



**OHIO STEM EQUITY
PIPELINE WORKSHOP**

August 1, 2014, 12:30-3:00 p.m.
Columbus, Ohio
Ben Williams, Ph.D., Project Director

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NAPE
National Alliance for
Partnerships in Equity



Objectives for Today

- Review components of The Ohio STEM Equity Pipeline
- Hear about effective practices being implemented
- Learn about opportunities for professional development
- Network & share best practices



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Agenda

- Special Programs of Interest
 - GEMS & Medical Mania at Whitmer Career & Technology Center, Toledo
 - Micromessaging Collaborative Projects: Reynoldsburg School District & Eastland-Fairfield Career Center
 - Counselor Training (coming 2014-2015)

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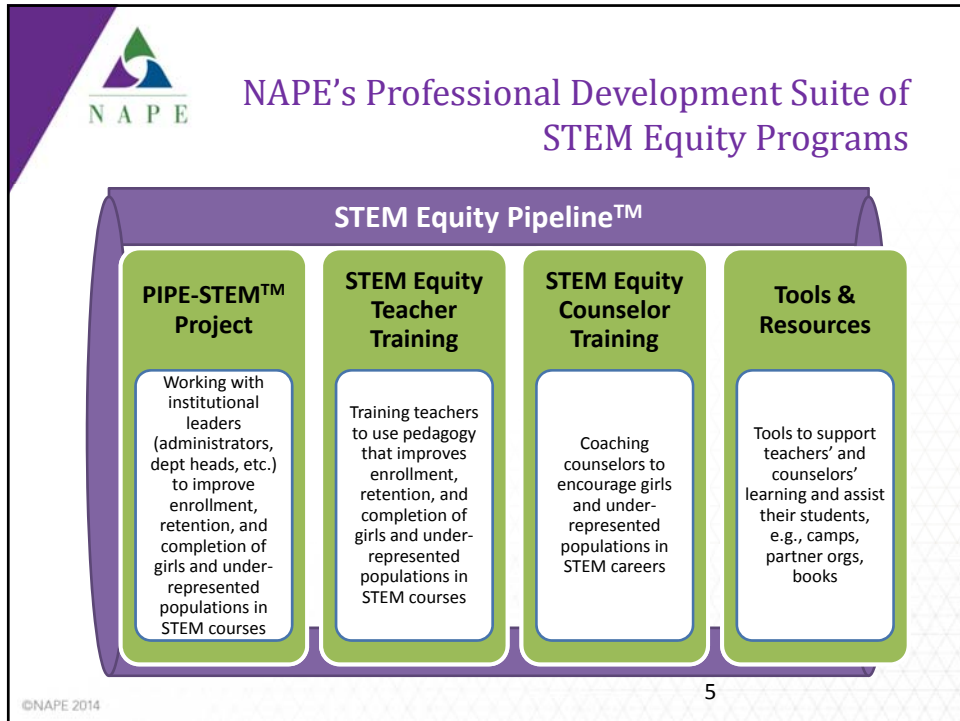
Who Is NAPE?

National Alliance for Partnerships in Equity

Professional Development	Research and Evaluation	Technical Support	Public Policy and Advocacy
Provide tools and curricula for educators through conferences, presentations, webinars, and formal training	Develop reports. Identify research-based promising practices. Provide input to others' research.	Develop tools and resources for LEAs. Provide consulting services. Offer expertise on access, equity, and diversity issues.	Work with federal agencies. Educate legislators on equity and diversity issues. Develop policy briefs. Alert membership policy issues.


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STEM Equity Pipeline™ Goals

- Build formal education capacity
 - high quality professional development
 - gender equity in STEM education
- Institutionalize implemented strategies
 - connect outcomes to existing accountability systems
- Broaden commitment –
 - gender equity in STEM education

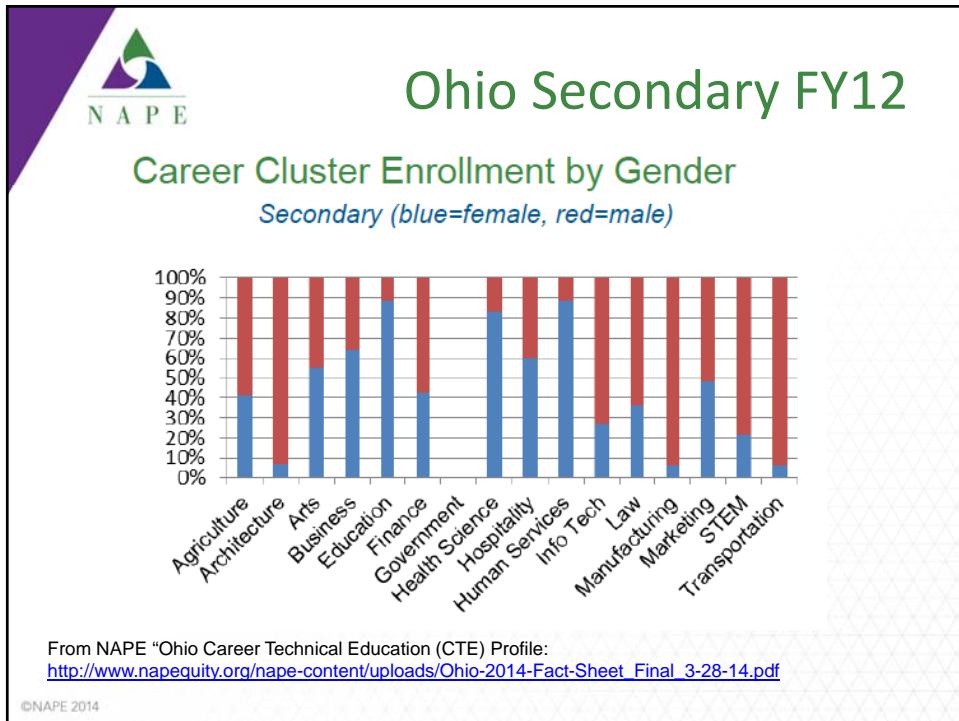
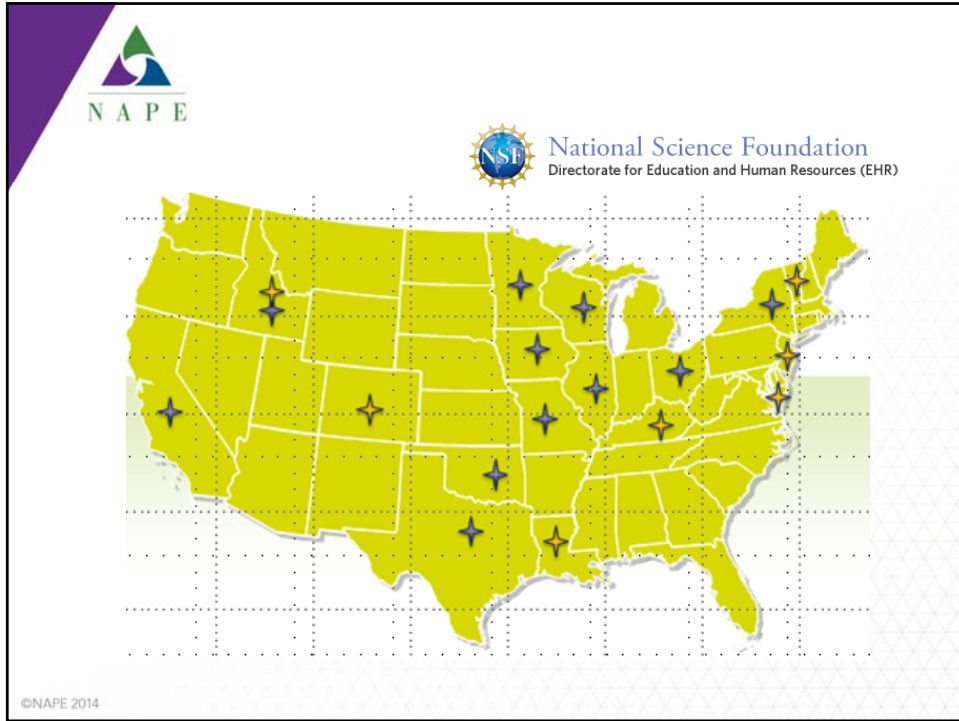


