

NDCA Arts in Education Newsletter

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Teachers in Grand Forks used the Teacher Incentive Grant to bus students to the ND Museum of Art and to participate in an arts integrated lesson presented by Teaching Artist Wendy Klug.



Teachers in Bismarck used the Teacher Incentive Grant to create an interdisciplinary lesson on ND Wildlife that included an animal sculpture lesson with teaching artist Ali LaRock.



Teacher Incentive Grant Goes Year-Round!

GRANT DEADLINE REVISED TO MEET THE NEEDS OF SCHOOLS AND TEACHERS

The Teacher Incentive Grant Program is a means of providing financial assistance to teachers who wish to explore new and creative ways of integrating the arts in their classroom. Projects are **teacher driven** and may involve the visual arts, literary arts, performing arts (drama, music, dance,) architecture, design, folk arts, or any combination of artistic disciplines. Maximum grant amount is \$300.

Beginning July 1, 2014, NDCA will support creative and innovative teachers by changing the due date for the Teacher Incentive Grant from April 1 and November 1 to an on-going, year-round format.

Application Details:

- Applications will be accepted throughout the year, but must be submitted no later than four (4) weeks prior to the project start date.
- Teachers may only receive (2) Teacher Incentive Grants per fiscal year (July 1 – June 30 of the following year.) The first Teacher Incentive grant project and final report must be completed before submitting a second Teacher Incentive grant.
- If you would like to have your application reviewed for feedback, a Draft Review must be submitted at least 6 weeks prior to project start date.
- Early submission is recommended since grant funds are limited and awards are made on a first-come, first-served basis.
- Teacher Incentive grants for a particular fiscal year (July 1 to June 30) may not be submitted after May 31 of that year.
- Allow up to four weeks for processing of application.

How to Apply:

1. Think about your classroom curriculum, the needs of your students, and connections between or among the arts and other disciplines.
2. [Read the Teacher Incentive Guidelines.](#)
3. Review the [Teacher Incentive Grant Example Narrative and Budget.](#)
4. Review the [Application Directions.](#)
5. [Apply online.](#)
6. Need help? NDCA staff will be happy to assist you. Call (701)328-7593 or email rengelman@nd.gov

*We'd love to know more about how your school supports the arts!
What does your school's art program look like? What challenges and successes have you experienced?*
Email: rengelman@nd.gov

STEM THE ARTS AND HUMANITIES

Rebecca Engelman, Arts in Education Director, North Dakota Council on the Arts

As the Arts in Education Director for the North Dakota Council on the Arts, a member of the North Dakota STEM Education Network, and a participant in the first North Dakota STEM Summit, I appreciate the opportunity to be a part of the exciting conversation currently taking place between industry and education in North Dakota.

As our state takes on the role as a national and international energy leader, developing a diverse economy and workforce is paramount to creating jobs, sustaining growth and enriching lives beyond the oil fields. Scientists and recent research indicate that relying on STEM Education alone will not accomplish this task. Rather a transdisciplinary, integrated approach that includes STEM and the Arts and Humanities will be needed to meet the future needs of our students, our communities, and the world at large.

Many tend to draw a line that divides STEM Education from the Arts and Humanities, but when it comes to education, and more importantly to our students, this division serves no one well. Once inextricably linked – the research clearly recognizes that the Arts, Humanities, and Sciences are better together than apart. They are all tools or strategies from which to explore our world, shaping our understanding of what it means to be human. When combined, they create a powerfully effective force for driving the economy, and for developing creativity and innovation.

The Arts and Humanities have four main roles in STEM Education and for ultimately producing a more creative, innovative, and scientifically literate public:

- The Arts and Humanities are a way for people, especially reluctant and non-linear learners, to enter into the sciences. Because of their intrinsic nature, the Arts and Humanities can be a highly motivating factor for drawing in students, from Pre-K to the University level, and demonstrating how STEM applies to real-life interests.
- The Arts and Humanities are a way to communicate the Sciences. They teach people how to talk and write about their work, how to have a dialogue, how to sell a product, or share an idea: all important elements within the workforce.
- The Arts and Humanities provide opportunities for transmediation to occur – that is – translation from one symbol system to another – a powerful tool, or strategy for developing understanding and literacy.
- The Arts and Humanities develop skills that many scientists, mathematicians, and engineers know are vital to success. Skills that are borrowed from the arts as scientific skills. These include the ability to:
 - Draw on curiosity
 - Observe accurately
 - Perceive an object in a different form
 - Construct meaning and express one's observations accurately
 - Work effectively with others
 - Think spatially (how does an object appear when I rotate it in my head?)
 - Perceive kinesthetically (How does it move?)

Currently, several school districts across the state of North Dakota have, or are planning on decreasing or eliminating arts programming for their students, especially at the elementary level. There are several reasons for this decrease, including; limited funding, a shift in priorities, focus on testing, lack of time within the school day, lack of instructors, and/or limited administrative and local support. This too, serves no one well. With our healthy economy, North Dakota is in a unique and unprecedented position to explore ways of providing all students, regardless of their location and financial resources, to a full and complete education.

