

What can we do about it ... ?

*Natural Resources*

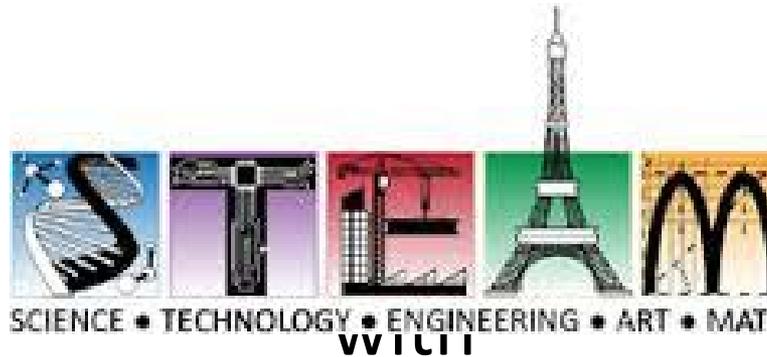
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*CONFLICT*

- What Comes to Mind...

SCIENCE  
TECHNOLOGY  
ENGINEERING  
MATH





# Science, Technology, Engineering and Math (STEM)

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**NRLI Class XIV Practicum Presentation**  
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# Background

## Why Does a School Become Trade Focused?

### Arts Objectives –

- Art is an appreciation, understanding, evaluation and enjoyment of the world around us. These art experiences are the building blocks for the creative influence of the child - seeing, hearing, feeling and thinking.

### STEM Objectives -

- Non-traditional model of education in which the classroom resembles a work environment and students contribute to solving problems in the community. STEM careers, experiences and skills drive the curriculum. Curriculum is integrated in authentic problem-based learning that is STEM career oriented and cross disciplinary.

**BUT...**

# STEM VS STEAM

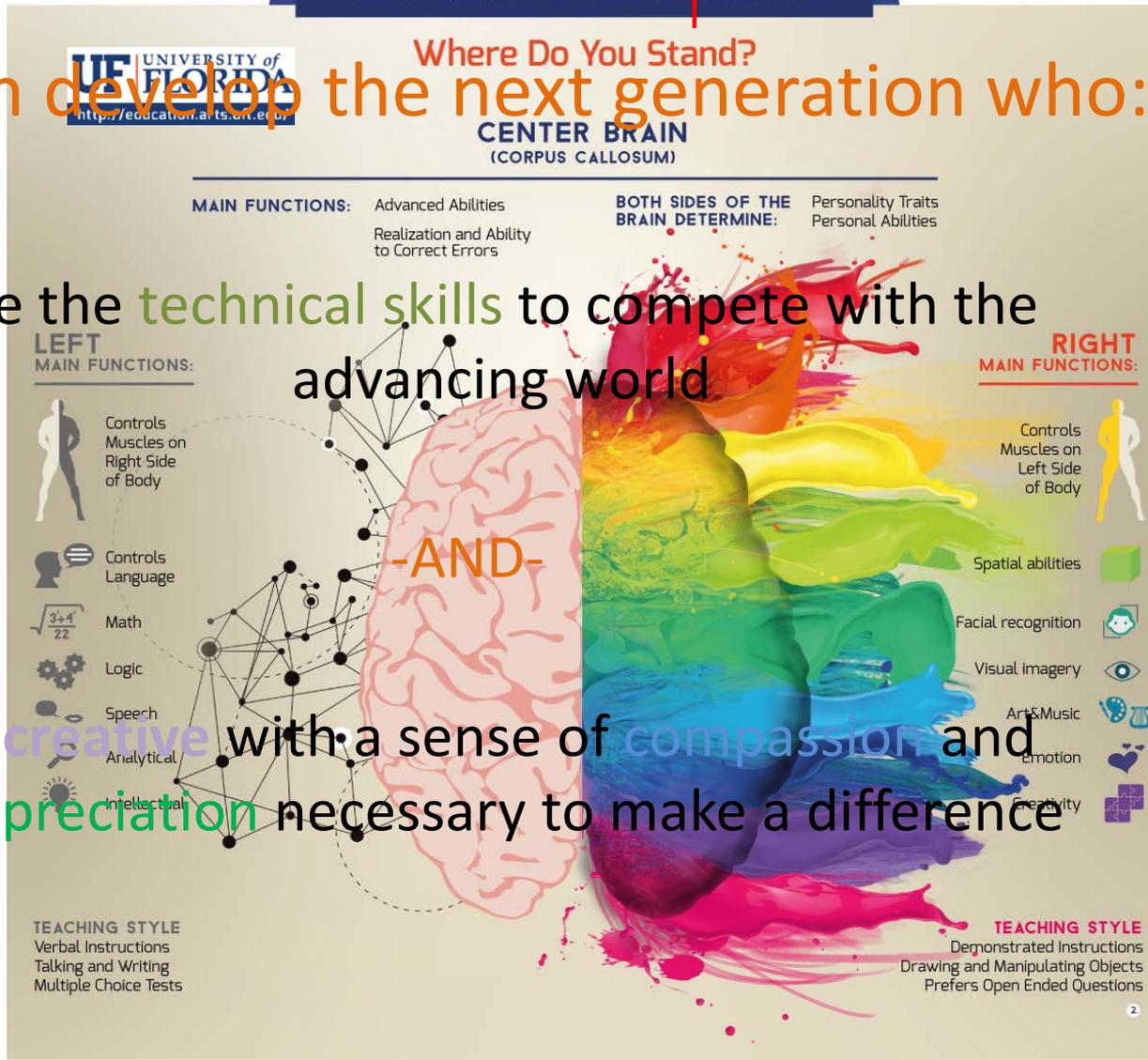
## Through STEAM

WHY HALF IS NOT ENOUGH

We can develop the next generation who:

