

# Let's go!



## Made in Florida "Industry Tours"

**Marilyn Barger, Ph.D., P.E., CPT**

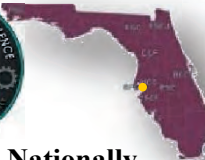
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[www.fl-ate.org](http://www.fl-ate.org)

# FLATE

## Florida's Advanced Technological Education Center of Excellence



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2013 ACTE VISION Las Vegas

# NSF Advanced Technological Education



***Partners with Industry  
for a New American Workforce***



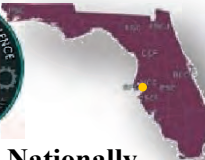
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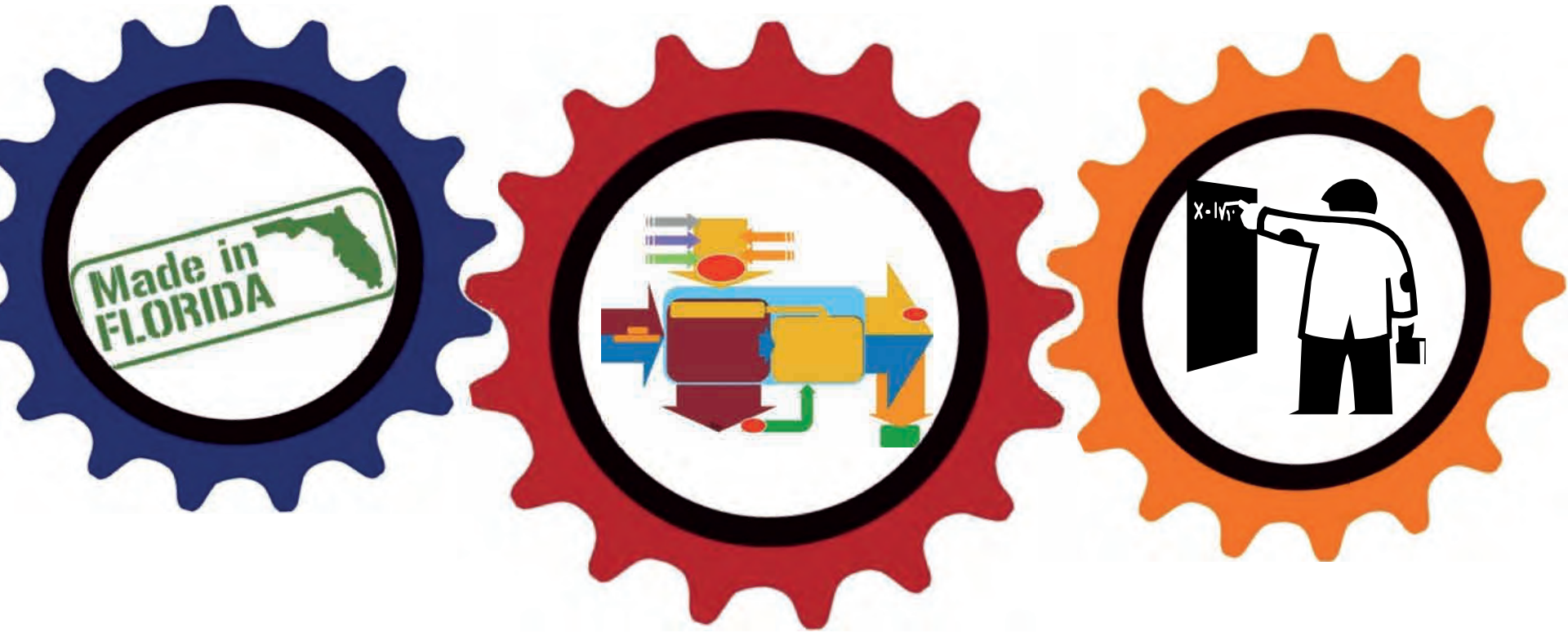


# FLATE VISION

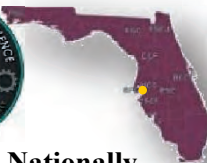
FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.

