



Portraits of Places: Maps and Art from the European City View to the Aboriginal Dreamtime Paintings

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Introduction

Ernest Boyer, President of the Carnegie Foundation for the Advancement of Teaching from 1979 until his death in 1995, refers to experiences that all people share as Eight Human Commonalities:

(www.messiah.edu/boyer_center/)

All people experience the life cycles-from "womb to tomb"-cycles that are marked by celebrations, commemorations, rites of passages, and other special events.

All people develop and use symbols-to communicate, to express ideas, etc.

All people see and respond to beauty.

All people have the ability to remember the past and anticipate the future. We have memories, histories, we tell stories, and we prepare for our future.

All people develop some type of social bonding. We form groups from families to political parties.

All people have a connection to the ecology of the planet. We all have a relationship with nature and the physical world.

All people produce and consume. We work and play.

All people seek meaning and purpose in their lives. Beyond simple existing, we also have spiritual lives. We care about ideas and issues and we try to make a difference. We express our moods and feelings in response to these issues.

Students' lives and actions are reflected in these eight commonalities. By using these universal commonalities as a focus of instruction, students are able to see that their learning is vital and is part of something significant, important and relevant to their own life experience. Students need, in the world of increasingly global implications, to be able to see their own personal needs, values, beliefs, and experiences in relation to those of diverse people throughout the world and especially within their own communities. As students move from the personal (how things affect them and their own experiences) to their communities to the global, the students construct invaluable knowledge of their world. They build on their prior knowledge by making connections among their experiences.

I try to approach my art curriculum in terms of these human universalities. I want my students to deal with

ideas and issues with which all humans contend. I think exploring how people, from different times and cultures, have explored an idea gives students an opportunity not only to see the similarities and the connectedness of being human but also to allow them to begin to understand and appreciate the different cultural reasons why people are different. Hopefully, this encourages a respect and understanding of diversity. By having the students approach an idea from a global perspective, I hope that they are able then to take the idea and apply it to their own life and own experiences, thus making the unit personally relevant.

Objectives

I have taught middle school art for the past nine years, ever since the school opened. Prior to that I was an elementary art teacher. I teach in a school that has a school within a school program. There are the "regular" students and then the students who have been selected to attend a gifted program. Half of my classes are regular classes and half are the gifted classes. With the regular students, art is an elective. They may get the elective they choose but oftentimes they are randomly placed in an elective. They may take art up to three times (one class each year) or may spend their entire middle school career and never step foot into the art room. The gifted students are required to take a semester of art in both 6th grade and 7th grade. In 8th grade the students choose to take, for high school credit, either an entire year of art or a year of band. My classroom was designed to be the art room. Since I was hired during the construction phase, I was able to have input into the design of the space. I helped design the different spaces, the storage units and selected the equipment. I am very lucky to have a large, well-designed, well-equipped art room. It has both an adjacent ceramic studio and a mini-computer lab with 12 computers. I teach on a block schedule, seeing 3 classes a day, each for 90 minutes and a total of 6 classes in two days.

I am going to develop a unit for my sixth graders that will explore the viewer's relationship to place, looking at the connection between humans, and even more specifically, oneself, and the land on which we live. In teaching middle school students, I have learned that middle school is a time when students are beginning to consider ideas new to them, and beginning to try to look at things from different perspectives. Perhaps, most importantly, they are trying to figure out who they are and where they fit in the world.

6th grade is an especially difficult time for adolescent children. They have left elementary school where they were the oldest students who knew the school and teachers. They have left an environment where they are with one teacher in one class for the majority of the day. They have come to middle school where they are the youngest and most inexperienced students. Now, they have seven different teachers with seven different classroom expectations and policies. They are integrated with 6th graders who did not attend their elementary school and have to interact with students who are older, more mature and more confident of their place in this new world. I think that 6th graders tend to be lost, not only physically lost, when trying to navigate the new school but also socially lost, at least for the first few months of school. This unit will be the first major unit of the semester. The 6th grade students take art during the first semester of the year. The unit will begin approximately three weeks after the beginning of school. I will have the students attempt to answer questions that have run throughout history and still fascinate people: "Where am I?", "Where am I going?", "What is beyond the world that I know?", "What is within the world I know?", "How do I fit in to the world?" During the first three weeks, the students will deal with the question "What is art?" They will also review their summer reading and the Elements of Art will be reviewed/introduced. The state standards that I will be covering are:

Virginia Standard of Learning 6.3 The student will use one-point perspective to the illusion of depth in a two-dimensional drawing.

Virginia Standard of Learning 7.6 The student will create the illusion of depth in two-dimensional works of art, using a variety of the following devices:

1. Overlapping
2. Atmospheric perspective
3. Diminishing size and detail; and
4. Object placement in the picture plane.

In addition to the State requirements, I have objectives that I wish to cover in this unit:

1. The student will represent and manipulate spatial and symbolic information.
2. The students will examine specific subjects (maps and landscapes) in art in a cross-cultural approach, focusing on different culture and time periods.
3. The students will consider how art reflects the time and place in which it is created.

Strategies

Both our state and district standards require middle school students to learn about perspective. In 6th grade, the students are introduced to basic linear perspective techniques and how artists use the various techniques to depict on a 2D surface, a 3D effect. They are expected to be able to describe and use a variety of techniques, including position (things higher on the picture plane look further away and things lower on the page look closer), size (things smaller look further away and things larger look closer), overlapping, detail (things further away lose detail), and atmospheric perspective (things further away become lighter and bluer). The 6th grade students are introduced to the concept of linear perspective (one point, two point and three point). In 7th grade, students use one point perspective and in 8th grade, students need to understand and use one point, two point, and three point perspective.

The unit that I am developing will offer a global implication and will also enable me to meet my state and district standards as outlined above. The focus will be on our relationship to and perspective of place. Within the unit, I will not only teach the techniques, but will also give the students a variety of opportunities to explore and master each one. During the unit, the students will have a chance to explore different perspectives, as I want them to be able to consider how their personal perspectives affect how they perceive things, and also how someone with a different perspective might have a completely different view that is just as valid. In short, we will look at perspective, both technically and metaphorically. In the unit, we will then focus on perspective from four main points of view: worm's eye view, human's eye view, bird's eye view and satellite view. I will develop several studio lessons within the larger unit that will deal with these different points of view.

