Hands On/Minds On

21st Century Skill Development through Art and Science

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WASHINGTON PAVILION

Hands-On/Minds-On:

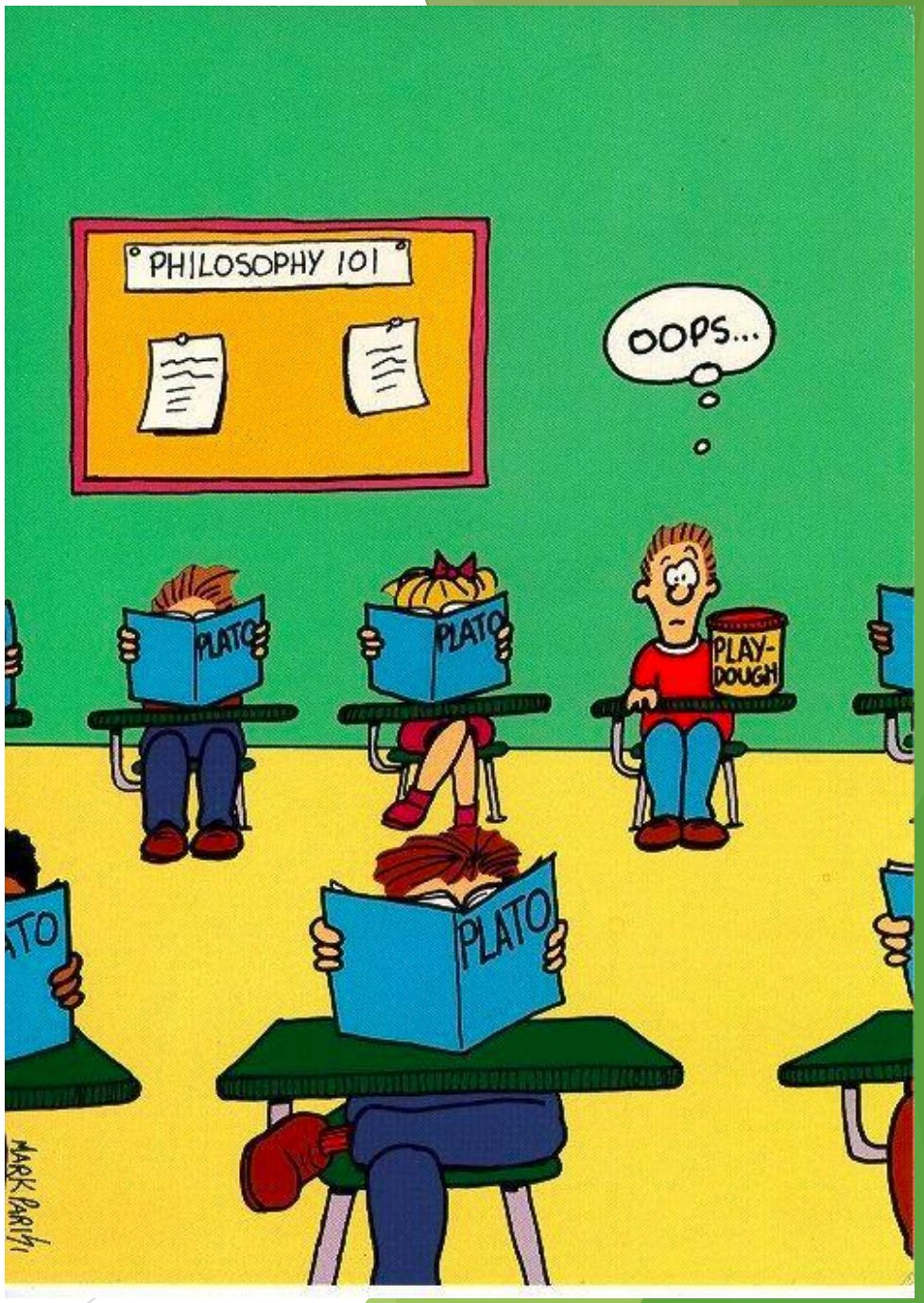
- 21st Century Skills and STEAM
- Art and Science Engagement
- Community Partnerships
- Resources and Ideas

Why? 21st Century Skills

"What's that?!"

21st Century Skills

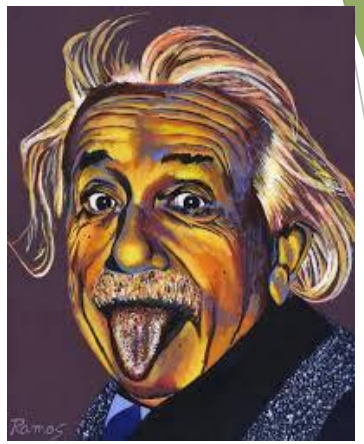
- Collaboration, Creativity, Communication, and Critical Thinking
  - 21st Century Skills are the set of skills students need to succeed in learning, work and life in this century
  - This Isn't New. But skill development is not equitable for our kids.
  - Promoted by Arts, Hands-On Science, and Project Based Learning
    - Bonus: Confidence!