**Impact locally. Lead nationally.**





**Tell Teach Train**  
Advancing Excellence in Engineering Technologies



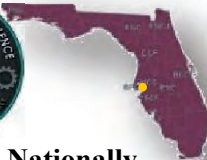
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**3,917 students**  
**52 schools**  
**185 events**  
**75 manufacturing facilities**

how  
who  
what  
where  
why



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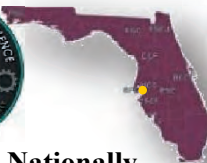
**how** organized processes

**who** high & middle school students, educators, parents

**what** facilitated manufacturing tours

**where** Florida modern manufacturers

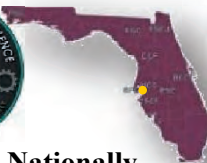
**why** real, relevant, rigorous



**how**



**before.. during...after**



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# getting ready

match school program & company

accommodate schedules

high or middle school

high tech accessible

related to courses

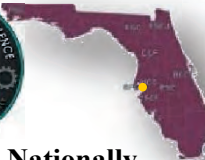
know the rules

kid friendly

eye candy

add fun

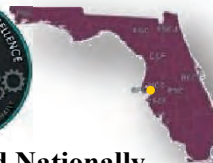
# how?



# PREP...before you go

**I. students and teachers**

**II. logistics & arrangements**



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[www.flate.pbwiki.com](http://www.flate.pbwiki.com)

**FLATE's Pre and Post Tour Lesson Plan to Enhance Students' Experience**  
 Visiting High Tech Manufacturing Facilities  
 (condensed version) The complete lesson plan is located at <http://flate.pbwiki.com>

<b>NATURE OF CHALLENGE:</b> Students will learn about the company they will be visiting	
<b>TARGETED SUBJECT AREAS</b>	<b>GRADE LEVELS</b> 6-8
Career planning, STEM connections, technology integration	<b>MANUFACTURING LEVEL</b> Innovate, Design, Fabricate, Test, Market and Distribute
<b>LEARNING OBJECTIVES – The Students Will....</b>	<b>TIME FRAME</b> Suggested three class periods to discuss, plan, and report on the company tour experience and one day to tour the company.
<ol style="list-style-type: none"> <li>Become aware of possible career interests in high tech manufacturing</li> <li>Identify STEM education and skills needed to obtain these careers</li> <li>Learn how to behave in a professional environment</li> </ol>	

- Part A - Pre-Activity Questions:**  
 Explore the website of the company you will be visiting and respond to the following:
- What is the name of the company you will be visiting?
  - What products do they make?
  - Write 1-2 paragraphs about the company.
  - Describe job opportunities within the company and find out about educational and skills requirements for the job. Which STEM subjects help you prepare for this now?
- Part B - Engineer's Report: Questions**  
 Write 2-3 questions you would like to know about the company you are going to visit. After visiting the company complete an engineer's report.
- Part C - Engineer's Report: Post Activity Observations**
- List the name of the company you visited and the job you shadowed.
  - Write a brief 1-2 paragraph description of what you learned about the company.
  - Describe three jobs you saw employees perform in the company.
  - Describe the connection between the company you visited and STEM.
  - Plan out the education and career pathway you would need to take from this point, in order to be prepared for working in one of the jobs you described in number 3.
  - Reflect: List a few positive and negative aspects of the company you visited.
  - Reflect: How has technology changed this company?
  - Reflect: How has the economy changed this company?
  - Predict: What are some future challenges this company might face?
  - Predict: Do you see yourself in this career field? Why or why not?



