying sizes.
2. In groups of three students, mix the torn pieces of paper together. (For an additional challenge, before mixing the three sets of paper “sherds,” remove 4 pieces of each and set aside.)
3. Each group of three students then exchange their pile of sherds with another group.
4. As a group, students examine the selection of mixed sherds, then separate and “reassemble” the sherds onto additional 8 x 16” sheets.
5. Consider various interpretations of the images on each pot and what evidence supports that interpretation. Similar to discussion in # 5 (above), give students an opportunity to explain their original design/drawing.
6. Discuss the challenges in deciding how to separate and reassemble the sherds. (Keep in mind that in most archaeological settings, you rarely find all pieces of an object.)

Lesson #3: Multi-Day (Multi-Session) Classroom Activity
Science and Archaeology

Outcomes:
Students will participate in an introductory lesson on the conservation process of Penn Museum’s Maya polychrome vessels. They will practice the simplified techniques of mending, gap-filling, in-painting, and documentation used by conservationists through a multi-day art/lab activity.

Standards: Science, technology and human endeavors; art production.
Vocabulary:

1. conservation: the profession devoted to preservation of cultural property for the future
2. conservator: a professional whose primary occupation is the practice of conservation and who, through specialized education, knowledge, training, and experience, formulates and implements all the activities of conservation in accordance with an ethical code such as the American Institute for Conservation Code of Ethics and Guides for Practice
3. residue analysis: techniques for analyzing the contents of archaeological artifacts by identifying traces of matter that have absorbed into porous objects
4. multispectral imaging: the process of detecting minute but significant details of an object by exposing it to different wavelengths of light, including ultraviolet and infrared
5. rollout: an artist rendering of a piece of pottery as a flattened, horizontal view of the complete scene
6. gap-filling: the process of filling in missing areas of an artifact. The two basic kinds of fills are cosmetic fills (for aesthetic reasons) and structural fills (to ensure the stability of the artifact)
7. in-painting: the process of coloring the gap-fills to match, or at least complement, the surrounding areas of an artifact.

Materials:
- The Chama Conservation Project video presentation on Penn Museum’s YouTube channel [http://www.youtube.com/watch?v=JIY15LiXjYQ](http://www.youtube.com/watch?v=JIY15LiXjYQ)
- Small terracotta pots
- Acrylic paint
- Paint brushes
- Paper clips
- Index cards
- Elmer’s glue
- Plaster of Paris
- Plastic knives
- Colored and regular pencils
- Drawing paper
- Regular notebook paper
- Ruler
- Tape measure
Directions:

First Day/Session
1. Have students watch *The Chama Conservation Project* video (found at the following link above.
2. Divide students into small groups, or have them work individually.
3. Instruct students to use paper clips to scratch designs and images onto the pots, and then add color with the acrylic paints.
4. Allow to dry. (Put index card with student’s name inside the pot.)

Second Day/Session
1. Prep. Activity: When the pots are completely dry, instruct students to smash them in a controlled setting, for example, put the pots in a paper bag and then smash them with a hammer.
2. Gather sherds from each pot into one pile, along with identifying index card.
3. Ask students to write down the number of sherds and the approximate size of each piece (length by width).
4. Next, tell students to lay out and then reassemble the sherds on the surface of a table/desk, much like working on puzzle pieces.
5. Have students make a sketch of the shard assembly once all pieces are “in place.” This can be used to create a rollout image of the final pot.
6. Glue sherds together, two pieces at a time. Allow each section time to “set” before attaching another section. (One glued section can be setting up while another two pieces are glued, etc.)
7. Allow finished pot to dry thoroughly.

Third Day/Session
1. Assess amount of gaps remaining between glued pieces on each pot.
2. Mix an appropriate quantity of Plaster of Paris to fill the gaps.
3. Use plastic knives to gap-fill with Plaster of Paris. Wipe away excess plaster with a moist paper towel, if necessary.
4. Allow to dry.

Fourth Day/Session
1. Record the physical dimensions of the reconstructed pot.
2. In-paint the areas that were gap-filled using colors that complement the original painting.
3. Allow to dry.
Great Resource for older students: Additional conservation details are available in *The Maya Vase Conservation Project*, by Lynn A. Grant (University of Pennsylvania Museum of Archaeology and Anthropology, 2006). The book explains the conservation process used on Penn Museum’s singular collection of 8th century (CE) Maya polychrome vessels from Chama, Guatemala. Extensive photographs plus additional CD-ROM illustrates all the steps involved in the conservation process.