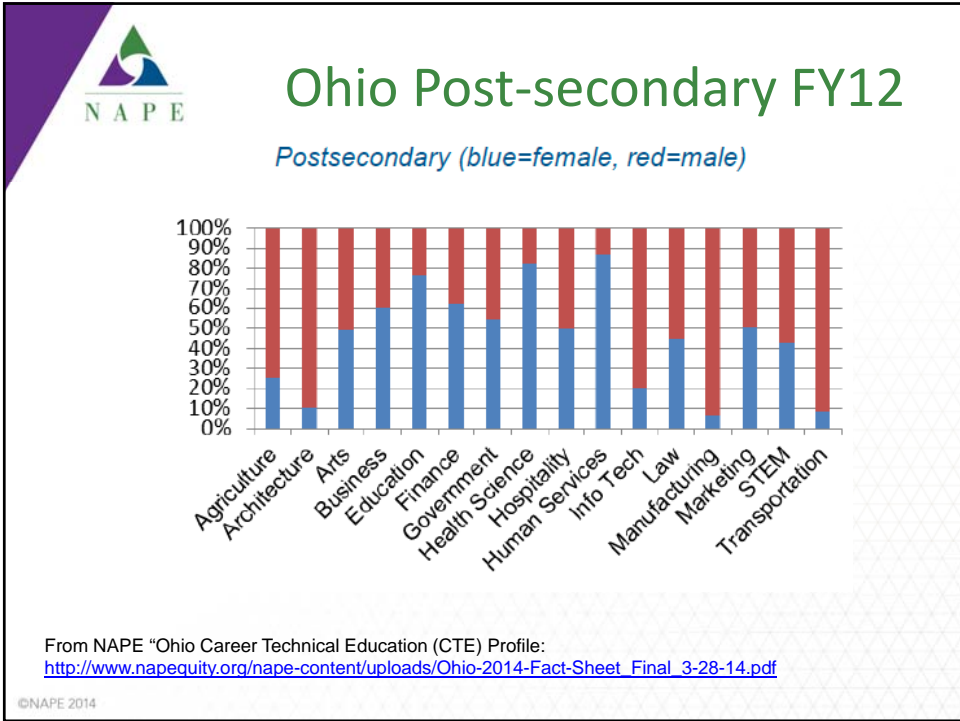
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What's been happening in Ohio

National Science Foundation (NSF)-funded

- FY11-FY12 Pilots (3)

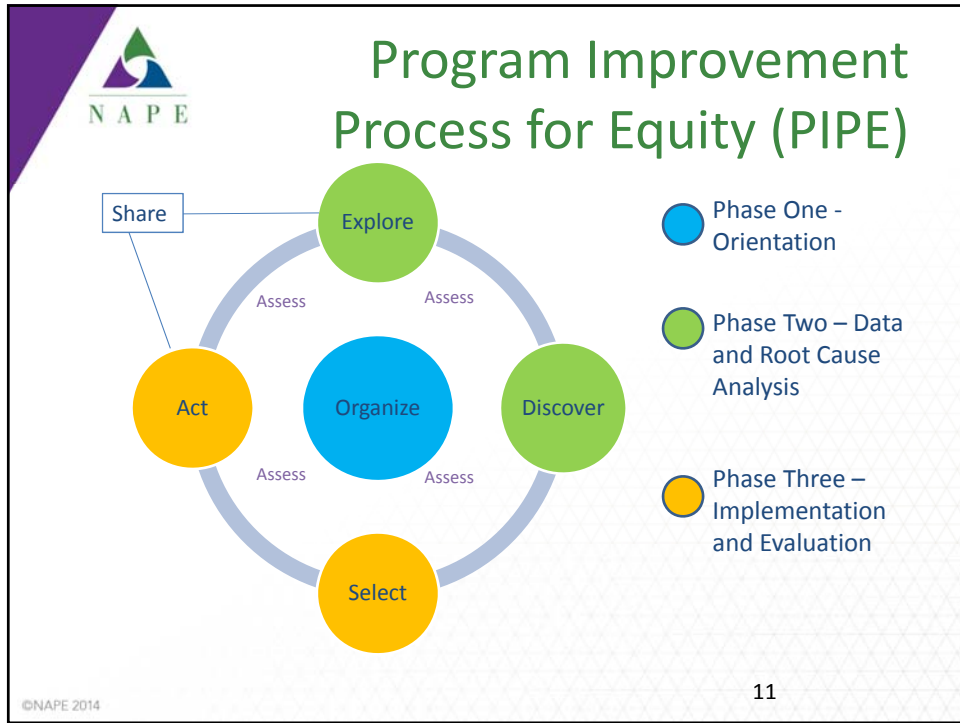
Ohio Department of Education Office of Career-Technical Education-funded


