



Geometry in Spanish Cubism
by Emily Burrell, 2016 CTI Fellow
Piedmont IB Middle School

This curriculum unit is recommended for: IBMYP, year 1; Mathematics, grade 6

Keywords: cubism, geometry, area, triangles, squares, rectangles, hexagons, cubes, and triangular prisms, Spanish vocabulary, artists, Spain, South and Central America.

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis: This curriculum unit will be a cross-curricular and cultural experience for students. Integrating language arts (with a fellow CTI Fellow), art, Spanish history, Civilizations and Societies, current events, psychology, and mathematics. Our unit will have a main focus on Picasso's cubist works, *Guernica*, 1937 to *the Three Musicians*, 1921 and many more of his famous works. We will also learn about other Spanish cubist artists such as Salvador Dalí, Diego Rivera, and Frida Kahlo. By analyzing the geometric shapes in these artist's works, we can learn about geometry in a global context. By examining the geometrical shapes: triangles, squares, rectangles, hexagons, cubes, and triangular prisms, we can incorporate the work of Spanish artists. Students will create their own cubist works of art, utilizing a global context (war, current protesting, world hunger, social injustices, etc.), using *Guernica* as an example to show how a societal issue can be expressed in art (self-expression, art as protest, propaganda). [Current CTI Fellow, Molly Malone, and myself, will be working together to make a cross-curricular IB unit. This unit will focus on our schools' culture meal week when students bring dishes from their own culture while learning about others including Spain and South and Central America.

I plan to teach this unit during the coming year to 130 students in IBMYP, year 1; Mathematics, grade

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Geometry in Spanish Cubism

Emily Burrell

Background Information

Piedmont IB Middle School

Piedmont IB Middle School is an International Baccalaureate school located in Charlotte, North Carolina. International Baccalaureate School utilizes the Common Core curriculum as well as integrating global context and exploration.

According to data assembled from the 2015-2016 school year survey, Piedmont serves over 1100 students. 68% of our students are African-American, 15% are white, 7% are Hispanic, 7% are Asian, 5% are Multiracial, and 1% are Pacific Islander. The gender breakdown of our school is 47% male and 53% female students. Around 50% of our students are on free and reduced lunch. About 50% of our students live below the poverty line. Piedmont was awarded an “A+” rating by the state of North Carolina, based on our test scores in 2015 and 2016. Piedmont is currently ranked as the 19th top middle school out of 675 middle schools in North Carolina.ⁱ

The culture at Piedmont, encourages innovation, creativity, and hands-on learning. Teachers are comfortable taking risks and conducting lessons that may not be found in an everyday textbook. The administration trusts the teachers at Piedmont to make decisions about what is best for the students of Piedmont, so the teachers do not feel that anyone is looking over their shoulder, and they do not feel as though they need to conform to any certain style of teaching.

At Piedmont we follow the Common Core State Standards in Mathematics. In 6th grade, there is a strong emphasis on Ratios, Proportions, Decimal Operations, Surface Area, Volume, and Statistics.

In the 6th grade at Piedmont, students are split into “Honors” and “Standard” classes. Based on how they do in 6th and 7th grade, our honors students can complete both Math I and Math II in the 8th grade. Math I and Math II are high school courses in Charlotte-Mecklenburg Schools, so some of our brightest students will complete two high school courses before they graduate

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ⁱ "Piedmont Open Middle in Charlotte, North Carolina." Piedmont Ib. Middle in Charlotte, NC | StartClass. 2016. Accessed November 21, 2016. <http://public-schools.startclass.com/l/66873/Piedmont-Open-Middle>.

ⁱⁱ "Spanish Civil War." Spanish Fiestas. 2015. Accessed November 27, 2016. <http://www.spanish-fiestas.com/history/civil-war/>.

Piedmont. The rest of the honors students will complete Math I in the 8th-grade and our standard students will complete the 8th grade curriculum as laid out in the CCSS (Common Core State Standards). This unit can be done with both honors and standard classes and also, adjusted to students who are “typical learners.”

Background Knowledge of Students

With each new school year, students come to Piedmont with varying math backgrounds. Some are great with fractions but struggle with geometry. Some are great at geometry but struggle with decimals and percentages. Some have a strong math background while others may need more assistance. Most of them, as a result of too much standardized testing, do have a strong desire to “get the answer” as quickly as possible. They struggle with open-ended questions and questions that require a lot of perseverance to solve. They have been trained that the answer is always “A”, “B”, “C”, or “D”. This type of thinking is appropriate for a multiple choice test, but this type of thinking is less applicable to making an important life decision, inventing something new, solving a problem that has several possible solutions. Most of my students are all either eleven or twelve years old, with the exception of a few students. Despite the differences that my students have as far as their race, household income, math ability, etc., the fact that they are all eleven or twelve years old means that they have much in common.

