Ancient Civilizations of South and Mesoamerica: The Aztec, Mayan, and Incan People

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Unit Goals

This integrated unit is meant to introduce the students to the time period of Spanish exploration in the American continents and the past civilizations that compromised the regions the Spanish came into contact with. By introducing the students to the history of the ancient Mesoamerican civilizations we will sharpen our skills in math, reading, and social studies. We will adhere to the National standards of each subject for this grade level and satisfy multiple standards in single lessons as outlined in the individual lesson plans. Aside from the academics, our goal is to create a sense of respect from the students for ancient civilizations and cultures that are different from that of their own.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Goals</th>
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<tbody>
<tr>
<td>Google Earth: The Americas (social studies)</td>
<td>Explore maps of the American continents and compare them with maps of territory occupied by ancient civilizations’.</td>
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<tr>
<td>Seasons of the Earth (science)</td>
<td>Understand motion of Earth around Sun. Understand what causes the seasons. Explore Incan traditions regarding celestial events.</td>
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<tr>
<td>Mayan Calendar Exploration (reading)</td>
<td>Understand the general idea of ancient Mesoamerican calendars. Understand the vocabulary connected with Mesoamerican civilizations.</td>
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<tr>
<td>Quipo Knots and Graphs (social studies and math)</td>
<td>Understand bar graphs as a means to display information. Explore the Incan tradition of keeping track of numbers.</td>
</tr>
<tr>
<td>Mayan Mask (social studies and art)</td>
<td>Explore the art of the Mayan civilization. Create a mask with multiple mediums.</td>
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</table>
Montana standards for fifth grade indicate that the children must learn about Europeans exploring and settling the American continents. The class textbooks have about a paragraph regarding each of the three civilizations we will highlight and that is inadequate to present an objective view of them. Therefore, as stated in more depth in our goals, we aimed to present lessons that created a respect for these civilization and the cultures that came after them. We will cover the history, geography, and culture (in the form of their works) of the Mayan, Aztec, and Incan civilizations. By covering each we will also provide the students with some background of the interactions between native populations and the Spanish. Each lesson in this unit will highlight the important role each civilization played in creating the Americas of today. It is important for the students to realize that Columbus was only the beginning of the Spanish conquest of the American continents, consequently all of our lessons will bring the class back to the time period after Columbus and before British colonization.
Exploring the Americas

Grade Level  5

Duration  35-45 min

Subject areas  Geography and World History

NCSS Standards Addressed

• Time, Continuity, and Change
  o  b. Demonstrate an ability to use correctly vocabulary associated with time such as past, present, future, and long ago; read and construct simple timelines; identify examples of change; and recognize examples of cause and effect relationships;
  o  d. Identify and use various sources for reconstructing the past, such as documents, letters, diaries, maps, textbooks, photos, and others;

• People, Places, and Environment
  o  a. Construct and use mental maps of locales, regions, and the world that demonstrate understanding of relative location, direction, size, and shape;
  o  b. Interpret, use, and distinguish various representations of the earth, such as maps, globes, photographs;
  o  c. Use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs, and maps to generate, manipulate, and interpret information;

• Science, Technology, and Society
  o  a. Identify and describe examples in which science and technology have changed the lives of people, such as in homemaking, childcare, work, transportation, and communication.

Content Objectives

The Students Will:

  o  Determine the location of North and South America on a map
  o  Demonstrate a general knowledge of the land features found in Central and South America.
  o  Identify the major civilizations the Spanish explorers came in contact with.
  o  Demonstrate an understanding of the physical aspects of ancient civilizations’ land and how that effected architecture.
  o  Identify the hemispheres and what line separates each.
  o  Identify Google Earth as a tool to further understand world geography.
Process Objectives

The Students Will:
- Use maps, charts, and pictures to determine where the Mayan, Aztec, and Incan civilizations were located.
- Discuss the geographical phenomena that shaped these civilizations and facilitated Spanish colonization.
- Record data accurately including place names.