"I expect you all to be independent, innovative, critical thinkers who will do exactly as I say!"

- Learning is about being fearless. Its about putting yourself out there and having an experience.
- Experts say 21st century learning must take place in contexts that "promote interaction and a sense of community that enable formal and informal learning."

STEM versus FULL STEAM AHEAD ?



"The greatest scientists are artists as well "—Albert Einstein

- "Art and science. To those who practice neither, they seem like polar opposites, one data-driven, the other driven by emotion. One dominated by technical introverts, the other by expressive eccentrics. For those of us involved in either field today (and many of us have a hand in both), we know that the similarities between how artists and scientists work far outweigh their stereotypical differences. Both are dedicated to asking the big questions placed before us: "What is true? Why does it matter? How can we move society forward?" Both search deeply, and often wanderingly, for these answers. We know that the scientist's laboratory and the artist's studio are two of the last places reserved for open-ended inquiry, for failure to be a welcome part of the process, for learning to occur by a continuous feedback loop between thinking and doing." –John Maeda

It’s a piece of cake!

Your Task:

Work with a Partner- Imagine and draw your classroom curriculum and activities as a piece of cake.

Some things to Consider:

- Where do the following ingredients fit in: Math, Reading, Writing, Science, Art, Music, Phys Ed, Social Science/History?
- What’s the name of your cake?
- Is it multi-layered? How thick are the layers?
- What decorations are on it?
- Where did you find the recipe?
- Who prepared the cake?
- Who is eating the cake? Do they like it?

If you were creating a new recipe…what would it look like?

Arts Engagement = Big Benefits for Students

- **Did You Know?**
  Young people who participate in the arts for at least three hours on three days each week through at least one full year are:
  - 4 times more likely to be recognized for academic achievement
  - 3 times more likely to be elected to class office within their schools
  - 4 times more likely to participate in a math and science fair
  - 3 times more likely to win an award for school attendance
  - 4 times more likely to win an award for writing an essay or poem
- Young artists, as compared with their peers, are likely to:
  - Attend music, art, and dance classes nearly three times as frequently
  - Participate in youth groups nearly four times as frequently
  - Read for pleasure nearly twice as often
  - Perform community service more than four times as often

Arts for All

- It levels the academic playing field/improves test scores in all content areas
  - Mississippi elementary schools that effectively implement arts integration were found to have reduced or actually eliminated the academic achievement gap for economically disadvantaged students. In WSI schools that effectively implement arts integration, a higher percentage of economically disadvantaged students score "Proficient or Above" when compared to all students (not just economically disadvantaged students) at the district and state level, across multiple grade levels, and across multiple subject areas on standardized tests.
- Improves drop out rates
- Discipline and behavior improvements
- Research Resources:
  - http://artsaskformore.artsusa.org/
  - http://www.mswholeschools.org/

Turn Around Arts (http://turnaroundarts.pcah.gov/)

Challenge: Think about a project that was meaningful or memorable for you as a student when you went to elementary or middle school.

"Tell me and I will forget.

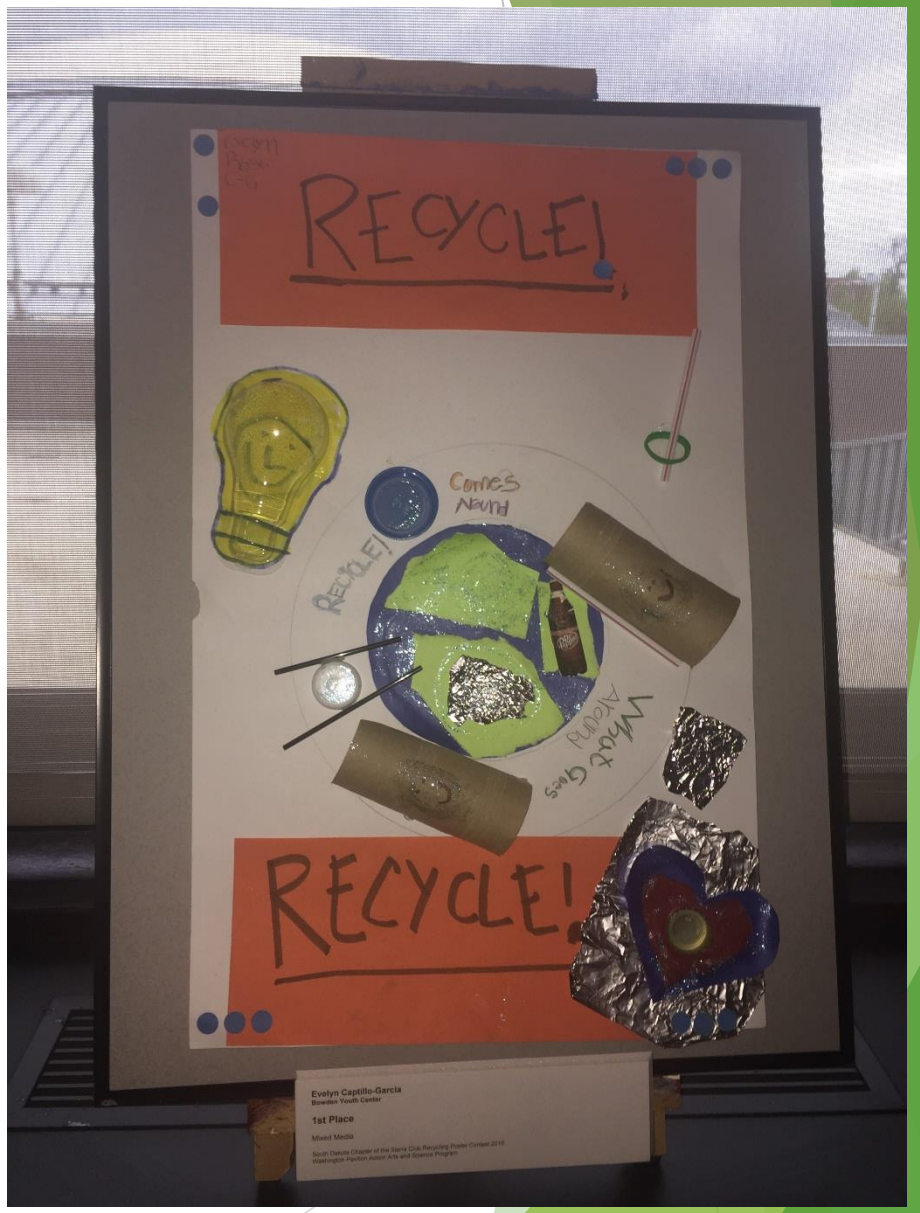
Show me and I will remember.