- FY12-FY13 PIPESTEM Projects (8)
- FY14-FY15 PIPESTEM Projects (6)
- Hybrid Micromessaging Program (FY13)
- FY14-FY15 Micromessaging Projects (2)
- Professional Development (2-3 annually)
- Technical Assistance
- FY14-FY15 Equity in STEM Grades 6-8

Individually contracted – Buckeye Career Center (FY13)

<http://www.stemequitypipeline.org/StateTeams/OH.aspx>

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**PROGRAMS TO INCREASE INTEREST
IN NONTRADITIONAL STEM
PATHWAYS:**

**GEMS
MEDICAL MANIA**

Jamie Squibb & Bernadette Terry

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gems
girls exploring math and science 

Whitmer Career and Technology Center

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Program Overview

- 2-year program in which the girls would perform hands-on math and science project
- Girls would be followed for 7th and 8th grade, so there is a consistent program and so that the program does not solely contain one meeting and then no follow through
- Activities would be performed during school day

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GEMS 7th Grade – Initial Camp

Camp:

- Camp Miakonda August 17-18, 2013
- One overnight trip for the 50 girls in both the fall and spring.
- STEM activities for fall overnight camp will include:
 - Giant Bubbles
 - Soda Geysers
 - Food Cars
 - Glow in the Dark Slime
 - Jewelry Making With UV Beads
 - Flashlights

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GEMS 7th Grade – Quarterly Visits

Staying Connected:

- Met with girls quarterly and performed a STEM activity.
- Met with groups of 12-15 quarterly.
- Quarter 1 – extracted DNA and made necklaces
- Quarter 2 – Made bubble gum
- Quarter 4 – Made slime

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GEMS 7th Grade – Spring Camp

Camp Miakonda May 24-25:

- Overnight
- STEM Activities performed
 - Solar Ovens
 - Cyanotype Photography
 - Periscopes
 - Car Races
 - Flower Dye

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GEMS 7th Grade – Summer Workshops

June 20 and July 25

- Constructed Hot Air Balloons and flew them

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GEMS 8th Grade

Staying Connected (Similar to 7th Grade):

- Girls will meet quarterly and discuss how classes are going and also to have question and answer sessions with math and science teachers at the high school to start to prepare them for their freshman year.
- Meet with groups of 12-15 quarterly.
- This will be 1 meetings per quarter with students and then we would keep a blog/facebook/twitter to keep active in between meetings.

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GEMS 8th Grade

Camp:

- During January of the 8th grade year, the 50 girls will attend Camp Miakonda for one last time (before scheduling).
- This would be an opportunity to talk in depth with girls about what their interests would be for high school and what classes they could take that could steer them in the right direction. I could help girls with developing an educational plan that they could work through during high school that will help them in the direction they would like to go in for college.

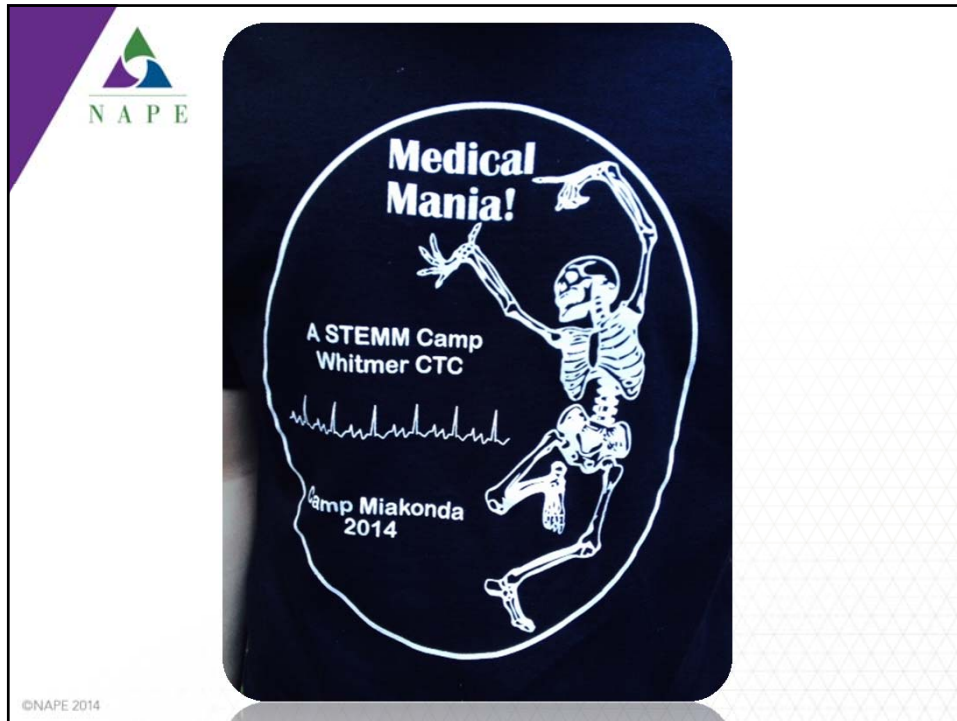
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Results to Date/Problems Encountered

- New 7th graders camp scheduled for August 23 – will not be overnight
- Drop-off in attendance
- Communication has been poor with parents and students
- 30 minutes a quarter is not enough time