Resources

Google Earth
www.plu.edu
faculty.evansville.edu
www.faqinfosite.com
www.blog.lib.umn.edu

Preparation

Create a Google Earth tour that takes the students from their school to each of the site of the civilizations being covered. At each stop along the way include a photograph of an aspect of that region that is important to the civilizations being discussed. i.e.: Yucatan Peninsula and Chichen Itza.

Motivation

Students will be motivated through the use of the new technology that shows them the geography of the regions more than any map could.

Assessment

- The teacher will be assessing the students participation and comprehension during the discussion exercise
- Through the work sheet the teacher will asses the following:
  - The students will be able to:
    - Label all hemispheres
    - Label the continents in the western hemisphere
    - Demonstrate a general knowledge of where the Mayan, Aztec, and Incan civilizations were located
    - Demonstrate a working knowledge of one of the accomplishments accredited to each civilization
Name ______________________

Geography Slide Show

1. What line separates the western and eastern hemispheres?

____________________________________________________________________________________

2. What line separates the northern and southern hemispheres?

____________________________________________________________________________________

3. How many states are in the United States? ________________________________

4. What is the capital of Montana? ________________________________

5. What county is Frenchtown in? ________________________________

6. What is the biggest country in Central America? ________________________________

7. What country had both Aztec and Mayan people? ________________________________

8. What was the oldest civilization known in Mexico? ________________________________

9. What where the two countries that the Mayans lived in besides Mexico?

____________________________________________________________________________________

10. What kind of pyramids did the Aztecs and Mayan build? ________________________________

11. What is the Mayan symbol for you age? ________________________________

12. What is the biggest country in South America? ________________________________

13. What present day country did the Incan originate from ________________________________
Title: Aztec Temple Math
Grade Level: 5 (Ms. O’Sullivan, Frenchtown)
Duration: 40 min
Caitlin Byers and Jesse La Rose

Goal: Students will use area and perimeter correctly to solve a hypothetical temple-building problem.

Objectives:
From: Principles and Standards, Numbers and Operations Standards, Grades 3-5
Students should be able to:

- Recognize geometric ideas and relationships and apply them to other disciplines and to problems that arise in the classroom or in everyday life
- Identify, compare, and analyze attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes
- Understand that measurements are approximations and understand how differences in units affect precision
- Understand such attributes such as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute

Engage: Students are shown many pictures of Aztec temples. Some are shown in peninsula regions and others are depicted in high mountain regions.

Ask:
What do you think these are?
What do you think these are used for?
What might pose a problem for Aztec builders when planning to build a temple?

Explain:
Aztec temples and cities had to be planned around surrounding geographic features like a peninsula or a high mountain region.
Mayan architecture is remarkable because Aztecs did not have pack animals, or many to the tools other early civilizations used to plan and build their temples.
Aztec temples were built using strictly man power. Aztec architecture also stands out because most Aztec temples are step temples.

Transition from concept to concept:
Aztec architects and builders had to plan around different geographic regions when they wanted to build a new temple. You will have to do the same!

Explore: Students are asked what they know about the concepts of area and perimeter. Demonstrations are completed for both area and perimeter using models (blocks).
Explain: Students are given the problem: an area in which a builder plans to build a temple, but there are obstacles the students will have to consider. Because they will be building a step temple, like the Aztecs, they will only have to build the first step. In order to complete the rest of the temple, they have to communicate the perimeter and area of the first temple step to other builders in terms they will understand (a quahuitl). Students will be given the value of a quahuitl, and asked to convert their measurements (in meters) to quahuitls. (1 meter = 2.5 quahuitls)

Extend:
The builders have finished the plan! If each step in the temple is smaller than the step below it, what will the area and perimeter of the final step be? Fill out the table to find the last step!

Evaluate: (Informal summative assessment) Students building plans will be turned in to be graded. Students will be graded on completion and accuracy of their plans, and the extend activity.