**MANUFACTURING**  
 Good jobs + great pay = great lifestyles  
 You'll be surprised!

This work is funded under grant DUE# 0802436 from the National Science Foundation Advanced Technological Education (ATE) program. Opinions and findings expressed herein are those of the authors and do not reflect the views of the National Science Foundation. © Copyright 2012 FLATE

## 6th Journey 2012 Modern Manufacturing

Training, work experience and a high school diploma/GED

Sorter, Sampler and Weigher	\$15.08
Production Technician	\$14.05
Electronic Equipment Assembler	\$13.21
	\$12.61



Beyond high school

Production Technician	\$18.42
Technician	\$16.17
Technician	\$18.35
Technician	\$18.89
Technician	\$18.90

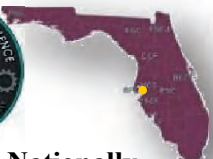


High school + work experience

Technician	\$42.59
Technician	\$35.62
Technician	\$37.08
Technician	\$31.50

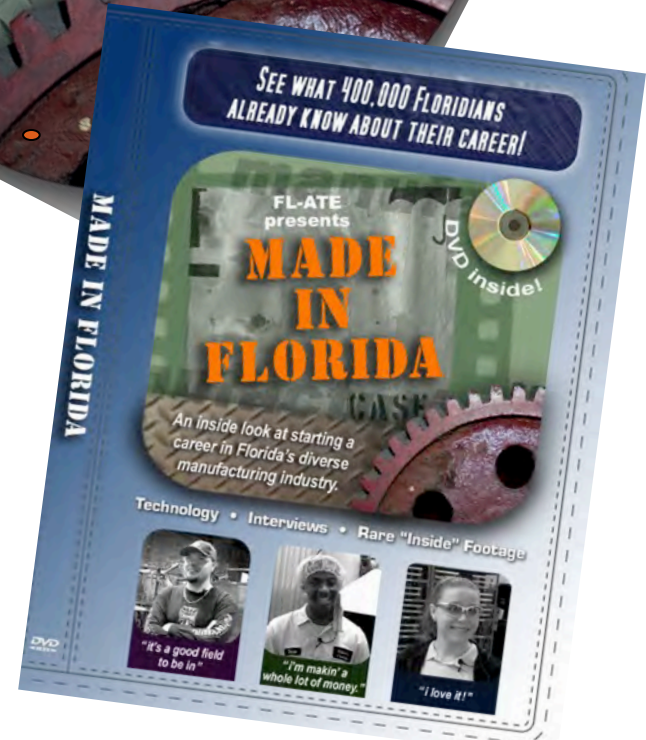


[www.madeinflorida.org](http://www.madeinflorida.org)  
 Source: Florida Agency for Workforce Innovation, Labor Statistics, projected for 2010.  
[www.BusinessEngines.com](http://www.BusinessEngines.com)

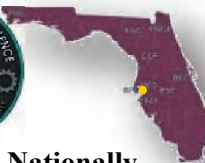




# PREP ...



# what?

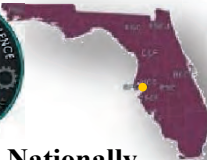


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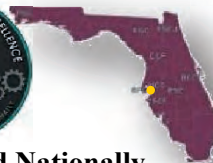
# PREP.....planning

- **1 class - 1 company**
- **1 class - multiple companies**
- **Many classes – 1 company**
- **Home school – students & parents**