Maps and Art

From the Middle Ages to approximately the 15th century, maps were little more than abstract symbols. A good example of this is the T and O (Mappa Mundi) maps. In the 16th and 17th century, the depictions of cities progressed from profile view to panoramic view and then, in later centuries, from panoramic to ultimately aerial/satellite view. It is this last view that most people think of when they think of maps since it tends to be the one used in modern maps. When making a map of a city and using the profile view, only a few important buildings could be shown. As the view moved up to panoramic view, more ordinary buildings could be shown. When using the aerial view, all buildings and streets could be shown. As the viewpoint moved higher, the challenge/difficulty for the creator increased. Drawing a city in profile required skill. The panoramic view required greater skill in that the creator needed to not only draw buildings accurately using perspective but he also had to depict the spacing between buildings in the city accurately. Using an aerial viewpoint, the creator of the map needs a combination of skills, but there is a shift to scientific skills and away from artistic skills since less of the buildings will be shown.

Portraits of people were originally idealized and not realistic. Throughout time, portraits have often been designed to flatter even though the best ones do not. The first portraits were of the most important people: rulers, nobility, and members of the higher religious hierarchy. Later the wealthy, landed gentry also had their portraits rendered. These portraits would portray the person in their "best," their finest dress, in a dignified pose and often showing symbols of power. These portraits were intended to communicate a message about the importance of the person depicted.

Some of the earliest maps were of cities and they were very selective in terms of what features were included. Often it was only the most important features, such as the temple, the ruler's palace, City Hall, a river, etc., that were included. The most splendid architecture and the most important landmarks were depicted. These maps communicated a message about the importance of the city. As time went on, portraits became more concerned with giving a realistic representation of an individual, warts and all. As with portraits, there was also a movement in landscapes to move from idealized landscapes to more realistic ones, such as in the work of John Constable. As maps developed, they too became more interested in depicting what is "true," by being as accurate as possible. However maps inherently tend to idealize despite the striving for accuracy. They don't show potholes, slum houses, broken fences or any other undesirable aspects of life. As Oscar Wilde said "A map of the World that does not include Utopia is not worth even glancing at."

Perspective

Perspective is a complicated topic that deserves a great deal of attention in order for it to be completely understood. There are a number of wonderful books and websites available for further information (please see my bibliography). The term perspective, in the context of art, specifically drawing and painting, refers to "the technique an artist uses to create the illusion of three dimensions on a flat surface. Simply put, perspective is a means of fooling the viewer's eye. There only *appears* to be depth or receding space in the work." (http://arthistory.about.com/cs/glossaries/g/p_perspective.htm) In other words, perspective has to do with the way an artist arranges shapes, sizes and colors in a work of art, in order for things that would look closer in

three-dimensional real life look realistic in the two-dimensional picture plane. In fact, the *entire* theory of perspective can be connected to one single fact: "the apparent size of an object decreases with increasing distance from the eye." (www.dartmouth.edu/~matc/math5.geometry/unit11/unit11.html)

There are six basic techniques (position, size, overlap, detail, atmospheric perspective (color) and linear perspective) used by artists to accomplish this. Position refers to the placement of an object in the picture plane. The higher on the plane an object is, the further away it looks; accordingly, the opposite also holds true- the lower on the plane an object is, the closer it looks. Size relates to the fact that things further away look smaller and things that are closer look larger. Overlap is by far the easiest to understand and use: the object in front of another object is closer than the object it overlaps. When things get further away, the detail is lost. Therefore, things closer have lots of detail and things progressively have less detail the further away they are. Atmospheric perspective refers to how the atmosphere (the sky in the distance) affects things far away. As objects become further in the distance, the atmosphere makes them look lighter in color and gives them a bluish tint. The final technique in perspective is linear perspective. This is by far the most complicated technique. It is a mathematical theory that was "discovered" by Brunelleschi in the early 1400s.

Linear perspective was first demonstrated by Brunelleschi. He painted the lines of different Florentine buildings on a mirror. He became aware that the lines converged on the horizon line. According to Vasari, he then set up a demonstration of his painting of the Baptistery and a mirror to prove that there was linear perspective. Donatello is considered the first artist to use linear perspective in his *Feast of Herod*, c.1425, a bronze relief panel done for the font of the Siena cathedral. Leon Battista Alberti (1404 to 1474) was the first person to explain in writing the theory of perspective. He did this in *Della Pittura* in 1435. Masaccio (1401 to c. 1428) is quite famous for his use of linear perspective. His *Trinity*, painted in 1427 is considered to be the first, surviving painting that shows linear perspective.

(www.dartmouth.edu/~matc/math5.geometry/unit11/unit11.html) Linear perspective created a huge stir in the Renaissance world. It literally changed everything.

Perspective fascinated artists and became the rule for how to see and thus, depict the world. Perspective ruled until the late 1800s when artists began to purposely break the rules of perspective. Van Gogh certainly did this (it can be seen in a number of his interiors) and the disregarding of perspective continued in many art movements, such as Cubism, to the point where everything in the picture appeared flat with the work of abstraction.

For my unit, I am focusing on 3 aspects of perspective: points of view, illusions of depth and linear perspective. The points of view are worm's eye view (looking up from very low on the ground-this view point will be explored more fully in the 8th grade when the students are required to master one point, two point and three point perspective), human's eye view (or what is sometimes called profile when discussing maps) (Buisseret p. 18)), bird's eye view (which is when one sees something obliquely or diagonally from a vantage point high in the sky), and aerial or satellite (in my teaching I will be using the term satellite view because I think it will be a clear way for the students to differentiate between bird's eye view and satellite view) view (which is when one looks down directly on something, or what Buisseret calls the planimetric view). In many sources and websites there is an interchangeability of the terms bird's eye view and aerial view. For my unit, I want to differentiate between the two. I feel the students would be confused if I used the terms interchangeably. So, as I stated before, I will use bird's eye to refer to things seen obliquely and satellite to refer to things seen directly from overhead. I will also focus on the illusions of depth, particularly the first 5. These the students will be expected to, not only thoroughly understand, but also be able to use effectively. Linear perspective will be introduced and experimented with but I will not expect them to be able to

effectively use it.

Chinese Maps and Landscapes

The ancient Chinese created some of the earliest maps in the world. Most traditional ancient Chinese maps fall into two categories, either maps that are pictorial (shown from a more bird's eye view or human's eye view) with not as much attention to scale and accuracy or maps are very scientific, drawn in a grid scale. (<http://palimpsest.stanford.edu/byform/mailling-lists/exlibris/1997/07/msg00217.html>) Because of the use of pictorial aspects in the maps, many ancient Chinese maps seem to be more like landscape painting than maps to the Western eye. They reflect a different style of visual expression than the Western maps. They are different in terms of the use of symbols, use of color, the media used, the format used and most striking, of course, the pictorial aspect. It wasn't until the late 1800s that cartography began to be considered separate from landscape painting. This occurred around the time that Western examples of maps began to be an influence (www.loc.gov/lcib/0312/maps.html).