Closure: Students will be asked to be sure names are on their building plans and to turn them in.

Materials:
- graph paper for all students (included)
- unifix cubes for all students
- builder’s plan for all students

Resources:
Principles and Standards in School Mathematics, NCTM 2000
Aztec Temple Builder’s Plan

<table>
<thead>
<tr>
<th>Step Number</th>
<th>Perimeter in qualhuitls</th>
<th>Area in qualhuitls</th>
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<tbody>
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</table>
Remember: Your temple does not have to look like anyone else’s, or have the same number of steps.
1 meter = 2.5 qualhuitls
Title: Seasons and the Incan Anchor Rocks

School: Frenchtown Elementary (Mrs. Eustance and Ms. O'Sullivan)

Caitlin Byers and Jesse LaRose

Standards:

Montana State Standards

Content Standard 1—Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.

Content Standard 2—Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.

Content Standard 4—Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.

Content Standard 5—Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.

Content Standard 6—Students understand historical developments in science

NSES Standards

UNIFYING CONCEPTS AND PROCESSES

Systems, order, and organization

Evidence, models, and explanation

Change, constancy, and measurement

Form and function
SCIENCE AS INQUIRY
Abilities necessary to do scientific inquiry
Understandings about scientific inquiry

PHYSICAL SCIENCE
Motions and forces
EARTH AND SPACE SCIENCE
Earth in the solar system

SCIENCE AND TECHNOLOGY
Understandings about science and technology

SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVE S
Science and technology in society

HISTORY AND NATURE OF SCIENCE
Science as a human endeavor
Nature of science
History of science

Engage: Students see pictures of an anchor rock on the SmartBoard. *Today we will learn what the Incan people used this rock for. First who can tell me what causes the different seasons on Earth?*

- Give students time to write their ideas on the back of their diagram sheets.
- Gather student preconceptions about the topic making sure to draw out any misconceptions on the board. i.e. the Earth gets closer to the sun during summer, or the sun’s temperature rises in the summer
TRANSITION: Now that we have these ideas, how can we prove our ideas? We have these models we made.

**Explore (use models and demonstrations):** Show the students how the Earth revolves around the Sun.

- Explain to students that the tilt of the Earth will always remain the same, and to keep our models accurate, they will need to keep their axis pointed at the North Star (cutout of a star hung on ceiling) to keep our models accurate.

- Ask the students to determine the position of the Earth during the summer in Montana using the blue sticker as a reference point. Have them record their observations on the back of their data sheets.

- Students draw diagram and explain in full sentences for summer in Montana. (Want students to struggle)

  - Choose either A or B and write in your journal- show what is summer in Montana. Defend your answer. (Draw a diagram of the earth’s rotation around the sun depicting both solstices. Choice A is summer in Montana, and Choice B is winter in Montana)

TRANSITION: Let’s see how we did- this video is another great way to prove our ideas.

**Explain:** Show the students an animation that displays that seasons are caused by the tilt in the Earth’s axis. ([http://www.youtube.com/watch?v=DuiQvPLWziQ](http://www.youtube.com/watch?v=DuiQvPLWziQ))

- Use the model to show them the seasons changing in tandem with video.

- Review the concept of the Northern and Southern hemispheres.

- Show animation a second time- have students follow along with models.

TRANSITION: You guys really understand seasons in the Northern Hemisphere- let’s try the Southern Hemisphere. Remember the Incans? Where did they live? We want to know when it is summer in Peru.

**Elaborate:** Have the students determine the position of the Earth when it is summer in Peru using the red sticker as a reference point
-Answer question below diagram: What season is it in Montana when it is summer in Peru?

-Gather students to the main group and ask them again what causes the seasons. Introduce the term equinox (days and nights are the same length) and explain that the Incans built this formation to measure when the Earth was at the equinox stage of its orbit (no visible shadow).