As it pertains to this unit, my students are supposed to come to Piedmont with knowledge of how to calculate the mean and median of a set of data, understand how fractions work, geometrical shapes, and a variety of other math tasks.

Rationale and Content Objectives

Rationale

By incorporating Spanish art, students can grow in their global awareness, which is the basis of the IB curriculum. With a growing Hispanic population in our school and country, I find it personally a great way to teach students a sense of belonging in their new country or comfortable that English is their second tongue or to have pride in their family heritage as many will also be US-born Latino/a.

Pertaining to the content itself, this will be a more engaging way to teach about geometry compared to last year. Last year as a PLC, our lessons were based on worksheets and holding three-dimensional figures. This year I am excited for students to learn about geometry through artistic expression and cultural learning.

In regard to recent event and tensions, it is more important than ever to education students on other cultures so we do not repeat patterns that occurred over racism, sexism, and other discriminations that our citizens face today. I have faith that if we can reach our students at an age when they are young enough to be able to form understanding and tolerance, we can make a change.

Content

Students will be exploring geometry through modeling cubist works of art. We will be exploring the life and art of the following artists; Pablo Picasso, Salvador Dalí, Diego Rivera, and Frida Kahlo. We will be utilizing the sixth-grade common core standards and IB content standards. We will be incorporating art, Spanish history, artists from the Spanish-speaking world, Hispanic civilizations and societies, current events, and mathematics.

Many of these artist's works are reflections of the Spanish and Mexican civil wars and the second World War. Tensions were running high during this period of time. The emotion and reactions to the atrocities of the war can be seen not just in the four highlighted Spanish artists' work but in many other Spanish artist's works of this time. ²

Strategies and Classroom Activities

Art will be one of the main focuses of this cross-curricular unit. Showing examples of Spanish artists, students will be exposed to artwork that they may have never encountered before. Throughout the unit, students will learn about paintings, the artists, and complete an assignment based on the relevant artist.

The Spanish Civil War

The Spanish Civil War was fought between July 17th 1936 and April 1st, 1939. The two sides of the war were fought by the Republicans who were power at the time against the Nationalist. The Nationalists were in support of the Catholic Church, the monarchy and land owners. Spain was not as industrialized as the rest of modern Europe. This caused famine and poor conditions for civilians. German and Italy had given their support to the Nationalists and their leader, Francisco Franco.

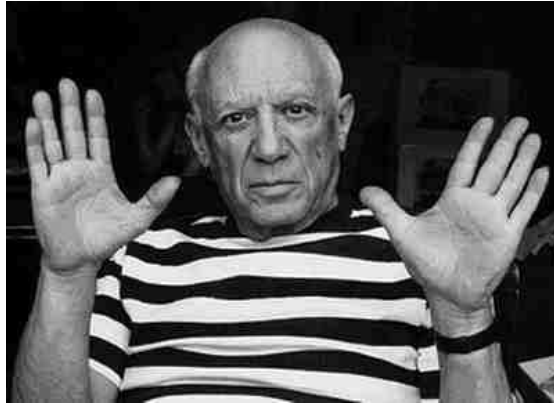
It was a bloody war, as the Nationalists had a large army. The civilians of Spain were of no match for the brutality of the army. There was also a large amount of propaganda used on both sides. The Republicans wanted to show the horror of what was happening, while the Nationalists was trying to show the world that everything was fine under Franco's rule in Spain.

Not until Franco's death in 1975, was Spain able to become a more industrialized and civilized country for citizens. The time of war was a huge influence for Pablo Picasso and Salvador Dalí's art. ³

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³ Chasteen, John Charles. *Born in Blood and Fire: A Concise History of Latin America*. New York: Norton, 2001.

Exploring the works of Pablo Picasso



Three Musicians, 1921 ⁴



Pablo Picasso was a famous Spanish artist who was born in Málaga, Spain in October of 1881. He was educated at the Real Academia de Bellas Artes de San Fernando but started his artistic career under his father in the 1890s. The two periods of Picasso's art we will focus on are: his Crystal Period (1915-1917) and World War II period (1935-1955).⁵

⁴ Picasso, Pablo. *Three Musicians*. 1921. Museum of Modern Art, New York, NY.

⁵ McCully, Marilyn. *A Picasso Anthology: Documents, Criticism, Reminiscences*. Princeton, NJ: Princeton University Press, 1982.