As we continue the discussion of industry and education across the state of North Dakota, it may be helpful to clarify what it is exactly we hope to achieve. If our goal is to prepare young people to be innovative scientists, technologists, engineers, and mathematicians, who not only fill jobs but also create jobs, who are culturally aware, communicate effectively, and contribute to the vitality and quality of life in their communities, then we need to think broad. Our educational system needs to reflect this goal by providing support, financial resources, and expertise to teachers and schools for transdisciplinary, integrated learning that includes not only STEM but also the Arts and Humanities.

We'd love to know more about how your school supports the arts!

What does your school's art program look like? What challenges and successes have you experienced?

Email: rengelman@nd.gov

NCA Provides Support for STE[A]M Teaching and Learning



Turning STEM into STE[A]M with Music

By: Sara Hagen, Ph.D. (sara_hagen@vcsu.edu); Amelia Brown (amelia.m.brown@vcsu.edu); Ben Clifton (benjamin.clifton@vcsu.edu); David DeMuth, Jr., Ph.D. (david.demuth@vcsu.edu)



Introduction

High school students at Oak Grove Lutheran School in Fargo, ND will understand principles of music theory and how they relate to performance. They will use science and math principles to relate directly to tuning and frequencies of pitch, touching on ND State Music Standards 12.1.1 Sing with expression and technical accuracy, 12.8.2 Understand the ways in which the principles and concepts of various disciplines outside the arts are related to those of music, and Physics Standard HS-PS4-1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

Project Activities

Undergraduate Music major Amelia Brown and Computer Information Systems major / Music Production minor Ben Clifton earned Artist in Residency (AIR) status through the North Dakota Council on the Arts, as did Aaron Zinter, Oak Grove Lutheran Music instructor. Under the mentorship of Dr. Sara Hagen, the three worked together on a four lesson series that includes learner outcomes:

- Discovery of digital audio and MIDI
- Relate wave forms and frequency to tuning
- Use microphones, experiment with recording software
- Operate Makey Makey invention tool
- Design input/output of digital signals and circuits
- Control of devices and sound effects, create and perform an original work



The culminating experience will be to be in a professional recording studio in Makoche' Recording Studio in Bismarck (owner, Mike Glatt),



Based on the instruction by Amelia and Ben, Oak Grove Lutheran Madrigal Singers experimented with microphone placement and room acoustics.

MaKey MaKey is an invention kit turn everyday objects into touchpads and combine them with the internet.



It's a simple Invention Kit for Beginners and Experts doing art, engineering, and everything in between." (<http://www.makeymakey.com>)

The MaKey MaKey invention kit, which allows anything that conducts electricity to become a music-making device.



Watch this YouTube Video demonstrating the "Makey Makey" <http://youtu.be/rfQqh7ICcOU>



Dr. Sara Hagen, Amelia, and Ben present at NAMM.



NAMM Conference attendees (from l-r): Dr. Sara Hagen, Amelia Brown, Ben Clifton, and Dr. Christopher Redfean

Schedule:

Tuesday, March 18:

- 11:25-11:55 Ben and Mimi teach about recording techniques using either Garage Band or Audacity
- 11:55-12:40 Ben and Mimi work with core group on practicing recording techniques (lunch provided)

Thursday, April 10:

- 11:25-11:55 Dr. DeMuth teaches about the physics of sound
- 11:55-12:40 Ben and Mimi talk about project with core group. Then core group records many sounds with their end product in mind.

Thursday, April 24:

- 11:25-12:15 Ben and Mimi work with core group to narrow sounds down to twelve and begin composing

*Students will need to set aside time to work together on composition in between these two meetings so that the last meeting is mainly refining and practice. I won't speak for both of us, but I am willing to come help them whenever I can, and I'm sure Ben feels the same way.

Thursday, May 8:

- 11:25-12:15 Ben and Mimi work with core group to finish and practice composition

This project, part of Valley City State University's (VCSU) Undergraduate Research and Artistry program and features a collaboration between VCSU's Department of Music and the Great Plains STEM Education Center.



Learn more about VCSU STEM+Arts projects at: <http://stem.vcsu.edu/blog/steam/>

VALLEY CITY
STATE UNIVERSITY

Student Reflections:

"Learning about the science behind what goes into the production of sound was eye-opening and taught us that there is always room to grow and create better music by adding STEM to the arts. I realized that while talent is important, you can do even more when you study the science, technology, engineering, and math that parallels the importance of talent. By better understanding these components, one can affect the pitch, tone quality, and recording quality of a piece of music and enhance the experience for both the musician and the listener."

"I don't pretend to be an expert on science, or music either, for that matter. This experience, however, was very interesting nonetheless. I think people often put science and art on two different ends of the educational spectrum when really the two are incredibly intertwined. It was very cool to see more evidence of that within the "Makey Makey" and this whole experience in general. It was interesting to work with experts on the subject - people who have thoroughly investigated the correlation between science and music and obviously thought about it at length. The passion of other people inspires me, and I could see the passion bleeding through these people into the work they are doing. I am thankful for the opportunity to work with such knowledgeable and talented people who see so much potential in youth"

"The ND Council on the Arts provided a great way to start learning about the integration of STEM and Arts. When I came into this project, I focused on just the arts part. Through the experience, however, I saw how well STEM and Arts work together. In my continued education, I hope to strengthen my relationship with STEM in creating theatre that integrates technology."

[Follow Oak Grove students as they explore the connections between Music and STEM.](#)

[Demonstrating STEM+Arts: MaKey MaKey Performance @VCSU](#)