Maps of Cities

The first known maps of a city are from Mesopotamia, the oldest from about 700 BC. The earliest example of a city depicted in panoramic style is the Madeba map of Jerusalem, c. 600 A.D. This also happens to be the earliest example of a map that has East at the top instead of North. While there is some controversy as to why this is so, this orientation remained popular for the next thousand years. From the seventh to the eleventh centuries, there were very few city maps. But around 1100 A.D. , "Situs Hierusalem" was created. It had a circular form and the streets were laid out in a pattern. The map has become more schematic than representational. The Bondelmonti map of Constantinople (1440) shows the return of perspective and an increase in representation. The details of the buildings are carefully drawn. But it really wasn't until the sixteenth and seventeenth centuries that perspective maps became what could be called accurate. These maps were quite popular. The most prolific and popular makers of this style of city maps were George Braun and Francis Hogenberg, who created the "Civitates Orbis Terrarum"- an atlas of maps of many different cities (Fead p.443).

After this period of wonderful city maps shown in perspective, there began a trend to more of an aerial view with perspective plans being shown mostly in the borders. One also began to see insets of cities on maps of larger areas. With the improvement of cartographic techniques and a need for military maps, the continued trend of topographical maps strengthened. Mapmaking at this point was increasingly moving more to science and away from "art." Panoramic maps became popular again in the late 1800s and early 1900s, in America. These were significantly more accurate than the Renaissance city maps. There is a great deal more information about the development of city maps and the categories of morphological and the functional ground plans, neither of which will I deal with in this unit. Contemporary maps of cities include any number of things including power lines, water and gas lines, public transportation, sewers, schools, churches, traffic, city demographics, racial, linguistic and economical levels, just to name a few (Fead p.441).

European Renaissance Panoramic Maps

These became popular in Europe in the late 16th and early 17th centuries and depicted major cities across Europe in panoramic views. Three of the major artists who created these were Mathias Merian, George Braun and Franz Hogenberg. These maps were most often found in atlases and geographical books. The maps used a perspective that was done from a low, oblique angle.

George Braun and Franz Hogenberg worked together to create the "Civitates Orbis Terrarum", an atlas of over 500 views of European cities. It was published in six volumes from 1572 to 1618. George Braun was the publisher and Franz Hogenberg was the engraver of the first 4 volumes. The last two volumes were prepared by Simon van den Neuvel (www.artelino.com/articles/civitates_orbis_terrarum.asp). In many of the maps in Civitates Orbis Terrarum, human figures are placed in the immediate foreground. Often two, a man and a woman, they are depicted wearing traditional outfits native to the city. (By adding these figures, the map was protected from being seen by Turks (practitioners of Islam) since they were forbidden from looking at pictures of humans. Thus any military advantages that these city maps might provide were protected. Because of the addition of the figures wearing traditional costumes and because of Braun added descriptions of the history and commerce of each town, the Civitates provides a wonderful historic resources into 16th century. (www.humanics-es.com/maps-culture.htm)

Mathias Merian came from a German publishing family in the 17th century. When his father died, Merian became the head of the family publishing house. He led the house to becoming one of the most important in Europe, while doing most of the engravings himself (at least until 1645 when he began to rely more heavily on assistants). (www.aradersf.com/merianfrance.htm) His daughter, Maria Sybillia Merian, became famous in her own right as an artist who specialized in botanical prints. She led a remarkable life and is worthy of her own unit of study.

Victorian American Panoramic Maps

As time allows, we will also explore the Panoramic maps created during the Victorian era in the United States. The authoritative website on panoramic maps of America is part of the Library of Congress, which houses over 1,500 panoramic maps. (<http://memory.loc.gov/ammem/pmhtml/panhome.html>) The following information is adapted from that website. Panoramic maps are also known as bird's eye view maps. "Panoramic maps are nonphotographic representations of cities portrayed as if viewed from above at an oblique angle." Although not generally drawn to scale, they show street patterns, individual buildings, and major landscape features in perspective. In order to create these panoramic maps, a great deal of painstaking labor went into each one. For each city, a frame or projection was developed, showing the pattern of streets in perspective. The artist would literally walk each street, drawing everything: buildings, plants, parks etc. and then turn these drawings and the projection of the streets into an accurate landscape that would appear as though it was being seen from an elevation of two to three thousand feet. The difference between the American Victorian panoramic maps and the Renaissance city panoramic maps is that the American versions are more accurate and drawn as if from a higher oblique angle. Also they depicted both small and large towns and cities where the European ones showed only major political and commercial cities. During the Victorian era, panoramic mapping is unique to America and it intimately connected to civic pride and was often used as advertisements both to potential residents as well as potential tourists.

These panoramic maps gained popularity with the development of railroads which themselves encouraged travel. Between 1825 and 1875, thousands of panoramic maps were created. It was a matter of civic pride to have a map created of your city. Sometimes artistic license actually became very deceiving when depicting

tiny, poor town as thriving, bustling towns. They would also show planned development and were used by real estate agents and chambers of commerce to advertise to potential buyers. There were five main artists who are noted for their panoramic maps: Oakley H. Bailey, Lucien R. Burleigh, Thaddeus Mortimer Fowler, Albert Ruger, and Henry Wellge. (The Library of Congress Panoramic Maps website)

There are still panoramic maps being made and used today. Often maps designed for tourists employ this technique. An interesting website that shows contemporary panoramic maps is www.birkey.com/portfolio.asp?cat_id=25

Aboriginal Maps

The "dot painting" of Aboriginal Australia can be viewed as maps, as landscapes, and as religious paintings. In fact, Howard Morphy, a foremost authority in Aboriginal art, states

"Aboriginal paintings are maps of land. It is necessary, however, to define precisely what is meant by a 'map' in this context. The danger is transferring too literally a Western concept of topographical map on to Aboriginal cultural forms and making them into something they are not. Paintings are often discussed as if they were bird's-eye views of particular areas of land, as though reflecting an Aboriginal tradition of aerial photography. . . From an Aboriginal perspective the land itself is a sign system. The Dreamtime ancestors existed before the landscape took form; indeed, it is they who conceived of it and gave it meaning. Rather than being topographical representations of landforms, Aboriginal paintings are conceptual representations which influence the way in which landscape is understood. When Aboriginal paintings do represent features of the landscape, they depict them not in their topographical relations to one another but in relation to their mythological significance." (Morphy p. 103)

These images relate to the "Dreamtime" which is the time when the world was created and it also refers to the religion of the Aborigines. The concept of the Dreamtime is a very rich and complicated theme that deserves its own unit of study. According to Wally Caruana, the curator of Aboriginal Art at the National Gallery of Australia, Dreaming is a "term commonly used in Aboriginal Australia to refer to Aboriginal cosmology, encompassing the creator and ancestral beings, the laws of religious and social behavior, the land, the spiritual forces which sustain life and the narratives which concern these" (Caruana, p. 214). Just a note here, while the term Aboriginal refers to indigenous people of Australia, there are many different kinship groups with different traditions. These groups are tied to particular places (and times) through the Dreamtime. There is no sharp division between the present and the past. They are intimately connected. It refers to the past when the creation was being done by mythical characters that created the people, the animals and the plants of the world. Parts of the landscape were created by these mythical figures during their journeys and adventures in this time. These characters are considered the spiritual ancestors of the Aborigines. These traditions are kept alive through non-written means: song, dance, oral traditions and art.