The naming of his Crystal Period was named by Gertrude Stein, a famous playwright, poet, novelist and art collector. After receiving criticism for his defecting of classicalism, Stein wrote to him calling his cubist art “crystal gems” in the art community. Picasso started experimenting with Georges Braque on creating geometric and demure colored works of art that had simple objects and shapes incorporated in them, in the mid-1910s. While the works of art incorporated simple objects, they held complex meaning to the artists. For Example, *Guernica* was created for the 1937 world’s fair in Paris. It was commissioned by Spanish Republican Government, as they asked for a large mural to be incorporated in the, Exposition Internationale des Arts et Techniques dans la Vie Moderne. Originally, Picasso was unenthusiastically painting the perennials which was the theme of the studio he was working in. Uninspired, Picasso found inspiration in the eye witness account of George Steers of the German bombing of the city of Guernica in the Biscay bay of Spain, in the north-central region of the country.⁶

Guernica, 1937



Due to many of the men of the town of Guernica being away at war, the village was mostly occupied by women and children (Krauss,1982). The composition is best described by Rudolph Arnheim in his book; *The Genesis of a Painting: Picasso's Guernica.*:

“The scene is within a room where, at an open end on the left, a wide-eyed bull stands over a woman grieving over a dead child in her arms. The center is occupied by a horse falling in agony as if it had just been run through by a spear or javelin. The large gaping wound in the horse's side is a major focus of the

⁶ Brown, Jonathan. *Picasso and the Spanish Tradition*. New Haven: Yale University Press, 1996.

painting. Under the horse is a dead, apparently dismembered soldier; his hand on a severed arm still grasps a shattered sword from which a flower grows. On the open palm of the dead soldier is a stigma, a symbol of martyrdom derived from the stigmata of Christ. A light bulb blazes in the shape of an evil eye over the suffering horse's head (the bare bulb of the torturer's cell).”-Rudolf Arheimi

To the upper right of the horse, a frightened female figure, who seems to be witnessing the scenes before her, appears to have floated into the room through a window. Her arm, also floating in, carries a flame-lit lamp. The lamp is positioned very close to the bulb, and is a symbol of hope, clashing with the lightbulb. From the right, an awe-struck woman staggers towards the center below the floating female figure. She looks up blankly into the blazing light bulb. Daggers that suggest screaming replace the tongues of the bull, grieving woman, and horse. A dove is scribed on the wall behind the bull. Part of its body comprises a crack in the wall through which bright light (hope, or the outside world) can be seen. On the far right, a woman with arms raised in terror is entrapped by fire from above and below; her right hand suggests the shape of an airplane. A dark wall with an open door defines the right end of the mural.⁷

While this may be too graphic for sixth graders, a synopsis of what is occurring in the painting is a great conversation to have about past civilizations and societies. For the mathematics curriculum, we can introduce geometry and cubism (three-dimensionalism) into our vocabulary warm up.

Pablo was motivated in his art by what was going on around him. His time in Spain and France were plagued with multiple wars, battles, and conflicts. Picasso never fought in any battles as he refused. In 1944 he joined the French Communist Party and received many prizes from the Stalin government.⁸

Pablo Picasso's legacy will always be one marred with personal tragedy, a little mystery, and global accolades. Pablo was one of the few artists who expressed himself through drawing, painting, sculpting, and many other mediums.

⁷ McCully, Marilyn. *A Picasso Anthology: Documents, Criticism, Reminiscences*. Princeton, NJ: Princeton University Press, 1982.

⁸ Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/pablo-picasso-9440021>.

Dali's World



Autorretrato Cubisto, 1923⁹



Persistence of Memory, 1931¹⁰



⁹ Dalí , Salvador. *Autorretrato Cubisto*. 1923. Museo Nacional Centro De Arte Reina Sofia, Spain.

¹⁰ Dalí , Salvador. *Persistence of Memory*. 1931. Museum of Modern Art, New York, NY.

Salvador Dalí was a Spanish artist born in 1904. He was named after his older brother who passed away nine months earlier and his father. His father was a lawyer and his mother was very supportive of Salvador's artistic ambitions. Dalí claimed that when he was five his parents took him to his brother's grave and was told he was the reincarnation of his older brother. Dalí's family dynamic was interesting after the death of his mother when he was 16 he wrote "was the greatest blow I had experienced in my life. I worshipped her... I could not resign myself to the loss of a being on whom I counted to make invisible the unavoidable blemishes of my soul." His father married his mother's sister. Salvador did not mind as he got along great with his aunt. He was married for nearly 50 years to Gala Dalí.¹¹

Like Picasso he was neutral and refused to fight during the Spanish Civil War. Growing up, Dalí was an anarchist and communist. Many believe he expressed himself to continue his shock and awe persona. He later lived as a Trotskyist and a monarchist. His conflicting political and often conflicting religious views can be seen in his work.¹²

Dalí is most famous for his Surrealist movement, where he created *The Persistence of Memory* in 1931. His cubist art varied in subjects and color. Some were vivid in color or demure, some focused on a person while others were focused on an object. Dalí also had an eye for creating works that tested people's visual and mental perspectives. His painting *The Face of War*, Dalí uses his unique perspective to create a horrified human with wispy hair of snakes. Within the eyes and mouth of the face there is an inception of another skull in these orifices. And with one last attempt to test our psyche he integrates skulls for the third time into the face. Another example of how Dalí changed our perspective by creating his own is in his work, *Christ of St. John on the Cross*, we see a non traditional view of the crucifixion of Jesus Christ. Unlike the traditional view of Christ on the cross, Dalí has us viewing this iconic scene from above.¹³

¹¹ "Salvador Dalí ." Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/salvador-dali-40389>.