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Body Systems



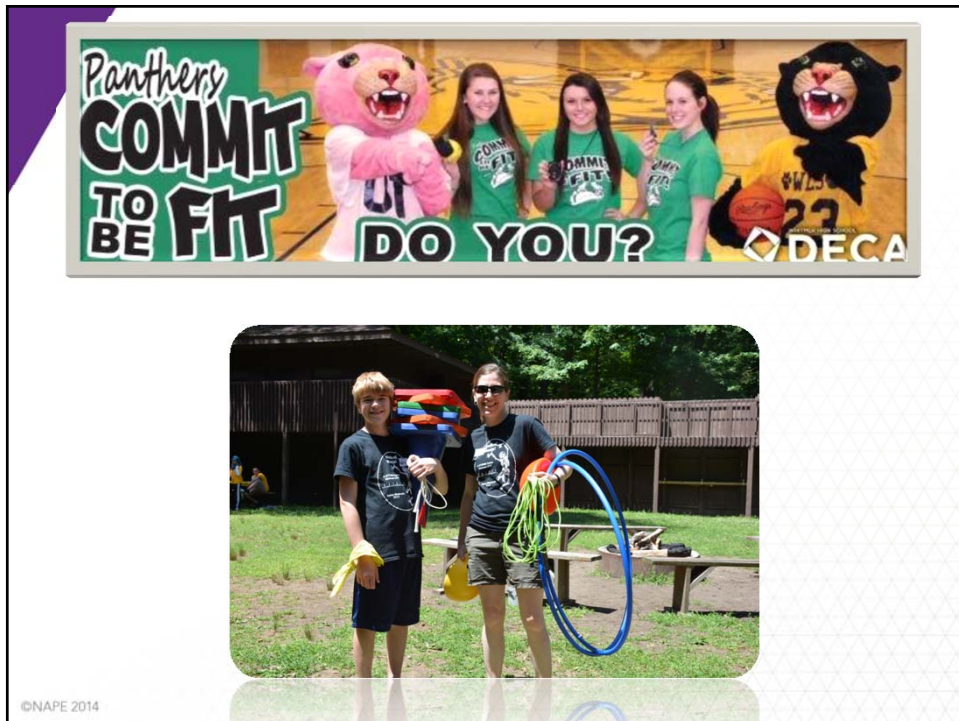
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ARTERY ACTIVITY

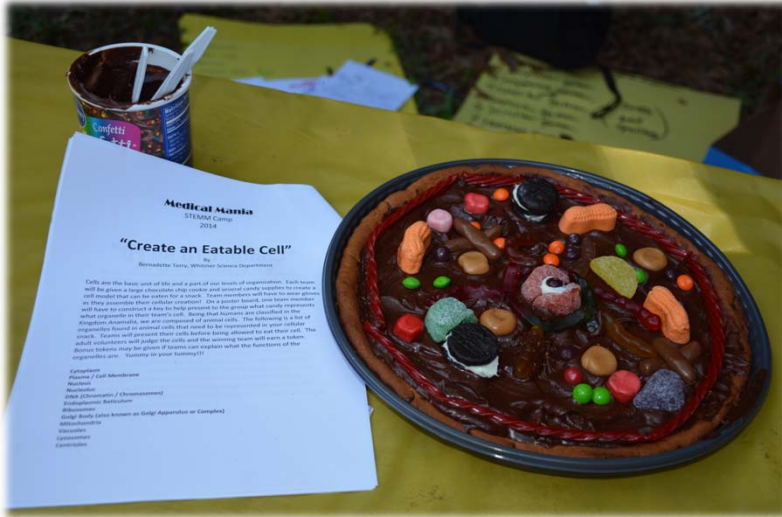


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Create an Eatable cell



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Pathology Plus



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Create a Career List



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Campfire Time



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Great team of Volunteers

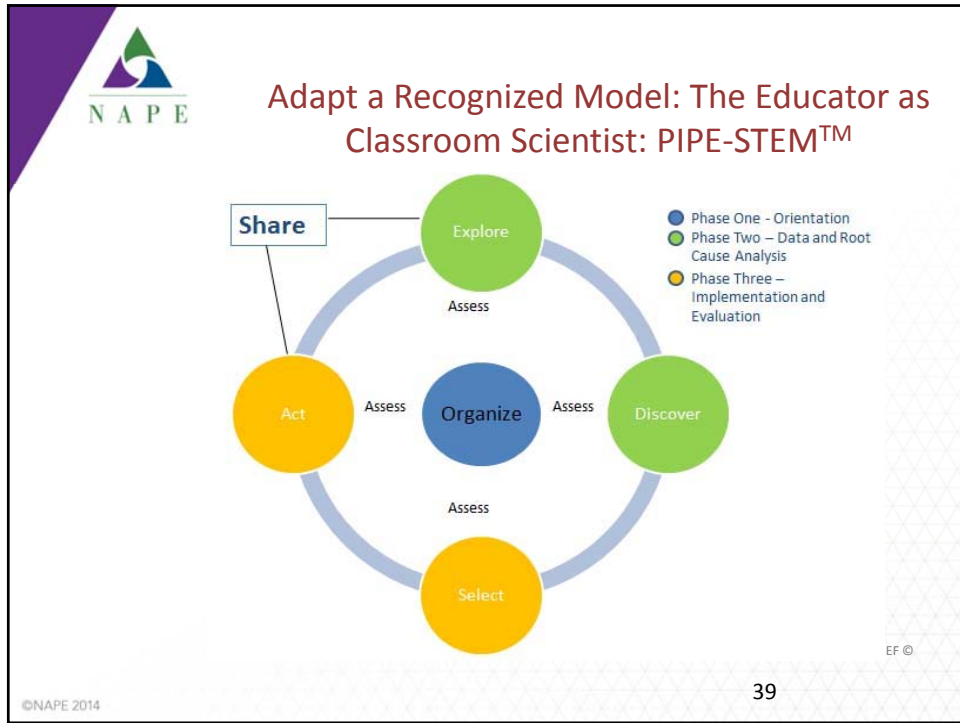


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**MICROMESSAGING TO REACH AND
TEACH EVERY STUDENT:
REYNOLDSBURG SCHOOL DISTRICT
& EASTLAND-FAIRFIELD CAREER
CENTER**

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Micromessages

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Micromessages

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Micromessages

Small, subtle, semi-conscious messages we send and receive when we interact with others