**Evaluate:** The second observation of students trying to figure out when it is summer in Peru will provide a good idea of how well they understand the concept.

-A learning guide for students will also serve as the evaluation.

**Resources:**

http://www.youtube.com/watch?v=DuiQvPLWziQ

**Materials:** (for model)

3-4 Lamps w/ bare bulbs (no shades)

Extension cords

3-4 shish-ka-bob sticks

blue/red/black marker

yellow star

3-4 styrofoam balls
Seasons

Name: ______________________

Part I: Define following terms.

Equinox __________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________

revolve __________________________________________________

orbit __________________________________________________

Part II: Answer the following questions with one of the choices below.

a. Days are longer than nights
b. Nights are longer than days
c. Days and nights are the same in length

When it is the equinox ________________________________________________

When it is summer in Montana _________________________________________

When it is winter in Peru ______________________________________________

Part III

What did the Incas use the anchor rock for? ____________________________

_________________________________________________________________
I. Background Information

Grade Level: 5th Grade

Title: Mayan Calendar Vocabulary

Objectives: Students will learn to use context clues to define words that students are not familiar with.

Connection to state and national standards:

Montana State Standards for Communication Arts:

Literature Content Standard 2: Students apply a range of foundational skills and strategies as they read.

IRA/NCTE Standards for the Language Arts:

Standard 2: Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.

Standard 3: Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

I. Materials

1. Copies of selected text for each student. (adapted from Calender Converter website)
2. Highlighter for each student.
3. Long Count calendar converter website: http://www.fourmilab.ch/documents/calendar/

II. Procedure

1. Show students pictures of Mayan calendar on SmartBoard.
2. Discuss with students what the term “context clues” means.
3. Read selected text with students aloud, and ask them to highlight words they are not familiar with.
4. Discuss how students can use context clues to figure out what the words mean in this selected text.

5. Allow students work individually on comprehension questions and vocabulary lists.

III. Assessment
1. Students compare their answers with a small group to determine whether they all had the same definitions, and then in groups may come up to the teacher to determine whether they have finished the vocabulary appropriately.

2. In a quick oral quiz, students should be asked: “What Mayan calendar would we use to record your birthday?” When students answer correctly, teacher can show students how to use the website to convert their birthday to Long Count Calendar, and write it in the Mayan numerals they learned the day before.

IV. Application
1. In future reading activities, students should have higher comprehension of words or phrases that they may not be completely familiar with.

V. References:

Calendar Converter Website

http://www.fourmilab.ch/documents/calendar/
Mayan Calendars

Name:________________________

The essentials of the Mayan calendar are based upon a system which had been in common use throughout the region, dating back to at least the 6th century BC. It shares many aspects with calendars employed by other earlier Mesoamerican civilizations, such as Aztec. Although the 19esoamerican calendar did not originate with the Maya, their refinements of it were the most sophisticated. Along with those of the Aztecs, the Maya calendars are the best-documented and most completely understood.

By the Maya mythological tradition, as documented in Yucatan peninsula native accounts, the Mayan god Itzamna is frequently credited with bringing the knowledge of the calendar system to the ancestral Maya, along with writing in general and other foundational aspects of Maya culture.

The Mayans used three calendars, all organized in cycles of days of different lengths. The Long Count was the main calendar for recording history. The Haab was used as the calendar used to schedule events. The Tzolkin was the religious calendar. All of the Mayan calendars are based on counting of days in relation to agriculture and the cycles of the sun and the moon. The Long Count Calendar is made of 20 short cycles. This results in a tun of 360 days, which is the most similar calendar to the one we use today.
Vocabulary

Mesoamerican-

Itzamna

Long count-

Haab-

Tzolkin-

Tun-
What calendar would the Mayans use to record birthdays?

My birthday: ___________________  ____  ____

(Month) (Day) (Year)

My Mayan Long Count Birthday:

_________________________ ___________________ ___________________

baktun  katun  tun  uinal  kin

Now, use your Mayan numerals and the images from below to create a black line drawing of your Long Count birthday.