# PREP ..... who?

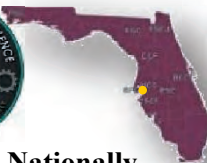
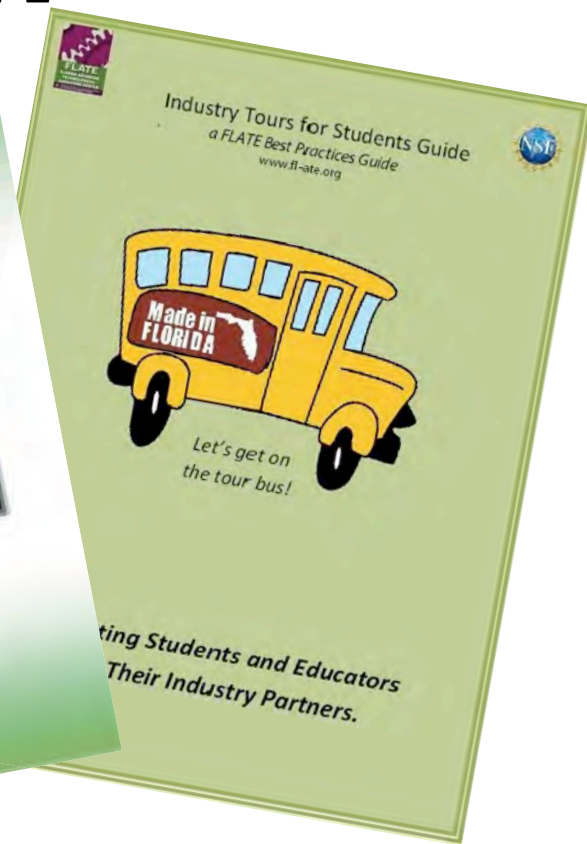
MODEL	DESCRIPTION	TIME	PARTICIPANTS
1-to-1	One school class to one site	Half day	Students, educators, manufacturers
1-to-many	One school group to 2 or more sites	Full day	Students, educators, manufacturers
many-to-many	2 or more school classes to 2 or more sites	Full day	Students, educators, manufacturers
Home school	one group to one site	Half day	Students, educators, parents, manufacturers
many-to-1	2 or more school classes to one site	Half day	Students, educators, manufacturers



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# HELP.....for "how"

## FLATE Best Practice Guides



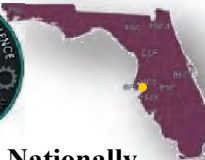
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# HELP.....for "how"

# FLATE Tour Resources

The screenshot shows the FLATE's wiki website with the following elements:

- FLATE Logo:** Lead Locally. Impact Nationally.
- FLATE's wiki:** ...full of great FREE RESOURCES for you!
- www.Made in FLORIDA.org** logo.
- (CLICK ON IMAGES BELOW)**
- Resource Grid:**
  - "Made in Florida" and STEM Lesson Plans:** For Middle & High School.
  - Career Education Resources:** Image of a graduation cap.
  - Modules for Advanced Technological Education:** Image of a gear.
  - The Toothpick Factory:** A Simulating Game for Soft Skills. Image of a robot.
  - Industry Tour Resources:** Find pre-tour lesson plans, post-tour surveys, presentations and other resources for your *Made in Florida* manufacturing tour! Image of a yellow school bus.
  - Recruiting all GIRLS who love S.T.E.M.!** Resources and materials for STEAM GIRLS! Image of a pink heart with a robot.
  - FLATE Presentations:** Find conference and workshop slides here. Image of a robot and a presentation board.
  - High School Technology Initiative:** Modules for high school sciences that teach fundamental STEM concepts. Image of a house with 'HSTi' text.
  - Read FLATE's monthly Newsletter!** Image of a 'FOCUS' newsletter.
  - FLDOE Career Resources:** Image of a 'Career Education' logo.



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# HELP.....for "how"


## Industry Tour Resource Page

<http://flate.pbworks.com> – click on the school bus to access this page.

VIEW
EDIT

**MIF Industry Tour Resources**

last edited by Pedro Colon 1 minute ago



Welcome to FLATE's "Made in Florida"

### Industry Tour Resource Page

Below are some resources to make a student tour of a manufacturing facility a rich experience for the students, teachers and mentors/chaperones.

Links to Tour Surveys and Resource sites:
<a href="#">Post tour STUDENT survey</a> (pdf to download and print)
<a href="#">Cover sheet for Industry Tours</a> (pdf to download and print)
<a href="#">Post tour TEACHER &amp; PARENT survey</a> ("online survey")
<a href="#">Post tour INDUSTRY HOST survey</a> ("online survey")
Lesson Plans and Student Handouts to Download:
<small>(Lesson Plan ideas to prepare students before or review after a tour):</small>
<a href="#">Pre-and/or post industry tour Teacher Lesson Plan</a>
<a href="#">Student handout for Industry tour Lesson</a>
<a href="#">Manufacturing Scavenger Hunt activity lesson plan</a>
<a href="#">2013 Job Journey for Modern Manufacturing</a>
<a href="#">What is Manufacturing?</a>
<small>(Handout on the manufacturing process &amp; sectors)</small>
Links to other Online Resources to Support Educational Industry Tours:
<a href="#">Link to FLATE's Best Practice Guide for Middle &amp; High School Field Trips/Tours to Manufacturing Facilities</a>
<a href="#">FLATE's Industry Tour webpage</a>
<a href="#">Streaming "Made in Florida" video</a>
<a href="#">Link to "Made in Florida- Great Careers" PowerPoint presentation</a> (2 versions: 1 with Speaker Notes)