<h3>Micro-inequities</h3> <p>Negative micro-messages that cause people to feel devalued, slighted, discouraged, or excluded</p> 	<h3>Micro-affirmations</h3> <p>Positive micro-messages that cause people to feel valued, included, or encouraged</p> 
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Lands End Catalog 2012

super light, superhero tough

FeatherLights™ reduce their school load by trimming weight off the pack. But what makes them really amazing is they do it without sacrificing durability, thanks to strategically placed 420D and 600D pack cloth. **Lighter weight. Same awesome durability. Guaranteed. Period.®**

make it your own! with a monogram, embroidery or both! details, p. 76



3. rib and padding: bright lines

slip-on featherlight, p. 77

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Lands End Catalog 2012

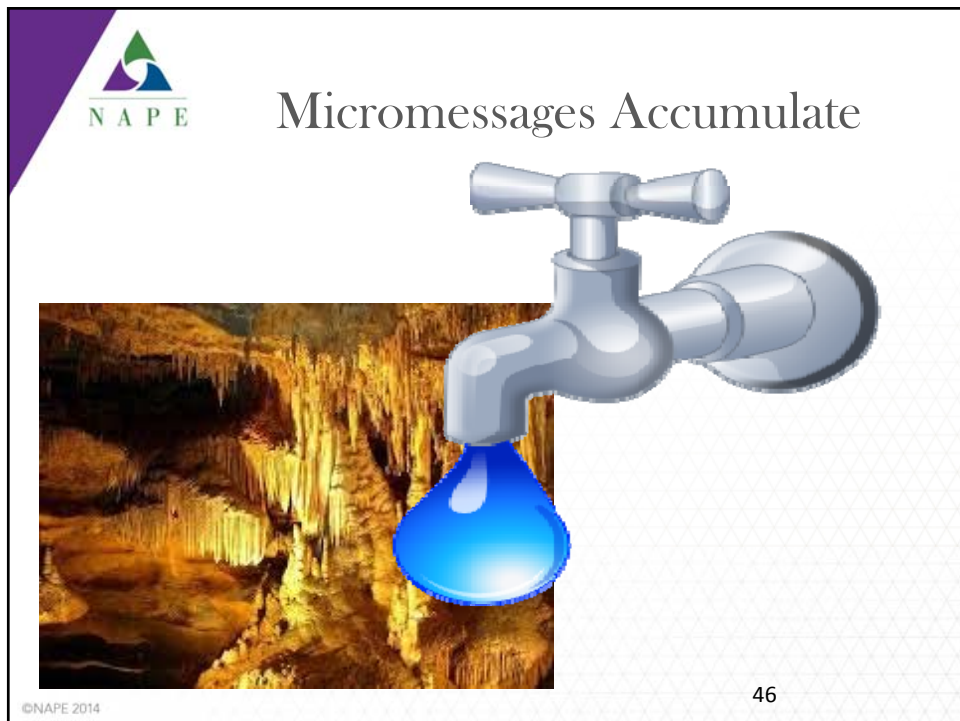
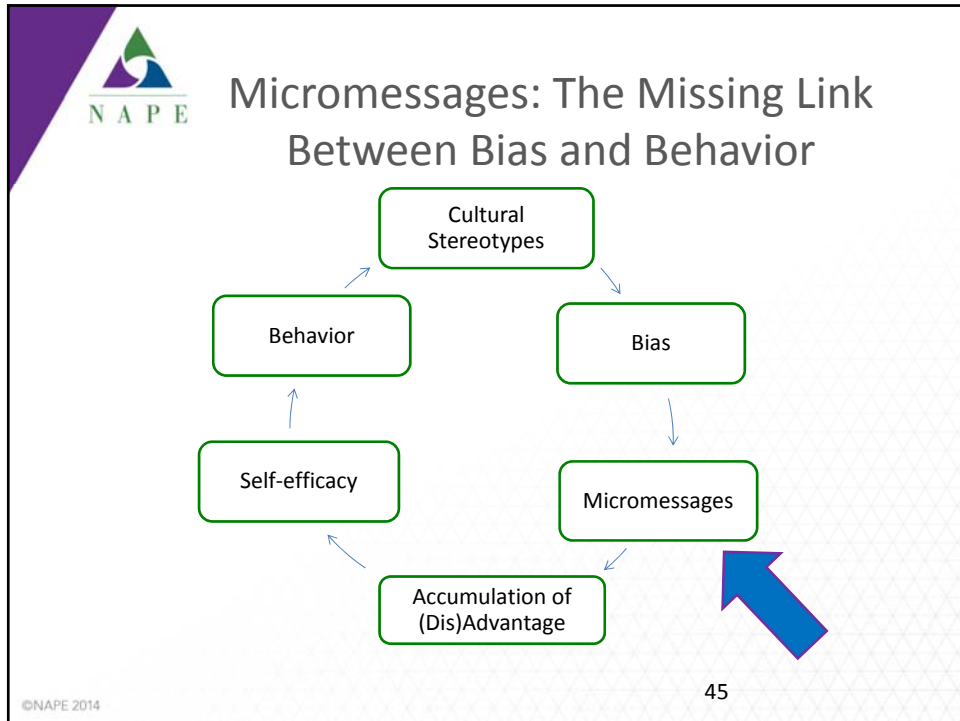
light as a feather, tough as long division


FeatherLights™ reduce their school load by trimming weight off the pack. But what makes them really amazing is they do it without sacrificing durability thanks to strategically placed 420D and 600D pack cloth. **Lighter weight. Same awesome durability. Guaranteed. Period.®**

e-reader case, \$15, 419654-0643, water bottle, \$10, 420917-0644, landsend.com




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Micromessaging to Reach and Teach Every Student™



Setting the Stage: In this unit participants will learn to apply a data-driven process for program-based continuous improvement.