Lesson #4: Pilgrimage and Trade

Post-visit Classroom Activity

Outcome:
Students will review the economic and spiritual importance of cacao for Maya culture.

Standards: Identify the physical, biological, and chemical changes that take place in food preparation; demonstrate food production.

Overview:
Cacao, the evergreen tree whose seeds produce cacao and chocolate, was currency, a symbol of wealth, and an important ingredient in rituals for the Maya. According to the *Popul Vuh*, the Maya creation myth, when the God of Lightning struck and opened Sustenance Mountain, both maize and cacao were brought forth, along with other plants, to feed the Maya. The cacao tree’s scientific name, *Theobroma*, even means “food of the gods.”

The Maya’s cocoa recipe was a mixture of ground cacao beans and water. Recent residue analysis has identified additional ingredients, such as chili peppers, anise seeds, vanilla, allspice, ground corn, and honey in the bottom of cocoa preparation pots. The drink was sacred and used to honor the gods. Celebrate your visit to *Painted Metaphors: Pottery and Politics of the Ancient Maya* by creating this version of hot cocoa.

Directions:
1. Research and identify the physical, biological, and chemical changes that occur during the process of preparing cacao, including:
   - fermentation
   - drying
   - roasting
   - grinding
2. Work in groups to prepare and serve the hot cocoa recipe.
Recipe
(This is the way the Maya would drink chocolate, however students may want to add some sugar and milk to suit modern tastes.)

Ingredients
- Unsweetened baking chocolate – 1 oz. for each cupful
- Boiling water
- Ground allspice (or chili powder, to be authentic)

Cocoa Directions
Grate 1 oz. unsweetened baking chocolate into a cup or mug. Add a little boiling water and stir until melted. Next, add a little allspice some chili powder. Fill the cup with boiling water. Using a "molinillo," or whisk, stand it upright in the cup and rub the whisk briskly between your hands to make the chocolate foam.

Lesson #5

Visual Thinking Exercise

Ritual on the Ratinlixul Vase

(Adapted from resources created by Mike Wallace of the Spencertown Academy Arts Center in New York.)

Outcomes:
Students will engage in a cyclical process of observation, inference, and citing of specific details to support inferences, reappraising their initial assumptions based on the observations of others. They will critically examine a work of art through visual thinking strategies and analyze and interpret a work of art through its historical and cultural perspective.

Standards: Explain how information and experiences may be interpreted by people from diverse cultural perspectives and frames of reference. Compare and analyze societal patterns for preserving and transmitting culture while adapting to environmental or social change.

Materials:
Directions:

1. Have students view a projection or printed copy of the watercolor rollout of the Ratinlixul Vase (page 11). A class should spend at least thirty minutes investigating and discussing this single image.

2. Ask students to respond in depth to two simple questions:
   - What is happening here?
   - What do you see that makes you say that?

3. The group leader should provide little or no context or background, but facilitate a cyclical process of observation, inference, and citing specific details in support of their inferences.

4. As background for this activity, the leader may want to read “The Ritual on the Ratinlixul Vase: Pots and Politics in Highland Guatemala” in Penn Museum’s journal Expedition (Volume 39, No. 3, 1997 – pages 37-48), which can be down-loaded from:

5. During the process of observation and discussion, encourage students to describe any aspect of the image and try to understand what is happening and why they think that is so. (In addition to focusing on the artwork, indirectly help students to notice and discuss the obvious worn state of the pottery and what that may indicate.)

6. Additional points students should consider: identity of figures, citing attributes of posture, clothing, ornament and psychological expression. Also, consider the gender, ages, and spatial relationships of the figures. What was the purpose of the original object? Students may come to a conclusion that this watercolor represents sherds of a pottery vessel. Who made it and for whom? What purpose did it serve?

Extension Activity:
Choose several specific elements identified in the image and have students research the symbolic meaning of the object or design for the ancient Maya.
Ratinlixul Vase Rollout
Lesson # 6: Using Dilemmas to Promote Moral Reasoning

Clay Pot Moral Dilemma: A Multi-Session Activity

(Adapted from resources created by Mike Wallace of the Spencertown Academy Arts Center in New York.)