Baktun  katun  tun  uinal  kin
<table>
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<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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Mayan positional number system
**Title:** Quipui Knots  
**Grade Level:** 5 (Ms. O’Sullivan, Frenchtown)  
**Duration:** 40 min  
Caitlin Byers and Jesse La Rose

**Goal:** Teach students how to represent data through two forms: quipui knots and bar graphs.

**Objectives:**  
From: *Principles and Standards, Numbers and Operations Standards, Grades 3-5*  
Students should be able to:  
- Represent and analyze patterns and functions, using words, tables, and graphs  
- Model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions  

From: *Ten Thematic Strands in Social Studies, 1: Culture*  
- “Culture helps us to understand ourselves as both individuals and members of various groups. Human cultures exhibit both similarities and differences. We all, for example, have systems of beliefs, knowledge, values, and traditions. Each system also is unique.”  
- Connect two ways of displaying data (quipui knots and graphs) from two different cultures (Incan and American).

**Engage:** Students are shown many pictures of Inca Quipui knots. Some are very complex, while others are simple and organized.

**Ask:**  
What do you think these are?  
What do you think these are used for?  
Can you determine what sort of information this might display?

**Explain:**  
The ancient Inca designed a system of counting and record keeping with brightly colored strings that had strategically placed knots called quipus attached to a base cord. The strings were different colors, lengths and thicknesses. No two quipus were alike. These highly complex counting systems were read by the quipu camayocs (“keepers of the quipus”). The ancient art of quipu is still practiced today in the Andean mountains of Peru, but most of the ability to read the strings has been lost.

**Transition from concept to concept:**  
This is the way that the ancient Incan people, and even some people in the Andean mountains record information today. Anyone who looked at a series of quipui knot would be able to understand the information presented. Today, we use graphs as one way to display information easily.
Explore: Students are asked to record the following information in their journals on a page titled “Gathering Information”.
   1. Number of pets they have
   2. Number of people who live in your house
   3. Number of boys vs. girls in their class

Students will then all be given one large string, and 3 smaller strings of different colors and asked to represent the information they have gathered by making their own quipui knots.

*Adaptations made for a student who has little use of her right hand and arm. She will be able to ask a friend or teacher for help if she needs it.

Explain: After all students have finished their quipui knots, they will be asked to report their individual data onto a large class data sheet. Once the numbers have been tallied for each category, students will take part as a group in representing the gathered data in a bar graph. The following concepts will be covered:
   1. Equal and consistent numbering.
   2. Appropriate scale.
   3. Title of axis.
   4. Title for graph.

Each student will have seen the process of using data to make an accurate bar graph.

Extend:
Students will then be asked to create their own graphs from their individual information complete with the criteria enumerated above. On the back of their graphs, they will be asked to complete a compare/contrast about the ways information in the Incan culture, and in our culture is represented.

Evaluate: (Informal summative assessment) Students graphs and quipui knots will be turned in to be graded.

Closure: Students will be asked to put their names on both their graphs and their quipui knots (attached to cardboard pieces) and turned in.

Materials:
1. 4 colors of string, enough for each student
2. journals to record information
3. bar graph to be turned in

Resources:
*Principles and Standards in School Mathematics, NCTM 2000*
http://www.brightring.com/quipu.html
Name:___________________________

**Quipui Knots: Old and new ways to record information**

Answer these questions in full sentences.

1. What is a quipui knot?

2. How did ancient Incans, and Incans of today use quipui knots?

3. What ways do we record and display information today?

Let’s use a bar graph to record our information!

1. Gather your information:
   - How many pets do you have? ______
   - How many people live in your house? ______
   - How many boys and girls are there in this class? ______

2. Make a graph:

   Use the graph paper to make a **bar graph** of your information.