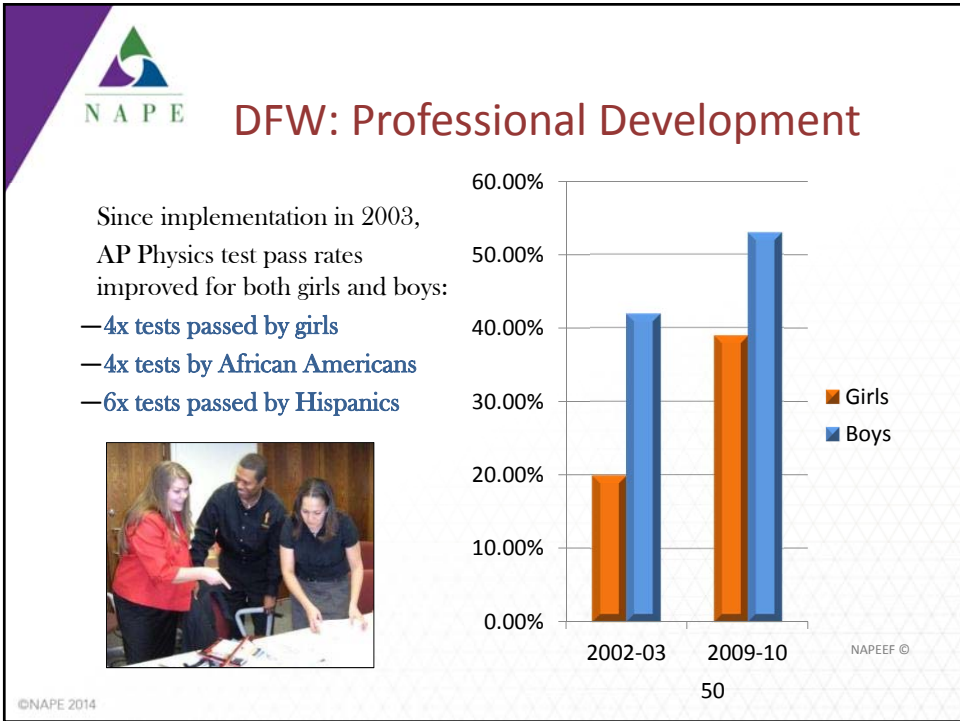
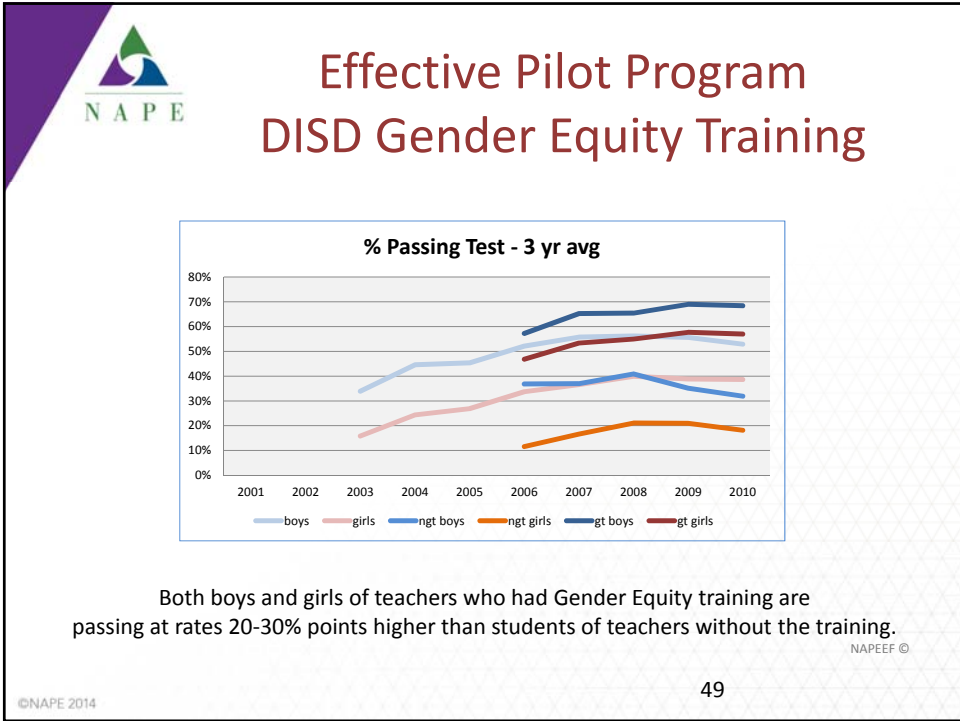
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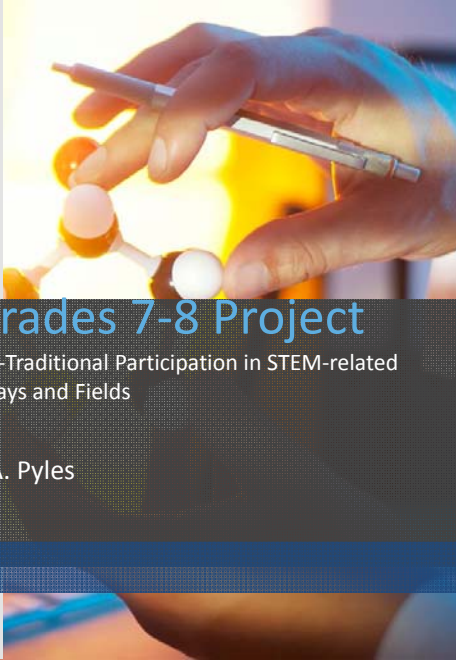



Making It Happen



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Equity In STEM Grades 7-8 Project

Collaborations to Encourage Greater Non-Traditional Participation in STEM-related Career Pathways and Fields

Dustin A. Pyles

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Paraphrased Project Goals

- Leverage Ohio STEM Learning Network (OSLN) infrastructure of STEM demonstration schools and regional training center site(s) to develop and implement targeted Equity in STEM teacher PD
- Identify and review STEM demonstration school's teaching and learning strategies specifically aimed at improving non-traditional participation and persistence in STEM-related fields and career paths.
- In collaboration with Career Technical Center (CTC), identify and engage recipient school(s) of teacher PD during spring 2014.
- Conduct teacher professional development with recipient school(s) educators targeted to emphasize and reinforce equity in STEM within grades 7-8.

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Project Implementation

- In early 2014, the Ohio STEM Learning Network (OSLN) partnered with Eastland-Fairfield Career & Technical Center to identify potential recipients and Reynoldsburg's Baldwin Road STEM Middle School as the demonstration school.
- Whitehall's Rosemore Middle School was identified as the recipient site in early spring.
- Simultaneous to this process, Baldwin educators, along with educators from the H(S)² Academy participated in NAPE micromessaging training with Eastland-Fairfield educators.