The contemporary "dot paintings" originated from the traditional sand paintings that depicted the characters, events and locales of the Dreamtime in patterns, geometric figures and other symbolic designs. In the 1970s, when Geoffrey Bardon came to Papunya to teach art to the children, he encouraged some Aboriginal artists to create these images in a less transitory manner by using oil and acrylic paint and canvas. These images are

very abstract, showing very simple symbols and many dots, hence the name "dot paintings." This abstract, symbolic landscape is shown from a satellite viewpoint, as if one were directly in the sky looking down on the specific features. We can consider these images as maps in that they are depicting specific places but at the same time they depict myths from the Dreamtime. There are many levels on which these images can be viewed. "The interpretation of these designs are multiple and simultaneous, and depend upon the viewer's ritual knowledge of a site and the associated Dreaming." (Caruana p. 99) Because of the religious nature of the images and the popularity of the work with tourists and non-Aborigines, often only one version (or level) of the story will be attached to the work. Deeper, more sacred and mystical aspects will not be shared.

An interesting aspect to these "maps" is that they have been used in legal proceedings. Not only the "dot paintings" but also bark paintings have been used as evidence in many legal cases to show "proof of spiritual responsibility", which is what land claims must have in order to prove that certain kinship groups own a tract of land. These maps are used then to petition the Australian federal government to try to repatriate lands to the native inhabitants. (Short p.35)

Classroom Activities

Introduction

As preparation for this unit, I will assign the students a homework assignment in the preceding class period. I will ask them to go into their favorite room in their home and write a description of it in their sketchbooks. I expect that they will write in terms of where they are sitting i.e., ". . .there is a window behind me and a sofa to the left and a large painting over my shoulder to the right. . .", etc. We will then be able to see how many people wrote their descriptions that way and talk about how they orientated the description around themselves and how that was their perspective. Later, we will be able to make the connection with earlier mapmakers who were also just as self-centered in their descriptions of their world, orienting themselves (their country/city) in the center of the world.

Day One

To begin the class, I will have the students take out their written room descriptions to use as a reference to draw a map of the room in their sketchbooks. I will not give any specific instructions and will let them draw their maps based on their understandings of what a map is. As the continuation to introducing this unit, I'll ask them then to write directions to their house. I will elicit how many described the path by using buildings or other landmarks and how many used distance measurements. I expect that the large majority, if not all, will use buildings and other visual landmarks to communicate their sense of place. Next, I will ask the students "How do we know where we are?" In the following discussion, I hope to have the students understand that people sense their surroundings in terms of images/pictures of landmarks. I want them to understand that humans think of places in terms of images and in terms of other places. For instance, one thinks of where one lives in relation to the store one frequents, one's place of work, the railroad station, etc.

Then I plan on having the students write a definition for "map" in their sketchbooks. After a minute, I will ask them to write the definition of "landscape." As they are doing this, I will write "what is a map?" and "what is a landscape?" on the board. Then, as a group, I will have the students brainstorm everything they know about the characteristics of maps and landscape. I will write their responses on the board. From the information on

the board, I will have the students create a Venn diagram comparing and contrasting maps and landscapes. Just when they are feeling comfortable with the delineation between maps and landscape, I will show a panoramic map and ask them to classify it as a map or a landscape. I expect that there will be some discussion as to which category as to how it should be categorized. I will then pose the question as to whether it is possible for an image to be a combination of both, i.e. an image that reads as a landscape and is motivated by aesthetics, as well an image that can be used as a tool to help find someplace. I will then query "what is a portrait?" and pose the question- Can maps and landscape be perceived as portraits of place? At this point, I will have the students take out their written room descriptions again. I will ask how many wrote their descriptions with themselves being at the center of the room. As I have said earlier, I expect the most to have done this. Next, I will ask why they think everyone did it. I will then have a slide show ready that shows a variety of maps from different times and places that depict the specific country or city in the center of the map. For homework, the students will draw a map of the school from memory.

Day Two

In the next class period, I will quickly review what was discussed in the previous class and proceed onto a postcard sorting activity. I will give each table 40-50 postcards and ask the students at that table to sort the postcards into three groups, a pile of pictures of landscapes, a pile of pictures of people, and then a pile of all the other images. Then, the students will create a list of similarities and differences between the pictures of people and the pictures of land, using the postcards as visual references. At this point, I will show a PowerPoint that I will develop on the history of maps (focusing on maps of cities) and portraits and how there is a close connection between the two.

Since 6th graders are learning how to take notes, at this point I will help them decide what is important to include in their notes. I will write what needs to be included on the board but they will give me the information through my questioning techniques. I want them to think of both maps and landscapes as pictures of places with each having a different purpose. I want them to understand that many different maps and/ or landscapes can show the same place and yet neither maps nor landscapes can show everything about a place. Different maps and different landscapes show different aspects of places. They will need to list the main common characteristics of maps: a title (which often includes information about when the map was made), the orientation, the source (who made it and/or who commissioned it), the legend, which explains the symbols used in the map, the scale, and a grid to show longitude and latitude.

(www.memory.loc.gov/learn/features/maps/introduction.html) These six items are quite common in many maps, although not every map has all six.

I will also want the students to consider the role or function of maps. While it is often assumed that maps serve one purpose, I want the students to question whether they might serve more than one and whether or not they have hidden messages or even inadvertently communicate about who made the map and the time period in which it was made. The students will need to have the 6 common characteristics of maps and the previous information about the function and hidden meanings of maps in their sketchbook. For homework, the students will create a sketchbook page around theses required information.

At the end of this class, using a LCD projector, I will show the students maps from the Library of Congress website. <http://memory.loc.gov/learn/features/maps/unusual.html>. This website shows unusual maps and we will look specifically at the 1868 book, Geographical Fun. A sister of an ill boy created it for his amusement. This book has 12 maps of European countries that are done as caricatures. I believe that this activity will broaden what the students perceive as maps.