¹² "Salvador Dalí Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-Dali-salvador.htm>.

¹³ Dalí, Salvador, Elliott H. King, David A. Brennan, William Jeffett, Montserrat Aguer, and Charles Hine. *Salvador Dalí: The Late Work*. Atlanta: High Museum of Art, 2010.

Christ of St. John on the Cross, 1951¹⁴



The Mexican Revolution

From 1910-1920 the cultural and government of Mexico drastically changed. Prior to this time Porfirio Díaz was the long reigning president. In 1909 President Taft met with Díaz at a summit in El Paso, Texas and in Ciudad Juarez, Mexico. This was the first time an American and Mexican president had met and the first time a United States president crossed the border into Mexico. Their motive for the meeting was to show Taft's support for Díaz's re-election as president. This also benefited Taft as the United States had invested billions of dollars into Mexico. Díaz stated at this summit "Since I am responsible for bringing several billion dollars in foreign investments into my country, I think I should continue in my position until a competent successor is found.". This showed that the successful United States was interested in continuing business with the industrializing country.

Unchallenged for some time, Díaz was confident in his next election. But unknown to Díaz, a wealthy young man who held a vast majority of land in Coahuila, Mexico had plans to run under the Anti-Reelectionist Party. Madero called for the elites to run with the president. Díaz was not

¹⁴ Dalí, Salvador. *Christ of St. John on the Cross*. 1951. Kelvingrove Art Gallery and Museum, Glasgow.

worried during the campaign of Madero, but ultimately had him jailed after Madero ran a lively campaign. Madero escaped and hid out in San Antonio, Texas until the election results were read. Díaz ultimately was elected for his eighth term through what was concerned a rigged election on November 10th, 1910.¹⁵

Diving into Diego



Portrait of Martin Luis Guzman, 1915

¹⁵ Knight, Alan. "The Mexican Revolution." The Mexican Revolution | History Today. Accessed November 27, 2016. <http://www.historytoday.com/alan-knight/mexican-revolution>.



Jacques Lipchitz (Portrait of a Young Man), 1914



Diego Rivera was a Mexican artist born in Guanajuato in 1886. He had a twin brother who passed away at the age of two. His parents held many jobs within the community. His father was an educator, newspaper editor, and a health inspector. Diego's mother was a doctor. His family was very supportive of his art and his father built him an art studio after Diego began drawing at the age of three.

He attended the San Carlos Academy of Fine arts in Mexico City. He was interested in the everyday expression of Mexican life in his art. In 1902 Diego was expelled from school for heading a protest against the reelection of Porfirio Díaz. He continued in his study of art and the Governor of Veracruz, Mexico saw Diego's talent and paid for him to study art in Europe where Diego had always wanted to go.

While in Europe he started to experiment with different styles of art. His cubist movement was between 1913 and 1917. Upon his return to Mexico, he began his muralist movement. He

believed that art should not just be in museums but available for everyone to see. He started painting in very public spaces in Mexico. ¹⁶



Diego was a member of the Mexican Communist Party. He would use his public murals as a source of “propaganda”. He believed in communism as he felt it benefitted the people of Mexico. He was commissioned by the Rockefellers to create a mural in Rockefeller Center in 1933 but was asked to stop work as he had communist emblems and a portrait of Vladimir Lenin in the mural. ¹⁷

¹⁶ "Diego Rivera Biography." Diego Rivera Biography. Accessed November 27, 2016. <http://www.diego-rivera-foundation.org/biography.html>.

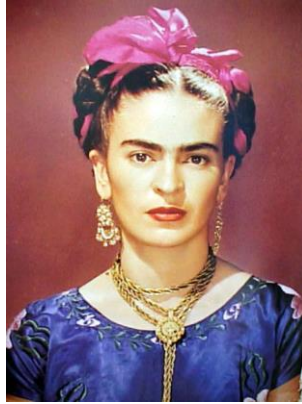
¹⁷ "Diego Rivera." Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/diego-rivera-9459446>.



The legacy of Diego Rivera is that he stood up against the government that he felt was rigged. He painted what he felt and saw in the everyday Mexican way of life. Along side his wife, Frida Kahlo, he left a mark on the artist culture of not just Mexico but the world.