   Remember to:
   - Label both axis
   - Color code your graph (use a key)
   - Title your graph

   ![Bar Graph Example](image)
Making Masks
Caitlin Byers and Jesse LaRose
Frenchtown Elementary

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>5th Grade- Ms. O’Sullivan and Mrs. Eustance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Three 45 minute classes</td>
</tr>
<tr>
<td>Subject Area(s)</td>
<td>History/Art</td>
</tr>
</tbody>
</table>

NCSS and MCSS Standards

**“10 Lessons The Arts Teach” by Elliot Eisner**

**Thematic Strands:**

**Culture**

“In the middle grades, students begin to explore and ask questions about the nature of culture and specific aspects of culture, such as language and beliefs, and the influence of those aspects on human behavior.”

**People Places and Environments**

“During the middle school years, students relate their personal experiences to happenings in other environmental contexts. Appropriate experiences will encourage increasingly abstract thought as students use data and apply skills in analyzing human behavior in relation to its physical and cultural environment.”

**Time, Continuity, and Change**
Students develop a sense of historical time and historical perspective as they study the history of their community, state, nation, and world. (NCSS 2007)

**“10 Lessons The Arts Teach”**

3. **The arts celebrate multiple perspectives.**
One of their large lessons is that there are many ways to see and interpret the world.

7. **The arts teach students to think through and within a material.**
All art forms employ some means through which
images become real.

9. The arts enable us to have experience we can have from no other source
and through such experience to discover the range and variety of what we are capable of feeling.

(NAEA 2008)

<table>
<thead>
<tr>
<th>How will students use the technology as a tool to enhance their learning?</th>
<th>Students will be shown images of Mayan, Aztec, and Incan traditional masks using a PowerPoint slideshow. Students will be able to refer to the slideshow while designing their own masks.</th>
</tr>
</thead>
</table>
| Content Objectives | 1. Students can distinguish between styles of masks from Mesoamerican and South American cultures. 
2. Students understand why many cultures, specifically the Mayan, Aztec, and Incan, made and use masks. |
| Process Objectives | 1. Students will design a mask that reflects their own personal culture and beliefs. 
2. Students will complete a Venn diagram about the differences and similarities between why we might make and wear masks, and other cultures would make and wear masks. |
| Resources | Materials: 
- PowerPoint capable computer 
- Smartboard or similar projector 
- Plaster of Paris strips 
- Water 
- Vaseline 
- Paint shirts for each student 
- Paint, feathers, glitter, etc. to decorate masks |
| Preparation | To prepare for this lesson, the instructor needs to: 
1. Create a PowerPoint of Mayan, Aztec, and Incan masks and reasons why they are made. 
2. Use aids, parent helpers, and TA’s to assist in... |
### Motivation/Hook
1. Show students slideshow of masks, and discuss the differences between masks from the different cultures.
2. Ask students what the masks reflect about the cultures, and write responses on board to discuss with class.

### Instruction
Description of the pedagogy, strategies, possible modifications and key skills or concepts needed to be taught for all students to be successful.

1. Explain to students the process of making the masks.
   a. apply a thin layer of Vaseline to student’s face, being sure to cover eyebrows, and especially around the hairline
   b. dip strips of plaster in water, and squeeze excess water off, and begin to apply to face
   c. cover entire face with several layers, leaving eye holes, nose hole, and mouth hole.
   d. Allow mask to dry
   e. Teacher removes mask
2. 5 students are sitting while another student applies their masks. The remaining students will be cutting strips and drawing the designs they plan on decorating their masks with.
3. When all masks are dry, students may begin painting their masks. The slideshow should be available to students for reference.
4. When students have finished masks, ask volunteers to show their mask to the class and ask why they chose the design or style they did.
5. Guide students through Venn diagram, discussing the differences and similarities between the reasons cultures make masks.