Lesson One

Day one

Lesson one will introduce the concept of different perspectives. To do this, I will have an object (things like an iron, a basket, a statue of a bird, a camera, etc) on each table when the students arrive. The object will be sitting on a box so it will be approximately eye level with the students. I will ask them to do a quick drawing (3 minutes) of the object. Next, I will have them all sit on the floor so that the object is raised high above their heads. Again, they will do a quick drawing (3 minutes). Finally, I will have the children place the objects on the floor and have them move their chairs in a circle as close as possible to the object. Again, they will draw. When they are done, we will talk about what made the three drawings of the same object different. I expect the students to tell me that they are different because of their (the student's) point of view or perspective. They may not use these words but in our discussion, I will introduce the words and write them on the board.

I will then introduce the 4 main types of points of view that will be dealing with in this unit: worm's eye view, human's eye view, bird's eye view and satellite view. The students will write each of the four types of point of view and draw a simple illustration in their sketchbooks.

Using my computer lab, I will have the students pair up (I have 12 computers and no more than 25 students in a class) and instruct them on how to find the website, Google Earth. Using Google Earth, the students will find a satellite view of their house or their apartment building. From this satellite view of an environment that they are intimately familiar with, the students will ultimately create a bird's eye view of their neighborhood. I will have each student print out his or her house's view. The students will put their names on the images and I will save them for a future class period. They will then be allowed to explore this website in the time remaining in the class period. I will encourage them to use the sight seeing feature which zooms in on a famous sight (using a satellite view) and then changes to a bird's eye view and then back to a satellite view before flying off to another site. I feel that this experience will reinforce the difference between satellite and bird's eye view.

Day Two

We will begin the class by dividing into pairs and having the students sit back to back. One student will describe a place and the other student will draw it. The first time, the student who is drawing may not ask questions. After a 5-minute time period, the students can face each other and examine the map and talk about how successful it is or is not. Next, they will repeat the same activity, with each person being in the different role. This time, the drawer is able to ask questions to clarify. When they are done and have looked at the second map, they will then write what was hard about drawing the map and what was hard about describing the place. Then to the whole group, I will ask "How could this be made more accurate?" and "Is this a good way to make a map?". As a bridge from this activity to the next, I will show Map of China by Hokusai (1840).
HYPERLINK www.bl.uk/learning/artimages/maphist/deception/mapchinahokusai/hokusai.html

This map illustrates how very subjective things can affect a map. Since Hokusai never went to China, this map was created from descriptions, stories from travelers and Hokusai's own imagination. This will be a very direct experience on how maps might not be accurate as well as illustrating the dilemma on deciding whether certain images are maps or landscapes. We will explore this through the following questions: "Is Hokusai's image a map or is it a work of art?," "What clues do we see?," "How can we decide?" For homework, I will give

each student a copy of the article, "Envy, Conquest, Revenge: It's All in the Maps" by Roberta Smith. They will also receive questions to answer as they read the article. Since, Hokusai's map is a mixture of what we might consider a satellite view and bird's eye view, it is a great way to introduce the next activity.

We will, then, explore early Chinese maps and American Victorian era panoramic maps. When looking at these, I will focus in on how there is this switching/tension/interrelatedness? between satellite viewpoints and bird's eye viewpoints in both types of maps. To keep the students engaged, I will make this activity more of a game with each table competing against the other tables to have the most "correct" answers. At the end, I will explain that there are no right answers. Any answer is acceptable if you can give valid reasons as to why you chose it. I will show them slides using the LCD projector and have them write which viewpoint is being shown. I will purposely put in images that clearly show one of the points of view and ones that have aspects of both points of view.

Day Three

This class period will be focused on illusions of depth. I will show the students the Behind the Scenes: Depth video that was created by PBS, starring Penn and Teller. While watching the video, the students will write all the "tricks"(techniques) that Penn and Teller show for creating an illusion of depth on a 2D surface. After the video, I will elicit from the students the 6 techniques: position, size, overlap, detail, atmospheric perspective (color) and linear perspective. For a long-term homework assignment (due one week from the day it is given), the students will create a sketchbook page for each of the 6 techniques. On each page, they will need to find an example of that technique (from magazine, the newspaper or the internet) and explain how that example illustrates the technique. They will also have to write a definition/ explanation of the technique and draw their own example of it. They will use the remaining time in the period to work on the assignment. I will have a variety of magazines, including National Geographic and Smithsonian, for students to use and I will be available to answer any questions and to try to eliminate any potential problems.

Day Four and Five

I will return to the students their Google Earth images from the earlier class period. Using this image as a reference, I will ask them to draw a bird's eye view of their house/ apartment building and surrounding area. This activity will challenge them to think in terms of problem solving. They will be extremely familiar with the view of their house and its surrounding environment from a human's eye level. They will have in front of them, an image of it from a satellite view. Their job will be to imagine, based on the facts they know, what the bird's eye view would look like. I will allow them a few minutes to do some sketching in their sketchbooks. When it seems that they are beginning to develop solutions to the problem, I will pass out 12" x 18" black construction paper and oil pastels. They will be instructed to use a light color oil pastel to draw their composition and then to color it, leaving a little of the black paper showing around the lines. They will be asked to press hard to get good coverage with the oil pastels and to experiment with blending of colors. I would imagine that this project will take the rest of this class period and the following period. At the end of the following period, we will take the pictures into the hall to spread out and will do a mini-critique. Since this will be their first experience with critiquing, I will give rules as to how it will proceed and what can be said. Each person says one thing about someone else's work and it must be positive. They are to try to say something about a piece that has not been spoken about before their turn but they may if they really want. I will make sure that every piece gets spoken about, and the ones that aren't spoken about by the students, I will comment on. Unlike the other projects, this one will not be assessed based on a rubric. It will be the first art project that the students will have graded. In elementary school, art is not a graded subject while in middle school it is. The fact that they will

have a graded art assignment is rather intimidating to them. Therefore, I tend to grade the first project on whether they complete it or not. After they become accustomed to my teaching, I find that this anxiety dissipates.

Lesson Two

Day One

Lesson Two will have the students go from the human's eye view to bird's eye. We will take a field trip to a nearby university that has a self-contained campus. I will ask parents to provide their child with a disposable camera for the trip and agree to develop the film or to allow them to bring a digital camera. I will also bring as many digital cameras as I can check out from the school. The campus is divided roughly into two halves. The bus will first drive us all around the campus. Each student will be instructed to take notes and drawings as we go around the different building. Next, the bus will drop us off in the center of one side and then will take us to the other side. When we are off the bus, the students will take a variety of photographs from their human's eye view. They will also explore worm's eye view by lying on the ground and taking photographs looking up at the buildings. They will need to have 7 human's eye views and 3 worm's eye view on each side of the campus. The extra photos can be their choice. The worm's eye view photos will be used after the unit to explore three-point perspective. The students will eventually use their human's eye view photographs and notes and sketches to create a bird's eye view/panoramic map of the campus. I will give the parents (and myself) the weekend to develop the film but I actually will not expect it until a week after the trip.