Outcomes:
Students will use a range of intellectual skills to demonstrate their understanding of major ideas, questions, and issues relating to cultural heritage, by examining the broad sweep of history from a variety of perspectives.

Standards: Students will read, write, listen, and speak for both critical analysis and social interaction. Students will build systems to support their assertions, using critical thinking skills.

Materials:
2. Statue of Liberty pre-writing activity (page 14)
3. Images of Chama pottery
4. Story of the Clay Pot (page 18)
5. Pencils and regular notebook paper
6. Clay Pot Conclusion worksheet (page 19)
7. Name tags (ready-made, or construct your own) plus markers

Vocabulary:

1. antiquities: objects or buildings from the distant past
2. mortgage: a legal agreement in which an organization such as a bank lends money in exchange for holding title to the borrower’s property, with the condition that the title goes back to the borrower after the debt is repaid, with interest
3. Maya: Native American peoples of Yucatan and other parts of Central America
4. Archaeological Commission: a government organization that regulates ownership and acquisition of antiquities
5. Provenience or provenance: legal documentation or record of ownership of a work of art or antique

**Directions:**

First Session

1. Read *Looting a Lost Civilization* (page 17) aloud to, or with, students (depending on grade-level).
2. Hand out copies of the Statue of Liberty Dilemma worksheet (page 16)
3. Ask students to read and complete the worksheet. Share responses as a class.
5. Read the *Clay Pot Dilemma* aloud.
6. Look at several images of pots from the *Painted Metaphors* exhibit website or attached.
7. Discuss issues of provenience of objects recovered scientifically versus looted (information gained or lost). Explain that Penn Museum’s Chama pottery is the *only* museum collection with complete documentation in the United States.
8. Discuss the choices offered in the *Clay Pot Dilemma*.
9. Students write a short response to questions posed by *Clay Pot Dilemma*.
10. In small groups, students discuss their responses. (One student takes the role of recorder, another can report to the whole class, and one student should try to argue the opposite view of the majority.)
11. Spokesperson reports discussion to the class.

Second Session

1. Assign students roles from the *Clay Pot Dilemma* sheet (2-3 per role, or whatever method gives each student a role)
   - Mother – Eva
   - Father – Juan
   - Son – Carlos
   - Daughter – Maria
   - Neighbor
   - Antiquities Dealer
   - Director of the Archaeological Commission
2. Have students make nametags for specific role.
3. Ask students with like roles to discuss their character’s point of view.
4. Tell students to gather in a large circle, assume their roles, and discuss/debate the dilemma from their characters' points of view.

5. Guide the discussion and pose questions.
   - What if one of the children is ill and needs money for medicine?
   - What if the neighbor is a relative?
   - What if the antiquities dealer seems suspicious?

6. Students write their conclusions from the discussion and role-play on the Clay Pot Conclusion sheet (attached).

Extension Activity:
On the back of the Clay Pot Conclusion sheet or another sheet of paper, draw two or more characters from the dilemma and write their conversation. Share with the class.
The Statue of Liberty is one of our national treasures. Someone has stolen the torch from the top of the Statue of Liberty. The statue has been changed forever. How may the following people react and why?

A fifth grader


A mom or dad


A grandma or grandpa


A recent immigrant


It looked like an odd-shaped hill in the jungle, until the looters' tunnels came into view. At the end of the biggest tunnel there was a hollow chamber, the ceiling burnt black by the thieves' fiery torches, in what was once a Maya pyramid. This is Las Milpas, a ninth century Maya ceremonial center of 11 plazas and about 50 structures that was long ago reclaimed by the jungle. The archaeologists were beaten to the site by fortune hunters, who probably found the skeleton of a Maya king or priest decked out in jade jewelry, with pots and bowls laid out beside him. The bowls would have been painted with hieroglyphics intended to remind the spirit of the dead what he had done in his life and provide him with directions to the afterlife.

These days, more and more tourists from the United States and Europe are visiting Maya cities that have been excavated and restored: Chichen Itza and Palenque in Mexico, Tikal in Guatemala and Copan in Honduras. But as the international appetite for Maya culture grows, so has the hunger for illegal artifacts. In fact, researchers are involved in a race against time with increasingly tenacious looters. In the past two decades, scholars have cracked the complex hieroglyphic code of the Maya, shedding light on an advanced civilization whose astrologers and mathematicians used the zero before their European counterparts.