Involve me and I will understand."

-- Chinese Proverb

Getting Started with Integration

- Hands-on…bless this mess.
- Tap you staff talents
- Be Brave and Bold
  - You Can Do This!
- Use Existing Themes/Units to Center Your Work
- Use Exploration Stations for Hands-On Science
- Use Arts to Demonstrate Understanding



Integration Tips

- Give your students the freedom to fail
  - Create a safe space
  - Don’t give students the answers!
  - Persistence is a part of the problem-solving process
- Document and Display and Share
  - http://www.artsonia.com/
  - Incorporate STEAM Work into Family Nights

Another Bonus:

- For ELL students and students with disabilities, arts can and do equal new pathways to success!!
  - VSA—Resources on Arts for People with Disabilities. Regular webinars for educators: http://education.kennedy-center.org/education/vsa/

Community Partnerships

- Enhance and Supplement Your Classroom Work
  - How can community resources connect to your classroom?
- It Takes Time and Clear Communication
- Looks for Complimentary Missions
- Start Small
- Engage your Parents
- Consider Wider Community Initiatives
- Ask your kids…What are your students interested in?
  - Rootsandshoots.org (Educator Resource for Developing Student-Led Community Service Projects)

South Dakota Resources

- SD Arts Council Touring Artist Residencies
- Sanford PROMISE program or Sanford Underground Research Facility
- Groundworks SD
- SD Discovery Center
- Black Hills Playhouse/Dakota Players
- Washington Pavilion
- First Lego League/EmBe
- Dakota Prairie Museum
- Dahl Arts Center
- Who is in your community?
  - Restaurants? Museums or Libraries? Hospitals or Clinics? Elders? Ag businesses? Auto Repair Shops? Local crafters? State or National parks?

Ideas/Sparks

- Visual Thinking Strategies
- TASK parties
- Maker Spaces
  - Libraries or other community spaces
  - Spaces with tools for creation
    - Little Bits, Green Screens, Snap Circuits, Coding Software
  - Challenges to start the play/process
- Pavilion School Partnerships
  - Lowell
  - Harrisburg Middle School

STEAM Lesson Planning Resources

- www.SteveSpanglerScience.com is great for science experiments and professional development.
- NASA has some great resources—sometimes the full website can be overwhelming. A lesson planning source that helps to break down the information by timeframe/age group/subject is http://nasawavelength.org/
  - Crafted by teachers for teachers—helps to sift through their wealth of info.
- Blick Art is where we order many of our art supplies, but they also have a rich lesson plan database. www.dickblick.com--click on for educators
- www.incredibleart.org is also a favorite of our visual arts center teachers with some overarching concepts but then lots of activity ideas and lesson plans for different age groups.
- www.kinderart.com is another favorite for visual arts activities which separates plans by age group or topic area/theme.
- For performing and visual arts and interdisciplinary lesson plans, I would also recommend the Kennedy Center—www.artsedge.kennedy-center.org. There are some fun, interdisciplinary ideas here.

Your Turn

Brainstorm with your neighbor:

- What's one take-away this morning for you?
- What is one idea you have for hands-on art or science integration that you have for the coming year?
- What is a community resource that you might tap to enhance and supplement your classroom learning?

Thank you! The Washington Pavilion Action Arts and Science Program