Day Two and Three

While waiting for the photographs to be developed, we will explore linear perspective. As anyone who as ever attempted to teach linear perspective knows, it is a challenging and frustrating experience, both for the teacher and the students. Some students understand it almost instantly and other just never seem to grasp it. The students who "get" it want to learn more and are very excited about the potential that this new techniques affords them. They get very frustrated with those who don't "get" it. Those who struggle with the technique, get frustrated because they see other students understanding it effortlessly. To motivate the students who will struggle and to provide the more in depth information that the students who "get" want, I show a wonderful video, Masters of Illusion. This 30-minute video introduces perspective as it is used in movie special effects and then explores the history of perspective. Many art exemplars are shown and clear, concise explanations of linear perspective are shown. While this video does not solve the problems associated with teaching perspective, it does tend to ameliorate them somewhat. After the video, I will demonstrate how to draw simple boxes with one point perspective. I will ask the students to draw ten boxes using this method. I will circulate and try to help as needed. The following class period, I will demonstrate drawing a simple room and a simple street scene and ask them to pick one to try. Again, I will circulate and help.

Day Four

This day will be used to organize the photographs from the trip and to introduce the Renaissance panoramic maps of cities, specifically some of George Braun's maps. The university that we visited has very strong gothic architecture. Many of the buildings look Medieval, with rose windows, gothic arches, gargoyles, stone carving, leaded windows, etc. I will show them a PowerPoint presentation on these maps and will have 2D color copies

on a bulletin board for closer examination by the students. The panoramic maps often show a couple or a few figures in the immediate foreground dressed in "native" costumes of the city depicted.

Using their notes and drawings and the photographs that they took (along with ones I took strategically to assist in this assignment), I will explain that they will need to create a panoramic map of the campus. This problem will be more difficult than the previous one (creating a bird's eye view map of their home and surrounding neighborhood) since this will be an area that they are not intimately familiar with (as they were with their homes). They will also not have the added benefit of a satellite view of the campus to work from. The students will have to work like the cartographers/artists did in the Renaissance. I expect that after organizing the photos, the PowerPoint assignment and explanation of the project, it will be the end of the class.

Day Five

After a review of the assignment, I always have the students help me create a rubric on which their work will be graded. I strongly guide this process and will be very clear in my explanation of the assignments requirements. Thus, the students should be able to give me the criteria. They will then write the criteria in the sketchbook so that they can refer back to as the work on their project continues. Once that is done and everyone is clear about what they need to do, I will allow them time to do planning drawings in their sketchbooks. I will need to approve each plan.

Day Six

Next, I will give each student a large piece of watercolor paper (18" x 24"). Using a pencil, the students will draw their solution to the problem on their paper. In addition to the map of the city, they will draw two figures, a boy and a girl dressed as contemporary college students. After they are satisfied with their drawing and have gained my approval, they will use a permanent fine tip black marker to trace their pencil line. They will then erase the pencil lines. If they finish before the end of the class, they can start their homework assignment, which will be to create a timeline of the history of maps in their sketchbook. I will have an article ready to give to them, printed from HYPERLINK <http://math.rice.edu/~lanius/pre/map/maphis.html>, and the instructions on the requirements of the timeline assignment.

Day Seven and Eight

At the beginning of class, I will demonstrate how to use watercolors, focusing on amount and proper use of water and color mixing based on the color theory that we explored in the beginning of the semester. In fact, during the painting part of the project, they will have the sketchbook open to the color mixing/theory sketchbook page that they had created earlier, for reference. The student will use these two days to finish the painting.

Day Nine

We will have a group critique with the finished paintings. We will use the same rules as before with the exception that I will expect each student to comment on two different paintings. After the critique, they will do a self-assessment form with the rubric of criteria on which the project will be graded. I will also have them answer a variety of questions that will ask them about their process of creating the map, what was successful and why, what could be improved and why, and what they felt they had learned from this assignment.

Lesson Three

Lesson three will move beyond the concrete and have the students explore perspective in a more abstract and symbolic avenue. Within this unit, the students will create a symbolic map of their own personal life's journey. Using developed symbols, they will create a map that depicts not only important physical locations but also important events in their life up to this point. We will look at the symbolic maps (dot paintings) of the Australian Aboriginals during this unit.

Day One

In my art room, I will have two bulletin boards set up for this lesson. One will have visuals depicting Aboriginal art (specifically dot paintings) and, of course, a map of Australia. The other will have unusual maps that I have collected. These include a Doctors Without Borders map showing areas of the world that they service, a map of the NY subway that displays smells that are reported in the NY subway system, (<http://gawker.com/maps/smell/>), a map distributed by Hilton Hotels that maps good deeds, and a map of the Corcoran Art School that shows the college located as the center of the universe. I also have several National Geographic maps that show things beyond simple physical location. These include a map showing the annual renewable water in the world, *A Nation transformed by Civil War* (a map depicted the movements, events and campaigns of the Civil War), *Communism to Capitalism* (a map showing the economic change in the former Soviet Union), and a map, *Voices of the World*, depicting the various languages and dialects around the world, as well as several others. I hope that these maps will give the students a starting point to begin to think divergently about what maps can depict.

To begin, I will have the students think about ways maps can show ideas and concepts in addition to specific places. I will have them brainstorm possible ideas that maps could show, including population, weather, migration, income, and even literary maps. I will then show them a slide show of some western maps that depict things besides place. In this, I will include the Moby Dick Literary Map, 1956
<http://www.loc.gov/exhibits/treasures/images/1831s.jpg>

and *The Virginian*, A Literary Map, 1962.

<http://www.loc.gov/exhibits/treasures/images/at0183.6s.jpg>

I will also show them literary maps in the Library of Congress website, *Zoom Into Maps*.

<http://memory.loc.gov/learn/features/maps/pictorial.html>

Next, I will ask whether they feel a map can be personal: "Can it be created for personal use?," "Can it show a personal journey?" I will ask the students to think of their own life in terms of a journey. On the board, I will write "Events in My Life" and "Important Places in My Life." I will ask them to take out their sketchbooks and write the two headings and then to list at least 10 events and ten locales that are personally important to them, under each heading. When they have accomplished this, I will have them illustrate each of the 20 things and to label each one. One page in their sketchbook will be the illustrations of the events and one page, the locales. I expect this will take the entire class period. For homework, I will ask them to share their work with their parent(s) and ask the parent(s) if they have any important events that the students might want to add (perhaps things that the students were too young to remember such as a move).