All about Frida

On July 6th, 1907 in a small town on the outskirts of Mexico City, Mexico, one of the most complex artists in the Spanish world was born. Magdalena Carmen Frida Kahlo y Calderón known as Frida Kahlo, was raised in Mexico by her photographer German immigrant father and indigenous Spanish mother who she would describe as, "kind, active and intelligent, but also calculating, cruel and fanatically religious". Her father moved to Mexico after leaving school in Germany due to epilepsy. Both her mother and father were chronically ill for Frida's whole life, this took a toll on her as she experienced her own ailments.



She grew up with 3 sisters in the home and 2 sisters from her father's first marriage lived in a convent for their childhood. She bonded the most with her father as they both suffered from illnesses. He taught her about art and literature and exposed her to many topics including, "boy" activities. Her father sent her sisters to convent school, but since Frida contracted polio at the age of six, she started school much later than her peers and attended a German school. She studied science with a goal of attending medical school. She was one of only 35 girls to be accepted into the new co-ed school. She maintained high grades and also learned how to have fun at school. She was in a group with eight other students called the "Cachucas". These students played pranks, spoke about philosophy and Russian classic novels, such as "Crime and Punishment". The group produced many successful individuals who became some of the top intellectuals in Mexico. During this period, Frida became interested in Mexican nationalism and socialism. She would often refer to herself as "the Daughter of Revolution", claiming her birthday to be on July 7th, 1910, the date of the Mexican revolution beginning. This was also to cover up the fact that she was embarrassed about being 3 years older than her peers. ¹⁸

¹⁸ PBS. 2005. Accessed November 27, 2016.
<http://www.pbs.org/weta/fridakahlo/life/people.html>.



(Left to right: Christina, Matilde, Adrianna, and Frida.)

At the age of 18, Kahlo was in a terrible bus accident which caused the death of many of the riders and serious injuries to Frida. She suffered a fracture pelvis, broken leg, crushed collarbone, several broken ribs and a handrail went through her pelvis, and this would lead to fertility issues later in life. She wore a back brace for many months and would wear it occasionally afterwards. She would paint and decorate her brace.¹⁹

¹⁹ "Frida Kahlo Biography." Frida Kahlo Biography. Accessed November 27, 2016. <http://www.frida-kahlo-foundation.org/biography.html>.

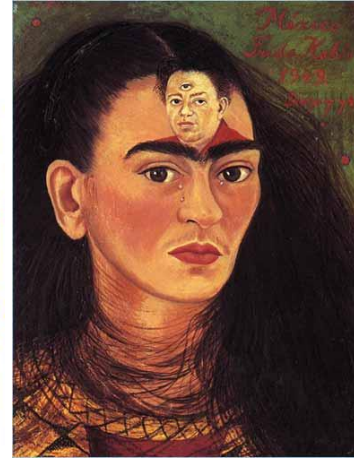


After the accident, Frida suffered chronic pain and illness that would last her entire life. With her dreams of becoming a doctor halted, she began painting more and more. She became a social and communist activist as well. Along side her husband, Diego Rivera, the two worked along side the Mexican Communist Party. There is even speculation of an affair between Frida and Leon Trotsky.²⁰

Much of her most famous works were of herself. Sometimes she was injured, other times she was in a serious pose. Her work reflected her inner struggles that ranged from miscarriage to injury from the bus accident to her relationship with Diego.²¹

²⁰ "Frida Kahlo Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-kahlo-frida.htm>.

²¹ "Frida Kahlo - The Complete Works." Frida Kahlo - The Complete Works. Accessed November 27, 2016. <http://www.frida-kahlo-foundation.org/>.



Frida's legacy was not well known until after her death. She became a statement of the non-conforming, dark, tortured, female artist. Her art reflected her inner self but her activities reflected those of political turmoil and her love for Diego.

Conclusion

By the time our unit comes to its end, my hope is that students can use their knowledge of Spanish artist's works and create their own, while using their common core knowledge and IB basis. By measuring the area of their shapes and learning how to communicate the meaning of their work, I hope students can grow in their global awareness as well as their math skills.

Appendix 1

Solve real world and mathematical problems involving area, surface area, and volume.

CCSS.MATH.CONTENT.6.G.A.1

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real world and mathematical problems.

CCSS.MATH.CONTENT.6.G.A.2

Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems.

CCSS.MATH.CONTENT.6.G.A.4

Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real world and mathematical problems.

Appendix 2
(Activities and Worksheets)

Scenic Global Context Mural Inspired by Pablo Picasso

Directions: You are to create scene encompassing a global context using geometric shapes. After you draw your geometric shapes, measure them and find the area of each shape and answer a few questions. Record your answers below and make sure you take time to make a detailed sketch, like a true artist!