The Maya disappeared in the 11th century and scholars are uncertain why, offering a range of theories, including drought, war and disease. But with so much looting going on, the cause of the Maya civilization's demise may never be revealed. In Belize and Guatemala, scientists are hoping to reach huge ruins that have been largely unexplored. Satellite images show that the region could have 4,000 undiscovered sites. On both sides of the border, looting has become a lucrative illegal trade, second only to drugs. In 1997, Richard D. Hansen, a University of California at Los Angeles archaeologist who has been documenting looting in Guatemala estimated the annual trade at $120 million. The problem is compounded by the extreme poverty of the majority of the population of Guatemala, especially in the Peten region, where Maya sites are concentrated.

Treasure hunters typically covet jade jewelry, inscribed pottery, sacrificial altars and stelae -- man-sized stone slabs, carved with images of kings and their achievements. "Just to give you an idea of what Maya artifacts are worth, there was a Sotheby's (London auction house) sale in 1990, where a common polychrome vase
went for $5,000, a jade necklace for $13,000 and a pair of zoomorphs (limestone carvings of deities in animal form) for $230,000," said George Thompson, the commissioner of the Belize government's Department of Archaeology. "Now, the prices are much higher."

Thompson says a large portion of stolen artifacts make their way to the United States and Europe via Cancun, a Mexican resort city. The smuggling occurs even though importation of looted treasures into the United States is prohibited under a 1983 federal law that obligates the U.S. government to observe a UNESCO convention. A little-known State Department agency -- the Cultural Property Advisory Committee -- is supposed to keep Americans from buying antiquities. Since Guatemala is a major transshipment point for Colombian cocaine and heroin, the same criminal drug organizations have moved into the business of looting Maya treasure, observers say. "There is a relationship between smuggling (artifacts) and narcotics trafficking," said former Guatemalan Defense Minister Brig. Gen. Juan de Dios Estrada.

The entry of organized crime has increased the violence associated with smuggling. Last year, 14 artifacts were stolen from a museum at the Maya city of Cahal Pech in Belize. Arrests were made and half of the stolen pieces were recovered due to information given by a museum employee. The day before the man was scheduled to testify in court, he was assassinated. In Belize, a tiny nation with few resources, the police rely on archaeologists to investigate such theft. Guatemala, on the other hand, has a special police investigation unit. Inspector Victor Manuel Salazar, who heads the Police Patrimonial and Environmental Department, concedes that his 17 agents have made little headway -- they arrested only one suspect last year. Salazar says smugglers are not only well-organized and well-armed, but enjoy protection from powerful politicians and ex-military officers. "There have been cases that we have been told to drop," said Salazar from his tiny downtown office in Guatemala City. "So our arrest record is not good."

Four years ago, former Gen. Cesar Augusto Garcia was fired as Guatemala's vice minister of defense after being accused of being part of a smuggling ring allegedly headed by Alfredo Moreno, an ex-military intelligence officer. Sixteen other officials, including three colonels, police officers and customs officials were also dismissed. Some former leftist guerrillas are also looters, according to archaeologists and Belizean military sources. Although Guatemala's bloody 36-year civil war ended in 1996, some armed rebels have found few ways of earning a living, they say.
Valentino Castillo has tended to the ruins at Caracol, a Maya site in Belize, for more than 30 years. Two years ago, he saw seven looters armed with AK-47 assault rifles and wearing guerrilla uniforms. "I climbed a tree, because there was no way I was going to challenge those men," said the elderly worker as he wrung his gnarled hands.

Castillo also complained about those he calls "legal looters" -- foreign archaeologists. He says they are supposed to turn over everything they find to the nation's Archaeological Commission, but when a tomb is found they sometimes send workers away. "But I used to sneak back at night, and the stuff I saw was never handed over or cataloged," said Castillo. At the very least, foreign scientists have helped create future looters by hiring laborers to help them with the excavations, said Thompson. "These guys (laborers) know where to look. They know the astrological alignments the Maya used when laying out their buildings, so they know where to dig the trenches," said Thompson. "These teams can loot a building in a couple of days with just picks, shovels and candles."

This article appeared on page A - 12 of the San Francisco Chronicle.
The Clay Pot

Juan and Eva Corbon work hard to keep a good home for their children. However, recently the price of everything has risen so quickly and so high that they are having a very hard time paying for food and for their mortgage.