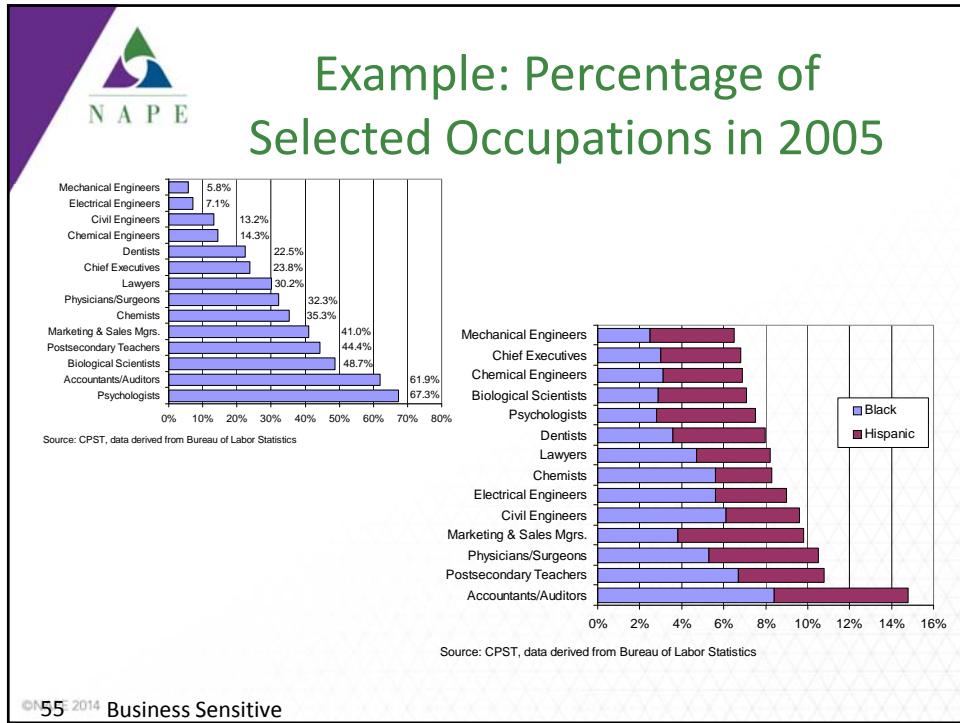
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Project Implementation (Con't)

- Through the Equity in STEM Grades 7-8 project, Baldwin identified three (3) essential questions or topics to be the basis of the teacher professional development they would share with Whitehall's Rosemore MS:
 1. **Micro-messaging** – leveraging the NAPE training to translate existing teaching and learning strategies that relate to Baldwin's efforts to gain greater equity in STEM
 2. **Data Analysis** – How to use and share data with students to improve confidence in STEM work? Looking at practices for mastery and acquisition of skills and knowledge.
 3. **Experience and Exposure** – specifically looking at how the students can be exposed to STEM fields through adult mentors and experiences with business and industry, targeting Computer Integrated Manufacturing and other related career fields.

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Results

- The NAPE training complimented the teacher professional development provided by OSLN via Baldwin Road STEM Middle School by providing context and opportunities for the educators to look at their own strategies and practices.
- 35 educators in Central Ohio were impacted or exposed through this project, between Reynoldsburg, Eastland-Fairfield, Whitehall and others.
- Educators are critically looking at how they use the strategies they learned or to which they were exposed to improve non-traditional STEM career awareness.

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Ohio STEM Learning Network

Dustin A. Pyles

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Ohio STEM Learning Network (OSLN)/BattelleEd

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WWW.OSLN.ORG







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MICROMESSAGING FROM THE MIDDLE SCHOOL EDUCATOR'S PERSPECTIVE

Kelly Wood, Baldwin Road Middle School

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Golden Books

Victorian Project

9-11 Project

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**MICROMESSAGING AND STEM
CAREER DEVELOPMENT AT
EASTLAND-FAIRFIELD CAREER
CENTER**

Christine Boucher

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SCHOOL COUNSELOR TRAINING FOR NONTRADITIONAL STEM/CTE PATHWAYS: A NEW INITIATIVE

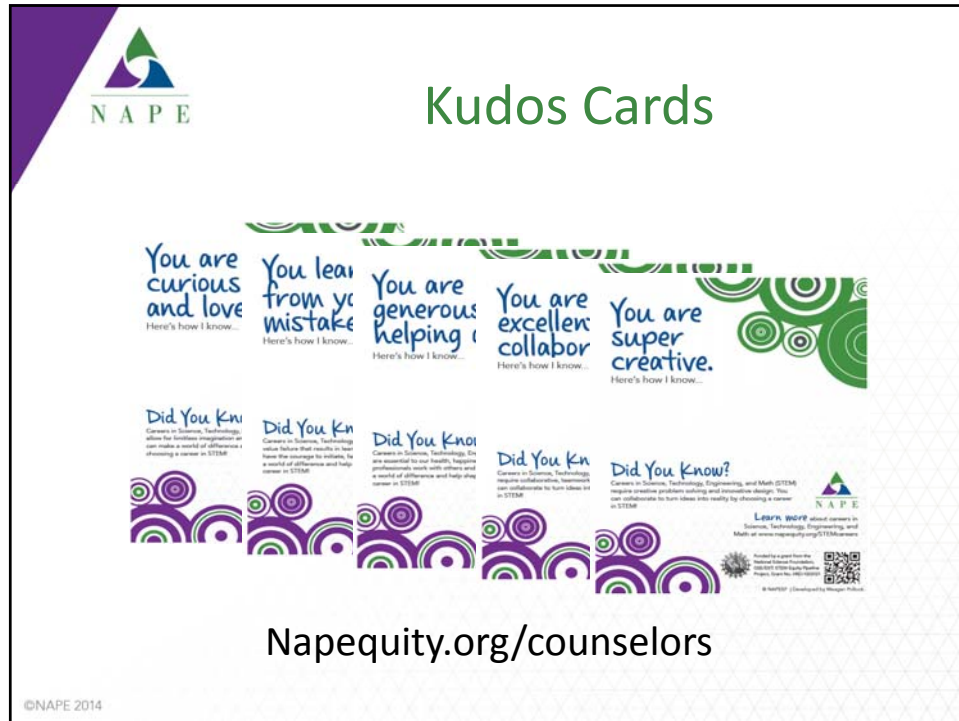
Ben Williams

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www.napequity.org/counselors