Sketch:

1. What is your total area of your geometric shapes? (show your work)

2. Why did you choose the global context for your scene?

3. Why did you choose the colors for your portrait?

4. Were you inspired by another artist's work through this unit?

Salvador Dalí -Activity for this Lesson

Objective:

Students will be able to use their knowledge of perspective to create a mural using geometry and cubist attributes.

Materials:

Paper

Markers, Colored Pencils, Paint

Rulers

Activity:

Students are to create a work that incorporates Dalí's use of perspective and their knowledge of cubism. Students will measure the dimensions of their geometrical figures within their pieces. Students will receive a grade based off of accuracy of dimensional calculation.

Diego Rivera-Activity for this Lesson

Objective: Students will create a work of art that encompasses their knowledge of geometry and world issues to create a mural that includes global contexts.

Materials:

Paper

Markers

Colored Pencils

Paint

Scissors

Glue

Magazines

Activity:

Students will use materials to create a mural that uses geometric shapes and expresses global context.

Geometric Self Portraits Inspired by Frida Kahlo

Directions: You are to create a self-portrait using geometric shapes. After you have cut out all of your pieces, measure them and find the area of each shape and answer a few questions. Record your answers below and make sure you take time to make a detailed sketch, like a true artist!
Sketch:

5. What is your total area of your self- portrait? (show your work)

6. Why did you choose the shapes for your portrait?

7. Why did you choose the colors for your portrait?

8. Were you inspired by another artist' work through this unit?

Exemplars
Picasso



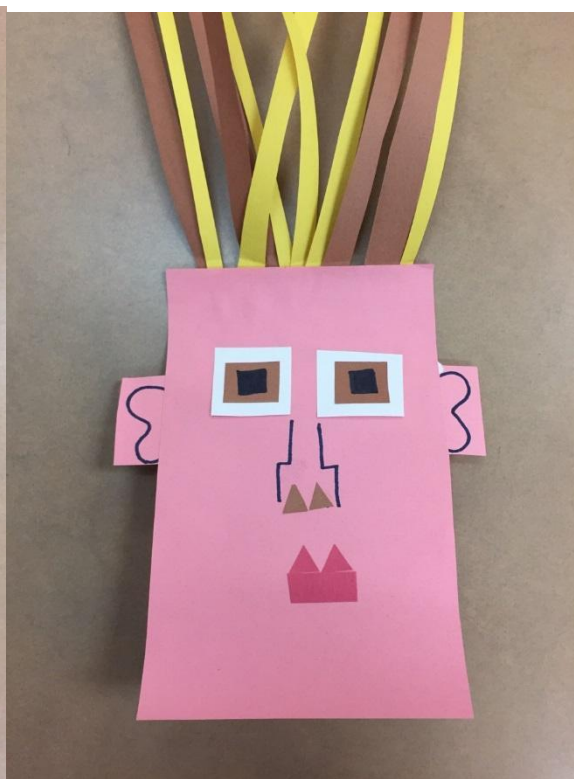
Dalí



Diego



Frida



Materials Needed

The materials needed for this lesson include crafting materials, magazines for collages, and the North Carolina Common Core standards as found in appendix 1.

Classroom Resources

Bitman, Erin. "10 Geometric Art Explorations - WeAreTeachers." WeAreTeachers. March 02, 2016. Accessed November 01, 2016. <http://www.weareteachers.com/10-geometric-art-explorations/>.

-This source has lesson plans on geometric art projects in math. Collages was one that is particularly interesting to this lesson as it can include a global context.

Smith, Monica. "Pablo Picasso Lesson Plans, Activities, Coloring Pages, and More." Mommy Maestra. October 24, 2010. Accessed December 01, 2016.

<http://www.mommymaestra.com/2010/10/lesson-plans-for-pablo-picasso.html>.

--This source has lesson plans for exploring the art of Pablo Picasso. From this source I gained knowledge of his use of collages to represent a social issue.

Smith, Monica. "Frida Kahlo Lesson Plan" Mommy Maestra. October 26, 2010. Accessed November 01, 2016. <http://www.mommymaestra.com/search?q=frida>.

-This source has information on Frida Kahlo and math activities that students can do. We will be doing our self portraits from this source.

Smith, Monica. "Diego river Lesson Plan" Mommy Maestra. October 25, 2010. Accessed November 01, 2016.

-This source has information on lesson plans for Diego River and math. Diego was a muralist and we will create a mural in class.

"Lesson Plans - Unparalleled Collection of Salvador Dali Art Works." Unparalleled Collection of Salvador Dali Art Works. 2016. Accessed November 01, 2016.

<http://thedali.org/programs/education/lesson-plans/>.

-This source comes from the Dali Museum. There are lesson plans for all grades and subjects.

Ross, Michael Elsohn, and Salvador Dalí. *Salvador Dalí and the Surrealists: Their Lives and Ideas: 21 Activities*. Chicago, IL: Chicago Review Press, 2003.