Day Two

Since one of the themes in 6th grade is communication, I will ask the students to brainstorm all the ways people can communicate. I will write all of them on the board. When we are done, I will have them vote as to which one they feel is the most effective way to communicate. I expect that talking or writing will be the overwhelming winner. I will then ask them to select one classmate that they feel has good verbal communication skills. Asking the student to come to the front of the class, I will give that student a sheet of paper that has 2 geometric figures drawn on it, a rectangle on an angle and a acute triangle touching it about 2/3 of the way down the rectangle. I will explain that the student's challenge is to communicate, using ONLY words, the message on the paper. Whoever gets the message COMPLETELY correct will get an ice cream at lunch (as will the message communicator). Having done this activity in prior years, I know that they will struggle with it and not be able to do it. I will then give them a second chance, now that they understand that they are drawing figures. Again, they will not be able to do it. We will then reexamine our list on the board of ways to communicate. I will ask them to vote again on which way of communicating is most effective. I predict there will be some who change it to drawing and some who will get the bigger idea, that it really depends on WHAT you are trying to depict. At this point, I will have a discussion on symbols. I will draw several symbols on the board, one at a time, and have them tell me what they mean. For example, I will draw the McDonald's arches, the Nike symbol, the dollar sign, etc. I will elicit from them how they know what these mean, since I did not use any words. I will also touch on what makes a good symbol (simple, graphic, etc). For homework, I will ask them to develop 2 personal symbols, one for an event and one for a locale in their personal journey.

Day Three

I will explain that we will be putting our personal journey maps aside for a few days in order to learn about a different type of map or landscape. I will then introduce Aboriginal art, specifically dot paintings. I will show the Aboriginal Art: Past, Present, and Future video (30 minutes) and I will have the students use a graphic organizer to facilitate their taking notes on the video. I also have a book, Pheasant and Kingfisher that was illustrated by an Aboriginal artist, Arone Raymond Meeks. The book, also available as a big book, tells a myth using illustrations that utilize traditional iconography. These symbols represent physical landmarks, such as mountains, waterholes, hills, animal's tracks, people, plants, campsites, spears, etc. These symbols then are used to tell the story, specifically myths from the Dreamtime; a time during which the Aboriginal people feel the world was created. The Dreamtime can be seen as a time before the current time when the creation myth events occurred but also it also refers to the religion of the Aboriginals.

I will have a handout that has some of the more common Aboriginal symbols and basic meanings (they often have multiple meanings, some of which are sacred and not for the general population). I will have the students write a creation story that they make up, focusing on having some aspect of a journey in the story. I will want the story to be depicted visually using some of the symbols or using symbols that they make up. I will expect that this will take the remaining time in the period. For homework, they will finish their visual depiction and write a verbal explanation of their story.

Day Four

Because I want the students to gain an understanding of Aboriginal culture beyond a simple, superficial overview, I will try to have an exploration of the culture for part of each class period during this lesson. This day I will show an hour-long video, *Australia's Aborigines*, produced by National Geographic. This video gives a wonderful overview of the culture and focuses on the different regions. I will give the students a map of Australia with places for notes to be taken for each region. This will help them organize the information. After

the video, I will explain the project that they will be doing. We will develop a rubric to assess our projects in the same manor as in Lesson Two. I will ask them to take out their sketchbooks and turn to the pages where they illustrated the important events and locales in their lives. I will explain that they will create a symbolic map of the journey of their life. They will need to develop a set of symbols that will enable them to map their personal journey visually. During the rest of the class, the students will work on developing their symbols. I will circulate to make sure that they are keeping their symbols simple and graphic. If they do not finish in class, they will finish for homework.

Day Five

Today, we will be beginning the painting part of the project. I will explain to the students that they will need to paint the background of their map. They will need to consider what colors they want in what sections (i.e. will their journey have two colors, one representing time they lived in New York and the other colors representing time they lived in Virginia? Will there be three organic shapes of different colors, one representing before they entered school, one representing elementary school and one representing middle school? etc.). In addition to thinking about how they want to divide their paper (18" x 24" colored construction paper-I prefer a lighter color since it will not effect the color of the paint), they will need to think about color choices and how the selected colors will symbolize or represent that particular section of their journey. The goal for this day will be for them to divide the paper into the sections and paint in the sections. We will use basic tempera paint. The entire surface of the paper will need to be covered. As they finish, I will have copies of the magazine, *Scholastic Art, Aboriginal Art, . . .*2006. Their homework will be to read and highlight the important parts and answer the questions on the articles. It will be due at the end of the week.

Day Six

Using a PowerPoint presentation, we will look closely at three Aboriginal dot paintings. We will look specifically at the use of symbols and most importantly, the composition, how the entire picture plane is used. Then, using small easel brushes, the students will be allowed to begin adding their symbols to their paper. I would imagine that this will take the entire period.

Day Seven and Eight

The students will continue to create their symbols on the page, thinking about color choices and what the colors might symbolize. When they feel they are done and have received my approval, they will begin to added dots to fill in the negative space. I think this will take the entire class period plus approximately half of the next one. When the students are completely finished, they will create a legend to explain their symbols and using expository writing they will share their personal journey. What they do not finish in class, they will finish for homework.

Day Eight

We will begin class by doing a mini-critique of the students' work and then they will self-assess their own work (using the same methods as in Lesson Two). I will then pass back to the students their Venn diagrams from the beginning of the unit. Using those as reference, I will ask them to think about how their perceptions of maps have changed. I will then ask them to tell me things they now know about maps and I will write these items on the board. On the back of their Venn diagram, I will have the students write them new things that they have learned from this unit. For homework, I will ask them to think about whether this unit has changed the way that they see their place in the world and to write a short response to that.

Classroom Resources

Teacher Resources

Amboziah, Brian M., and Jeffrey R. Ambroziah. *Infinite Perspectives: Two Thousand Years of Three-Dimensional Mapmaking*. London: Princeton Architectural P, 1999.

Not the most relevant to the topic, but it has interesting visuals of relief maps and flat maps depicting three-dimensions.

Arnheim, Rudolf. *Art and Visual Perception: a Psychology of the Creative Eye*. Berkeley: University of California, 1954.

A fascinating book on the psychological responses to different visual images.

"Braun and Hogenberg: Civitates Orbis Terrarum." *Historic Cities*. 14 May 2007 http://historic-cities.huji.ac.il/braun_hogenberg.html>.

A website that gives in-depth background on the "Civitates Orbis Terrarum".