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The graphic features the NAPE logo in the top left corner. The main title "Kudos Cards" is centered at the top in a green font. Below the title, there are two rows of cards. The top row contains five cards with the following text: "You are curious and love", "You learn from your mistakes", "You are generous helping", "You are excellent collaborator", and "You are super creative." Each card includes the phrase "Here's how I know...". The bottom row contains five "Did You Know?" cards, each with a short paragraph of text. The entire graphic is decorated with green and purple circular patterns. At the bottom center, the URL "Napequity.org/counselors" is displayed. A small copyright notice "©NAPE 2014" is in the bottom left corner.

Kudos Cards

You are curious and love
Here's how I know...

You learn from your mistakes
Here's how I know...

You are generous helping
Here's how I know...

You are excellent collaborator
Here's how I know...

You are super creative.
Here's how I know...

Did You Know?
Careers in Science, Technology, Engineering, and Math (STEM) require creative problem solving and innovative design. You can collaborate to turn ideas into reality by choosing a career in STEM.

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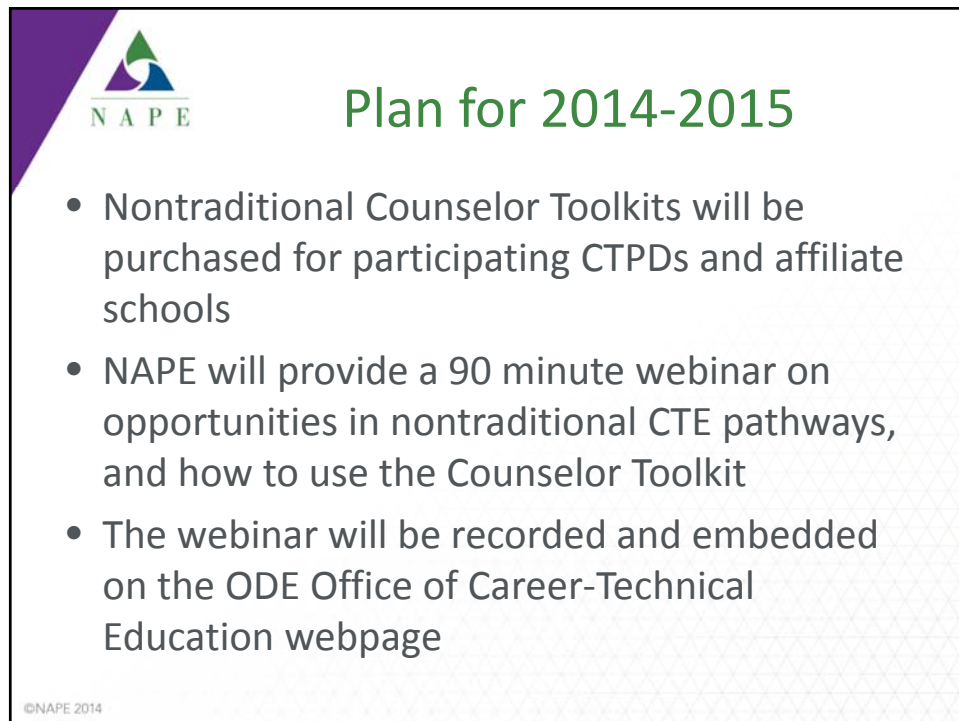
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Learn more about careers in Science, Technology, Engineering, and Math at www.napequity.org/STEMcareers

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The graphic features the NAPE logo in the top left corner. The main title "Plan for 2014-2015" is centered at the top in a green font. Below the title, there is a bulleted list of three items. The entire graphic is decorated with green and purple circular patterns. A small copyright notice "©NAPE 2014" is in the bottom left corner.

Plan for 2014-2015

- Nontraditional Counselor Toolkits will be purchased for participating CTPDs and affiliate schools
- NAPE will provide a 90 minute webinar on opportunities in nontraditional CTE pathways, and how to use the Counselor Toolkit
- The webinar will be recorded and embedded on the ODE Office of Career-Technical Education webpage


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OTHER OPPORTUNITIES FOR PROFESSIONAL DEVELOPMENT




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Virtual Learning Community


www.stemequitypipeline.org




The screenshot shows the website layout with a top navigation bar containing: Home, About Us, Contact Us, Experts, State Teams, Resources, and Professional Development. The main content area is divided into sections for Upcoming Events, Past Events, and News. A sidebar on the right includes a search bar and several featured articles or resources.

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NAPE Affiliate Membership



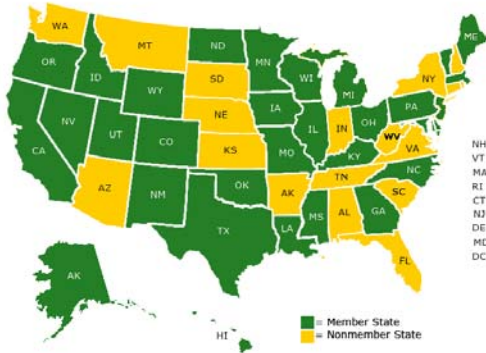
National Alliance for Partnerships in Equity

The Equity Professionals


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Home > Member Services > State Members

STATE MEMBERS



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NAPE PDI

- Annual conference in Washington, D.C. (this year Alexandria, VA)
- Tuesday-Thursday, April 21-23, 2015
- Effective practices, networking, and advocacy on Capitol Hill

<http://www.napequity.org/>

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Other opportunities

- Ohio ACTE Workshop 2015 – Will highlight results of four years of ODE Project Expansion
- Other opportunities?
- Check out the recently published book, STEM Models of Success: Programs, Policies, and Practices in the Community College, and the chapter on the impact of the STEM Equity Pipeline Project (information in your folder)

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Questions?

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