-This source has activities for not only investigating art but particularly surrealists. Students will explore perspective from this source.

Student Resources

Isabel, Sánchez Vegara Ma, Fan Eng Gee, and Emma Martinez. *Frida Kahlo*. New York, NY: Frances Lincoln Children's Books, 2016.

-This source is for children to learn more about Frida Kahlo. The background of the artist is important to understand why they will be doing a self-portrait of themselves.

Kahlo, Frida, Sarah M. Lowe, and Carlos Fuentes. *The Diary of Frida Kahlo: An Intimate Self-portrait*. London: Bloomsbury, 1995.

-This source is great for when students work on their self-portrait. Frida Kahlo had painted many self-portraits through her life.

Kelley, True. *Who Was Pablo Picasso?* New York: Grosset & Dunlap, 2009.

This source helps students identify who Pablo Picasso was. This will give students can understand of the artist they will be studying.

Winter, Jonah, and Jeanette Winter. *Diego*. New York: Knopf, 1991.

Diego by the Winter's is a children's book that introduces Diego Rivera and his life to readers. It goes from childhood to adulthood.

Annotated Bibliography

1. Arnheim, Rudolf. *Picasso's Guernica; the Genesis of a Painting*. Berkeley: University of California Press, 1962.

-This source is a direct quote by R. Arnheim on the depiction of Picasso's Guernica. He gives detailed information of the painting.

2. Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/pablo-picasso-9440021>.

-This source tells of the early life of Pablo Picasso. Born in Spain, Pablo spent most of his adult life in Paris.

3. Brown, Jonathan. *Picasso and the Spanish Tradition*. New Haven: Yale University Press, 1996.

-Commissioned to paint a mural for the world's fair in Paris, Pablo changes his tune after the bombing of Guernica. Pablo speaks of the destruction of the village.

4. Chasteen, John Charles. *Born in Blood and Fire: A Concise History of Latin America*. New York: Norton, 2001.

-This source is instrumental in many places within the curriculum unit. Information from the Mexican Revolution to the Spanish Civil War can be found in this book. Information on artists as well are included in this book.

5. Dalí, Salvador. *Autorretrato Cubisto*. 1923. Museo Nacional Centro De Arte Reina Sofia, Spain.

-This is the source of the image of Dalí's painting, Autorretrato Cubisto.

6. Dalí, Salvador. *Christ of St. John on the Cross*. 1951. Kelvingrove Art Gallery and Museum, Glasgow.

-This is the source of the image for Dalí's painting, Christ of St. John on the Cross-.

7. Dalí, Salvador, Elliott H. King, David A. Brennan, William Jeffett, Montserrat Aguer, and Charles Hine. *Salvador Dalí: The Late Work*. Atlanta: High Museum of Art, 2010.

- This source tells of much of Dalí's thoughts and ideas for his paintings. His idea on perspective was different.

8. Dalí, Salvador. *Persistence of Memory*. 1931. Museum of Modern Art, New York, NY.

-This is the source of the image for Dalí's Persistence of Memory.

9. Dalí, Salvador. *Christ of St. John on the Cross*. 1951. Kelvingrove Art Gallery and Museum, Glasgow.

- Information on the painting, Christ of St. John on the Cross is given in this article. The perspective of Christ looking down is different from other depictions of the crucifixion.

10. Diego Rivera Biography." Diego Rivera Biography. Accessed November 27, 2016.

<http://www.diego-rivera-foundation.org/biography.html>.

- This source has information on the early life of Diego Rivera and his upbringing in Mexico. It also has information about his life with Frida Kahlo.

11. "Diego Rivera." Bio.com. Accessed November 27, 2016.

<http://www.biography.com/people/diego-rivera-9459446>.

-This source speaks of information about Diego Rivera's allegiance to the communist party. He was active in the Mexican Communist Party.

12. Frida Kahlo Biography." Frida Kahlo Biography. Accessed November 27, 2016.

<http://www.frida-kahlo-foundation.org/biography.html>.

-This source gives information on Frida's upbringing in Mexico. She had five sisters. Two were half siblings who grew up in a convent.

13."Frida Kahlo Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-kahlo-frida.htm>.

-Frida and Diego had a very complex love story. Her art reflected the complex relationship she had with herself as well.

14. "Frida Kahlo - The Complete Works." Frida Kahlo - The Complete Works. Accessed November 27, 2016. <http://www.frida-kahlo-foundation.org/>.

-This source has the images for photos and artworks of Frida Kahlo.

15. Knight, Alan. "The Mexican Revolution." The Mexican Revolution | History Today.

Accessed November 27, 2016. <http://www.historytoday.com/alan-knight/mexican-revolution>.

-This source is about the Mexican Revolution that started in 1910. It gives information on the tensions between the two parties in Mexico and how it affected the people of Mexico.