One day Juan was digging on his property and he found a small clay pot that looked very old. After carefully cleaning the pot, he saw that it looked like an ancient Maya pot he once saw in a museum. A neighbor told Juan that it was very valuable. The neighbor knows an antiquities dealer who would pay Juan enough money to feed his family and pay his mortgage for a year.

Juan and Eva talked about selling the Maya pot. They had heard of many cases of ancient artifacts being sold illegally. The president announced that all ancient artifacts are national treasures, which belong to the nation of Guatemala and must be turned in to the government’s Archaeological Commission. The legal penalty for disobeying the government is time in jail. The commission would pay Juan nothing for the valuable clay pot he found.

Another concern of the Archaeological Commission is that once an artifact like this clay pot is removed from the ground it loses its scientific value. When an archaeologist excavates a site that he/she is studying, the whole archaeological record, not just “pretty objects” are examined. Archaeologists look at things like context, relationships between artifacts, and any structural features, all in order to better understand and “reconstruct” past human behavior. That information is lost once an object is removed unscientifically.

Should Juan and Eva sell the ancient Maya pot to the antiquities dealer? Why or why not?

Some of the roles involved in this dilemma:

Mother – Eva    Son – Carlos
Father – Juan    Daughter – Maria
Neighbor       Antiquities Dealer
Director of the Archaeological Commission  Archaeologist
Clay Pot Conclusion

Role-play character ______________________

Explain what you now think the family should do with the clay pot.

What did you hear in the discussion that changed your opinion or confirmed your original opinion?

How did you feel about working through the dilemma with the whole group this way?
Maya Resources for Information and Classroom Activities:

Print Resources:


Internet Sites:

- **Ancient Maya: Knowledge Through Art.** By Kathleen Heady. Published on PBS’s NewsHour Extra.
  

  A lesson plan on Maya art. Includes handouts and other web links to guide students’ learning.

- **A Classical Maya News Report.** Produced by Discovery Education.
  

  A lesson plan on Maya city-states. For grades 9-12.

- **Cracking the Maya Code: The Story Behind the Centuries-Long Decipherment of Ancient Maya Hieroglyphs.** Produced by PBS Online.
  

  Trace the history of deciphering the Maya language, decode Maya glyphs, hear the Ancient Maya language, explore contemporary and ancient sites of Central America, and discover Maya art symbolism through several educational interactives.

- **Cracking the Maya Code: Calendar Count Worksheet.** Produced by NOVA.
  

  A printable worksheet with instructions on how to convert our Gregorian calendar into the Maya Long Count system.


  Provides activity suggestions for the classroom, such as a Maya ball game activity. Includes a Maya Bar-and-Dot counting system worksheet. For grades 6 and up.
Maya Quiz. Produced by National Geographic.  
This interactive quiz asks questions based on the following topics: Maya beauty ideals; food; religious and ritualistic practices; language; and counting systems. Great as a pre-visit introduction or as a post-visit reinforcement/evaluation activity.

Mesoweb: An Exploration of Mesoamerican Cultures.  
http://www.mesoweb.com/  
Posts current events in Mesoamerican archaeology and research along with essays.

The Mysterious Mayas for Kids.  
http://mayas.mrdonn.org/empire.html
A compilation of Maya-related links divided by topics, such as Myths and Folklore, Interactive Games and Activities, and Daily Life.

Mystery of the Maya. From the Canadian Museum of Civilizations.  
http://www.civilization.ca/cmc/exhibitions/civil/maya/mminteng.shtml#menu
A click-by-click overview of various Mayan topics. Includes slide show of images and a teacher’s guide with classroom activity ideas.

The Sport of Life and Death: The Mesoamerican Ball Game. Produced by the Mint Museum of Art.  
This online interactive site was produced by the Mint Museum of Art as a component for the traveling exhibition of the same name (no longer on view). Learn the rules, regalia, and other elements of the sport.

Welcome to Maya Adventure! From the Science Museum of Minnesota.  
http://www.smm.org/sln/ma/
A click-by-click interactive site about major Mayan cities. Includes some activity ideas and features photographs Mayan collections from the Museum.
Ratinlixul Vase
Cup and Lid – God Face

Footed Dish
Polychrome Vase
Polychrome Sherd Collection
Pottery with Hieroglyphs
Polychrome Fish Vase:  
Two Different Views
Ratinlixul Vase