Buisseret, David, ed. *From Sea Charts to Satellite Images: Interpreting North American History Through Maps*. Chicago: The University of Chicago P, 1990.

A wonderful teaching resource that would be invaluable to a history teacher or anyone interested in integrating history and maps into their curriculum.

Caruana, Wally. *Aboriginal Art*. New York: Thames and Hudson, 1994.

A well-done, thorough book on Aboriginal art.

Casey, Edward S. *Representing Place: Landscape Painting & Maps*. Minneapolis: University of Minnesota, 2002.

While this book has a wonderful premise and valuable ideas, it does not have easily accessible writing

Crumlin, Rosemary, and Anthony Knight. *Aboriginal Art and Spirituality*. Victoria, Australia: Dove, 1995.

A book focusing on the spirituality in Aboriginal art. It contains lovely images.

Fead, Margaret Irene. "Notes on the Development of the Cartographic Representation of Cities." *Geographical Review* 23 (1933): 441-456. Yale University, New Haven. 04 July 2007. Keyword: city maps.

A scholarly article that gives a clear and concise history of mapping of cities.

Gombrich, E H. *The Story of Art*. 16th ed. New Jersey: Prentice Hall, 1995.

A wonderful resource for any art teacher. This survey art history book is easily accessible and has wonderful information on the development of perspective.

Gross, Sally Lorensen. *Toward an Urban View: the Nineteenth-Century American City in Prints*. New Haven: Yale University Art Gallery, 1989.

This gallery catalog is from an art exhibit of the same name. While obviously not all the images would fall into the categories being

looked at in this unit, it is an interesting resource.

Harmon, Katharine. *You are Here: Personal Geographies and Other Maps of the Imagination*. New York: Princeton Architectural P, 2004.

An interesting book focusing on inventive, creative maps. This would be great for visuals of unusual maps.

"Learning Mapping History." *Learning Culture and Knowledge*. British Library. 14 May 2007
<http://www.bl.uk/learning/artimages/maphist/mappinghisotry.html>>.

A fantastic website on using maps in the classroom. This is defiantly worth some time exploring.

Mapping the World: an Illustrated History of Cartography. Washington, DC: National Geographic, 2006.

A gorgeous book with stunning illustrations.

Morphy, Howard. *Aboriginal Art*. London: Phaidon P Limited, 1998.

While a dense book, it is a thorough explanation of Aboriginal art. It has some illustrations, though not as many as other books.

Nigel, Spivey. *How Art Made the World*. New York: Basic Books, 2005.

This book, based on a PBS series is wonderful. The premise is that art and the developments in art actually have had significant impact on human culture. There is also a DVD set available which is great to show to students.

Nuti, Lucia. "The Perspective Plan in the Sixteenth Century: the Invention of a Representational Language." *The Art Bulletin* 76 (1994): 105-128. Yale University, New Haven. 04 July 2007. Keyword: perspective map.

This scholarly article deals with the pictorial maps of the 16th century.

Rees, Ronald. "Historical Links Between Cartography and Art." *Geographical Review* 1 (70): 60-78. JSTOR. New Haven. 7 July 2007. Keyword: maps and art.

This interesting article traces the connections between mapping and art developments.

Rennie Short, John. *The World Through Maps: a History of Cartography*. New York: Firefly Books, 2003.

A clear, concise book with wonderful images.

Schama, Simon. *Landscape and Memory*. New York: Vintage Books, 1995.

While not directly dealing with maps or mapping, it is a wonderful book dealing with landscape and it's role in art history and it's connection to people.

Silberman, Robert. *World Views: Maps and Art*. Minneapolis: University of Minnesota, 1999.

This is an excellent resource on the connection and overlapping of maps and art. I would highly recommend it for anyone interested in this area.

Smith, Richard J. *Chinese Maps: Images of Asia*. New York: Oxford UP, 1996.

A very short, specific book that has a great deal of information and mostly black and white images.

Smith, Roberta. "Envy, Conquest, Revenge: It's All in the Maps." *New York Times* 15 Jan. 1999. 07 July 2007
<http://query.nytimes.com/gst/fullpage.html?res+9C01E2DA1031F936A25752C0A96F9582...>>.

A newspaper review of a map exhibit.

Valiant, Sharon. "Maria Sibylla Merian: Recovering an Eighteenth-Century Legend." *Eighteenth-Century Studies* 26 (1993): 467-479. JSTOR. Yale University, New Haven. 05 July 2007. Keyword: Mathias Merian.

An interesting, scholarly article on Maria Sibylla Merian.

Walker, Paul Robert. *The Feud That Sparked the Renaissance: How Brunelleschi and Ghiberti Changed the Art World*. New York: Perennial, 2003.

A wonderfully readable book. The premise is that Ghiberti's winning the assignment of creating the Baptistery's doors enabled Brunelleschi to develop the mathematical aspects of perspective.

Wilford, John Noble. *The Mapmakers*. 2nd ed. New York: Vintage Books, 2000.

A well-done overview of the history of cartography.

The World Encompassed. Baltimore: Trustees of the Walters Art Gallery, 1952.

An out of print exhibition catalog with entirely black and white illustrations and very little information.

Depicting China: 800 years of Early Chinese Maps by John Hebert www.loc.gov/loc/lcib/0312/maps.html

A website that deals with the history of Chinese maps. It only has some basic information

Student resources

Berndt, Catherine Helen. *Pheasant and Kingfisher*. New York: Mondo Publishing, 1994.

A children's book (available also in big book format) retelling an Aboriginal myth and illustrated by an Aboriginal artist.

Job, Kenneth, and Lois Weisner Wolf. *Skills for Understanding Maps and Globes*. Ed. Jack Abramowitz. Chicago: Follett Company, 1976.

While an older book and maybe difficult to obtain, it has a variety of lessons and handouts for teaching basic mapping skills.

La Pierre, Yvette. *Mapping a Changing World*. Charlottesville: Thomasson-Grant & Lickle, 1995.

A wonderful children's book that traces the development of maps throughout history. Easily read and filled with wonderful images.

"Panoramic Map Artist Albert Ruger Died." *America's Story From America's Library*. Library of Congress. 14 May 2007
http://www.americaslibrary.gov/cgi-bin/jb_date.cgi?day=12&month=11>.

A children's website, part of the larger Library of Congress website, dealing with a news reporting activity on the death of Albert Ruger.

"Panoramic Maps Collection." American Memory. Library of Congress. 14 May 2007
<http://memory.loc.gov/ammem/pmhtml/panhome.html>>.

A fantastic, definitive website on American Panoramic maps. This is the website that everyone else quotes. It also has a wide variety of lesson suggestions for teachers.

<https://teachers.yale.edu>

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