16. McCully, Marilyn. *A Picasso Anthology: Documents, Criticism, Reminiscences*. Princeton, NJ: Princeton University Press, 1982.

-This source has information on the life and art of Picasso. Images are from this source as well.

17. PBS. 2005. Accessed November 27, 2016.

<http://www.pbs.org/weta/fridakahlo/life/people.html>.

-This article spoke of Frida Kahlo's accident as a young woman and how it left her unable to carry a child. She painted about this subject frequently.

18. "Piedmont Open Middle in Charlotte, North Carolina." Piedmont Ib. Middle in Charlotte, NC | StartClass. 2016. Accessed November 21, 2016. <http://public-schools.startclass.com/1/66873/Piedmont-Open-Middle>.

-This source gives demographic information on students. It also gives background information as the school itself.

19. Picasso, Pablo. *Three Musicians*. 1921. Museum of Modern Art, New York, NY.

-This source is for the image of the painting *Three Musicians* by Pablo Picasso.

20. "Salvador Dalí." Bio.com. Accessed November 27, 2016.

<http://www.biography.com/people/salvador-dal-40389>.

-Dalí was married to his wife for nearly 50 years. When she passed, he became a recluse.

21. "Salvador Dalí Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-Dalí-salvador.htm>.

-This source gives information on Dalí's older brother. His parents told him at a young age that he was the reincarnation of his older brother who died as a toddler.

22. "Spanish Civil War." Spanish Fiestas. 2015. Accessed November 27, 2016.

<http://www.spanish-fiestas.com/history/civil-war/>.

-This source gives information on the Spanish Civil War. Franco dictated Spain until his death. This is when Spain was able to be a more industrialized country.

Footnotes

i "Piedmont Open Middle in Charlotte, North Carolina." Piedmont Ib. Middle in Charlotte, NC | StartClass. 2016. Accessed November 21, 2016. <http://public-schools.startclass.com/l/66873/Piedmont-Open-Middle>.

ii "Spanish Civil War." Spanish Fiestas. 2015. Accessed November 27, 2016. <http://www.spanish-fiestas.com/history/civil-war/>.

iii Chasteen, John Charles. *Born in Blood and Fire: A Concise History of Latin America*. New York: Norton, 2001.

iv Picasso, Pablo. *Three Musicians*. 1921. Museum of Modern Art, New York, NY.

v McCully, Marilyn. *A Picasso Anthology: Documents, Criticism, Reminiscences*. Princeton, NJ: Princeton University Press, 1982.

vi Brown, Jonathan. *Picasso and the Spanish Tradition*. New Haven: Yale University Press, 1996.

vii McCully, Marilyn. *A Picasso Anthology: Documents, Criticism, Reminiscences*. Princeton, NJ: Princeton University Press, 1982.

viii Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/pablo-picasso-9440021>.

ix Dalí, Salvador. *Autorretrato Cubista*. 1923. Museo Nacional Centro De Arte Reina Sofia, Spain.

x Dalí, Salvador. *Persistence of Memory*. 1931. Museum of Modern Art, New York, NY.

xi "Salvador Dalí ." Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/salvador-dal-40389>.

xii "Salvador Dalí Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-Dalí-salvador.htm>.

xiii Dalí, Salvador, Elliott H. King, David A. Brennan, William Jeffett, Montserrat Aguer, and Charles Hine. *Salvador Dalí: The Late Work*. Atlanta: High Museum of Art, 2010.

^{xiv} Dalí, Salvador. *Christ of St. John on the Cross*. 1951. Kelvingrove Art Gallery and Museum, Glasgow.

^{xv} Knight, Alan. "The Mexican Revolution." The Mexican Revolution | History Today. Accessed November 27, 2016. <http://www.historytoday.com/alan-knight/mexican-revolution>.

^{xvi} "Diego Rivera Biography." Diego Rivera Biography. Accessed November 27, 2016. <http://www.diego-rivera-foundation.org/biography.html>.

^{xvii} "Diego Rivera." Bio.com. Accessed November 27, 2016. <http://www.biography.com/people/diego-rivera-9459446>.

^{xviii} PBS. 2005. Accessed November 27, 2016. <http://www.pbs.org/weta/fridakahlo/life/people.html>.

^{xix} "Frida Kahlo Biography." Frida Kahlo Biography. Accessed November 27, 2016. <http://www.frida-kahlo-foundation.org/biography.html>.

^{xx} "Frida Kahlo Biography, Art, and Analysis of Works." The Art Story. Accessed November 27, 2016. <http://www.theartstory.org/artist-kahlo-frida.htm>.

^{xxi} "Frida Kahlo - The Complete Works." Frida Kahlo - The Complete Works. Accessed November 27, 2016. <http://www.frida-kahlo-foundation.org/>.