### Links to relevant websites
- [http://www.lagaleria-artcrafts.com/images/mascara_maya_7-001.jpg](http://www.lagaleria-artcrafts.com/images/mascara_maya_7-001.jpg)
- [http://www.prometheus-imports.com/dmMHM03plumed_masksm.jpg](http://www.prometheus-imports.com/dmMHM03plumed_masksm.jpg)
- [http://www.barbaraknott.net/Aztecmask.jpg](http://www.barbaraknott.net/Aztecmask.jpg)
| **Assessment** | 1. *Students will be able to discuss the reasons Mayan, Aztec, and Incan people created and wore masks in their Venn diagrams.*  
2. *Students will be able to take part in class discussion of similarities and differences in cultures masks and why they wore them.*  
   - *religious ceremonies*  
   - *battle (armor)*  
   - *arts (entertainment)* |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How will you know if the students understand?</td>
<td>1.</td>
</tr>
</tbody>
</table>
Mayan, Aztec, and Incan Masks

Our Masks

Similarities
# Teaching Schedule

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Date/Time Taught</th>
<th>*Classes Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies: Google Earth Tour</td>
<td>Monday 11/23: 1:20-2:00 p.m.</td>
<td>Eustance</td>
</tr>
<tr>
<td></td>
<td>2:00-2:40 p.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td>Math: Aztec Temple Builder’s Plan</td>
<td>Tuesday 11/24: 9:00-10:00 a.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td>Science: Incan Temple Astronomy</td>
<td>Tuesday 11/24: 1:20-2:00 p.m.</td>
<td>Eustance</td>
</tr>
<tr>
<td></td>
<td>2:00-2:40 p.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td>Social Studies/Math: Incan Quipu Knots</td>
<td>Monday 11/30: 10:00-11:00 a.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td>Reading: Mayan Calendar Vocab</td>
<td>Tuesday 12/1: 9:00-10:00 a.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td>Social Studies/Art: Making Masks</td>
<td>Tuesday 12/1: 10:00-11:40 a.m.</td>
<td>O’Sullivan</td>
</tr>
<tr>
<td></td>
<td>Wednesday 12/2: 2:00-3:30 p.m.</td>
<td>O’Sullivan</td>
</tr>
</tbody>
</table>

**Total Teaching Hours:** 8 hours 45 minutes

* We had the unique opportunity of teaching many (in addition to the two in our integrated unit) of our lessons twice, which resulted in great opportunities for reflection and planning after the first lesson in preparation for the second lesson. This schedule also gave us a realistic view on team teaching with teachers in the same grade band. Both Ms O’Sullivan (our cooperating teacher), and Mrs. Eustance were very flexible 5th grade teachers who were able to provide us with this opportunity.
## Social Studies Lesson: Google Earth Tour (Introductory Lesson)

<table>
<thead>
<tr>
<th>Goals</th>
<th>How Were They Achieved?</th>
<th>Assessment</th>
<th>Student Performance and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop an understanding and mental picture of the geographical and political regions that the integrated unit were based on.</td>
<td>Students were taken on a Google Earth Tour from their school to all the major ruins and ancient civilizations of Mayan, Aztec, and Incans.</td>
<td>All students completed Tour Guide worksheet to help students stay focused and to gauge understanding.</td>
<td>All 38 students received 85% or better on their tour guides, and were very engaged and excited about the use of Google Earth.</td>
</tr>
</tbody>
</table>

## Math Lesson: Aztec Temple Builder’s Plan

<table>
<thead>
<tr>
<th>Goals</th>
<th>How Were They Achieved?</th>
<th>Assessment</th>
<th>Student Performance and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review concepts of area, perimeter, and scale conversion.</td>
<td>Students were presented with an area/perimeter problem to solve individually.</td>
<td>Students develop a builder’s plan that was converted into the Aztec unit of measure.</td>
<td>Students struggled with the concepts of area and perimeter, and even more with converting their measurements. So much so that this assignment was not graded. We were told students had more experience with area and perimeter, but we</td>
</tr>
</tbody>
</table>
needed to assess that knowledge for ourselves prior to teaching this lesson.