Have the **technical skills** to compete with the **advancing world**

Are **creative** with a sense of **compassion** and **appreciation** necessary to make a difference



# Identifying Stakeholders/Positions/Interests

STAKEHOLDERS <i>(who)</i>	POSITIONS <i>(what)</i>	INTERESTS <i>(why)</i>	POWER <i>(how)</i>	LIKELIHOOD OF ENGAGEMENT <i>(when)</i>	HISTORY/OTHER?
Teachers	Want more control of what/how things are taught in the classroom.	Improve student performance;  Influencing children	Feel powerless	Very likely	Perception is that teacher input has been undervalued.
Parents	Want teachers to be more influential in the classroom to reduce homework.	Parents want more free time with their children without having a heavy burden of homework.  Parents want their children to be successful and to enjoy school.	Some level of power but ultimately influential with teachers in terms of curriculum.	Very likely	PTA involvement at this school is unusually high and successful at fund raising.
Principal	Want to improve school image and increase school funding.	They do not want to be so constrained by the school district. Often rules are imposed in a one size fits all manner.	Powerful to a point but will overly controlled by the school board.	Likely	Principal at this school has historically been very influential and supportive of creative approaches to education.
Receiving Teachers/Schools (Middle Schools)	Want students to enter school performing at grade level.	Having students enter at grade level gives the new teachers more time to begin new instruction rather than having to bring them back.	Influential for students in their classes by not for students before they have entered their school.	Not likely	Receiving schools have identified deficiencies in math and science competency from art magnet schools.
School Board	Want school grades to improve.	Improve public perception and improve cash-flow into school district.	High	Likely only at a high level once there is a vested public interest influencing their involvement.	
Local Development	Want to improve public perception of schools.	Want to improve economic development.	Minimal	Not likely	Developers tend to avoid developing in low performing school areas.

Situation Analysis



# CONFLICTS

Reluctance to  
Change Current  
Lesson Plans

Lack of Confidence in  
Teaching the Sciences

Different Teaching  
Philosophies



# ADDRESSING the CONFLICTS

## Short-term:

- No need to resolve the conflict
  - Develop an extended day/after school program with hands-on activities combining STEM and the Arts [STEAM]

## Long-term:

- Will continue to incorporate NRRI skills and use tools to further develop the curriculum in the classroom
- 5-Year Plan to ensure the afterschool program is successful



# TEACHER CHALLENGES

Getting other  
teachers onboard

Adding new  
programs/activities  
mid school year



# Spaghetti Marshmallow Tower

♪♪ The Spaghetti and Marshmallows are both so intense; Put 'em together and it just makes sense!! ♪♪  
...Rrr-raht da-daht dah-dah-dah dah-dah-dah dah dah doo ♪♪



**Food + Engineering = Fun Learning**

# NEXT STEPS

- School Survey
- Meetings
  - *May 2015: PTA (participatory, data collection from survey)*
  - *Jun 2015: Parent/Teacher (review survey data, listing ideas, begin development of after school program)*



# NRLI

## Concepts/Skills/Toolbox

Seek to  
Understand

Surveys

Framing

Identify Stakeholder  
Interests

Active Listening

(Situation Analysis)

Process Agenda

Triangle of  
Satisfaction

Building

Meetings

Relationships / Allies



# PRACTICUM CHALLENGES

Getting and Keeping People's Focus

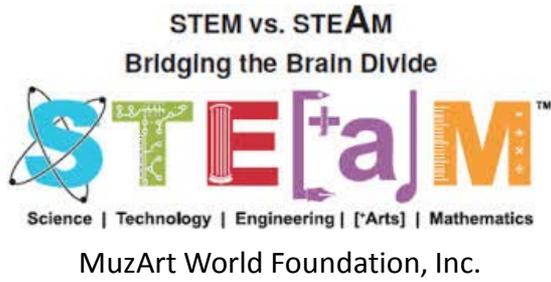


# LESSONS LEARNED

*Flexibility*

*Patience*





[www.wordpress.com](http://www.wordpress.com)



Artist Jason Hackenwerth's balloon sculpture at Edinburgh international science festival



DNA Sculpture – Striations by Stephen Walling  
<http://artpropelled.tumblr.com>



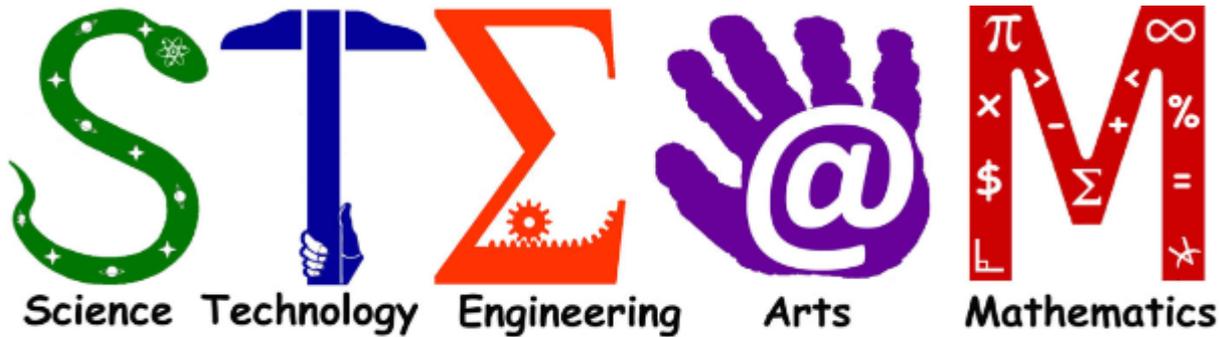
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STEM vs. STEAM

Bridging the Brain Divide



Science | Technology | Engineering | [Arts] | Mathematics