

Art Integration: Creating Calder

Julie Marsteller

The Arts in STEM: Advancing Meaningful Integration

Abstract

Through the creation of a Calderesque mobile students will be learning through a variety of disciplines. They will learn about balance, gravity, mass and center of gravity emphasizing Science and Math. They will engineer through manipulation of materials how to make a fluid moving object additionally they will use technology to express their views of their creation. The use of multiple subject matters will help students to realize the connections and relationships in their daily lives.

“underlying sense of form in my work has been the system of the Universe”, the “idea of detached bodies floating in space, of different sizes and densities”.

<http://blogs.nature.com/aviewfromthebridge/>

This quote from Alexander Calder referring to his art as representative of the “systems of the Universe” translates his fascination with the world and the science that underlies it.

It is my great fortune to have been able to initiate a STEM class at my school. With my principal’s and science dept head’s approval they have allowed me to incorporate the A(art) to make the class STEAM (science, technology, engineering, art and mathematics) to the best of my skills. One of the activities I have experimented with is the Art and Science of Alexander Calder.

“As an art education model, STEAM supports students to make connections between subjects, using 21st century tools and problem-solving methods to cross disciplinary boundaries, allowing students to creatively see the world in new, open-ended and personal ways.” (Bequette and Bequette 2012) from the Tech-Savy Girls article. This statement clearly emphasizes the goal of STEAM education and my hope that through using art I can help my students see some relationships in their world.

Calder became famous using wire, wood and steel to create structures reflective of his interpretations of the world around him. Up till this time most of the well know art was created with traditional mediums such as paint, canvas and sculpture.

The Tate gallery defines MOBILE as, “A mobile is a type of sculpture that is formed of delicate components which are suspended in the air and move in response to air currents or motor power.”

Calder’s mobiles express the science of balance and gravity the mathematics and engineering of physics through density and motion. As a science teacher these aspects of his art are apparent but, to an 8th grade student his mobiles are “cool”. Engaging 8th graders (mostly boys) in art is not an easy task. They, boys, are in constant motion and curious. Most of them have been exposed to traditional elementary school art classes and are resistant to it. My goal with this activity was to help them uncover how science and other disciplines and art are related in a medium that is not traditional. As stated in my Art Biography I have always had an appreciation of art from a young age. This interest and love has developed in myself as an individual who is open to ideas and willing to take the time to learn new skills. This is how I came to expose my students to Creating Calder.

As stated from Partnership for 21st Century Skills (2007), “The skills emphasized for 21st-century learning include critical thinking and problem solving; collaboration and communication; and creativity and innovation. This activity will include all these characteristics in addition to the skills needed to create the physical art work, this is why I have chosen this format for my STEAM class.

As there is no specific curriculum for Maryland STEAM classes, I want to create activities that are standard based, yet not repetitive of regular classroom activities. By working backwards, showing students the outcome of the activities to come, they become engaged easily and can see other subject matters that are involved in the

creation of their art. By integrating art standards into the standards of STEM students can appreciate the connections that these subject matters have in common. In the, Reconciling the Divide article (p. 3) there is a chart expressing the similarities in art and science, data collection=noticing=observation, by using visuals organizers showing related language students begin to see the connections in the various disciplines. The art integration, design and creation of a Calderesque sculpture has a twofold benefit for this class, meeting Common Core Standards in Science, Math, Engineering, Tech and and exposing students to methods of creating their own meaningful art.

The creation of the mobile will be the cornerstone of this activity, as stated in the Scavenger Hunt. Students will be learning about a variety of science content: gravity, balance and science process. As well this activity will enable students to engage the process of engineering the actual mobile to hang properly with regards to balance and center of gravity (mass). Students will create elements that signify a theme or message representative of something important to them. Finally, students will be generating a digital story, as described in The Educational Uses of Digital Storytelling (Robin) article.

Last school year I initiated this activity with students. As always, I ask for feedback on activities, I was pleasantly surprised, students were proud of their work and wanted it displayed throughout the building. One stated, "I loved using the tools". Another remarked that they liked that they could make the theme whatever they wanted. I am excited to extend and solidify this activity through this class. As always, assessing art activities is difficult but by working through the rubric during this class along with standards from other disciplines I know this activity will be well received.

” With the recent emphasis on all students mastering the Common Core standards and natural connections of these standards with art integration and UDL, educational leaders in the US should see this as a perfect time to implement art integration (as a targeted effort to close the achievement gap)” (Robinson. 2013. P.193)

References

Fulton, L and Simpson-Steele, J. Reconciling the Divide: Common Processes in Science and Arts Education. The STEAM Journal. Vol. 2 (Issue 2).

Liao, Christine, Motter, Jennifer, and Patton, Ryan M. Tech-Savvy Girls: Learning 21st Century Skills Through STEAM Digital Artmaking (2016)

Robin, B.R. The Educational Uses of Digital Storytelling.

Robinson, A.H. Arts Integration and the Success of Disadvantaged Students: A Research Evaluation. (2013)