<table>
<thead>
<tr>
<th>Science Lesson: Incan Temple Astronomy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td>Students should understand that the seasons are caused by the tilt in the Earth’s axis and that the Incans used an anchor stone to tell when the equinoxes were going to occur.</td>
</tr>
<tr>
<td><strong>How Were They Achieved?</strong></td>
</tr>
<tr>
<td>Students were broken into groups of 6 and divided among three models of the Earth, Sun, and the rotation of the Earth on its axis.</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>Students in both classes were asked to answer this question: “What season will it be in Montana if it is summer in Peru? Demonstrate with the model.”</td>
</tr>
<tr>
<td><strong>Student Performance and Comments</strong></td>
</tr>
<tr>
<td>Each student in each group correctly demonstrated the correct position of the Earth in relation to the sun for summer in Peru, and answered their questions correctly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reading Lesson: Mayan Calendar Vocab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td>Students should understand the use of context clues for defining difficult or unknown words in their reading.</td>
</tr>
<tr>
<td><strong>How Were They Achieved?</strong></td>
</tr>
<tr>
<td>Students were given selected text with very obvious and some obtuse context clues for words they had little to no</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>All students were asked to define the vocabulary words that were found in the text and complete accompanying</td>
</tr>
<tr>
<td><strong>Student Performance and Comments</strong></td>
</tr>
<tr>
<td>Each student completed their vocabulary and comprehension questions, and gained a valuable skill for reading.</td>
</tr>
</tbody>
</table>
experience with. comprehension questions. They also enjoyed the extend activity which connected a previous lesson to this one.

<table>
<thead>
<tr>
<th>Social Studies/Math Lesson: Quipu Knots</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td>Connect the Incan form of record keeping with a current tool for record keeping, and teach the basics of graphing information.</td>
</tr>
<tr>
<td><strong>How Were They Achieved?</strong></td>
</tr>
<tr>
<td>Students created their own Quipu knot about their personal information.</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>Students graphed their personal information on a bar graph.</td>
</tr>
<tr>
<td><strong>Student Performance and Comments</strong></td>
</tr>
<tr>
<td>19/21 students successfully completed the assignment and received 95% or better. Students brought up the comparison of the quipu knot to the bar graph, and how some even looked similar.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Studies/Art Lesson: Making Masks (Conclusion Lesson)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
</tr>
<tr>
<td>Students discover the purpose of masks in many cultures: Aztec, Incan, Mayan, and contemporary American.</td>
</tr>
<tr>
<td><strong>How Were They Achieved?</strong></td>
</tr>
<tr>
<td>Students viewed a slideshow of Mayan, Aztec, and Incan masks, and made and decorated their own mask.</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>Students completed a Venn diagram about uses of masks in different cultures.</td>
</tr>
<tr>
<td><strong>Student Performance and Comments</strong></td>
</tr>
<tr>
<td>The students successfully competed their Venn diagrams correctly, and loved the art lesson.</td>
</tr>
</tbody>
</table>
Student Work Appendix

36A Social Studies: Google Earth Tour- Work returned to students for further exploration with Google Earth.

36B Math: Aztec Temple Builder’s Plan- Selected student work.

36C Science: Incan Temple Astronomy- Selected student work.

36D Language Arts: Mayan Calendar Vocab- Selected student work.

36E Social Studies/Math: Quipu Knots-Selected student work.

36F Social Studies/Art: Making Masks-Venn diagrams returned to students for examples for other Venn diagrams with classroom teacher. Photos of students with masks pending.
Resources

Books


*Principles and Standards in School Mathematics*, NCTM 2000

Websites
http://mayaincaaztec.com/


http://www.westirondequoit.org/ihs/library/mayan.html

Seasons Movie Clip:

http://www.youtube.com/watch?v=DuiQvPLWziQ

Maya Long Count Calendar Converter:

http://www.fourmilab.ch/documents/calendar/