**Pre and/or Post Tour**

Lesson plans and Student handouts: Downloadable material for educators to use before and/or after tours.

**Pre and/or Post Tour**

Links to other Online Resources: Manufacturing resources for educators to use before and/or after tours.

**Post Tour**

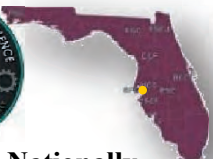
Student survey: Download and print (1) one for each student on the tour. Cover sheet for Industry Tours: Download and print (1) one cover sheet for each tour group.

**Post Tour**

Links to post tour online surveys: Email these links to all industry tour hosts, educators, and chaperones to be completed after the tour.

**ATTENTION**

It is very important for data collection purposes that all submitted student survey packets be accompanied by a completed cover sheet.



# where?

BAE Shipyards

Bauer

Coastal Caisson

Conimar

Tampa Armature Works

E-One

Engler EI

Featherlite Coaches

Mitsubishi Power Systems

Southern Manufacturing

Technology

SPX Fluid Routing Solutions

Karb Manufacturing

Lockheed Martin

Mitre

Jabil

Nielsen

Pall Aeropower

PGT Windows

Pharmaworks

Plasmatherm

Publix Dairy

Signature Brands

emi

Sun Hydraulics

Townley

Manufacturing

Valpak

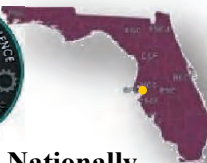
Ventel Plastics

Vulcan Machines

Alessi Bakeries

PGT

Honeywell















WRIGHT

NOVA Sr BEACH TO

MASCERADE TEAM 1997

MASCERADE TEAM 1997

3





14201

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ELECTRONICS  
MANUFACTURING  
& REPAIR SERVICES

















# Valpak

A COM-TARGET MEDIA COMPANY









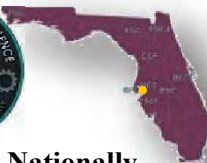






# survey says...

- ✓ **strongly agree**
- ✓ **agree**
- ✓ **neutral**
- ✓ **disagree**
- ✓ **strongly disagree**





# survey says...



**Post-Visit Survey – Manufacturing Related Technologies**  
We hope you liked the "Made in Florida" Tour. Now, tell us what you think.

**Instructions:** Read the statements carefully. Circle one best answer for each question.

**Scale:** 5 = Strongly Agree (Yes)  
4 = Agree  
3 = Neither Agree nor Disagree  
2 = Disagree  
1 = Strongly Disagree (No)



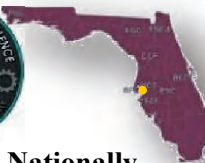
5	4	3	2	1	1) I heard or saw employees describe their work.
5	4	3	2	1	2) The workers looked like they enjoyed their work.
5	4	3	2	1	3) I found...

10: I was considering a career in manufacturing before the tour.

13: I am now considering a career in manufacturing or related technical industries.

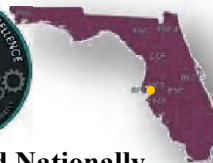
5	4	3	2	1	18) I frequently use scientific ideas or facts in my personal life.
5	4	3	2	1	19) I enjoy helping others learn about new technology.
5	4	3	2	1	20) I am curious about science/technology and its important tools and methods.
Write your comments (use back)					

Thank you very much for your feedback! It helps us make future tours better.



# survey says...

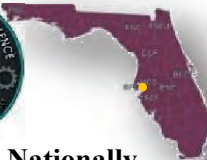
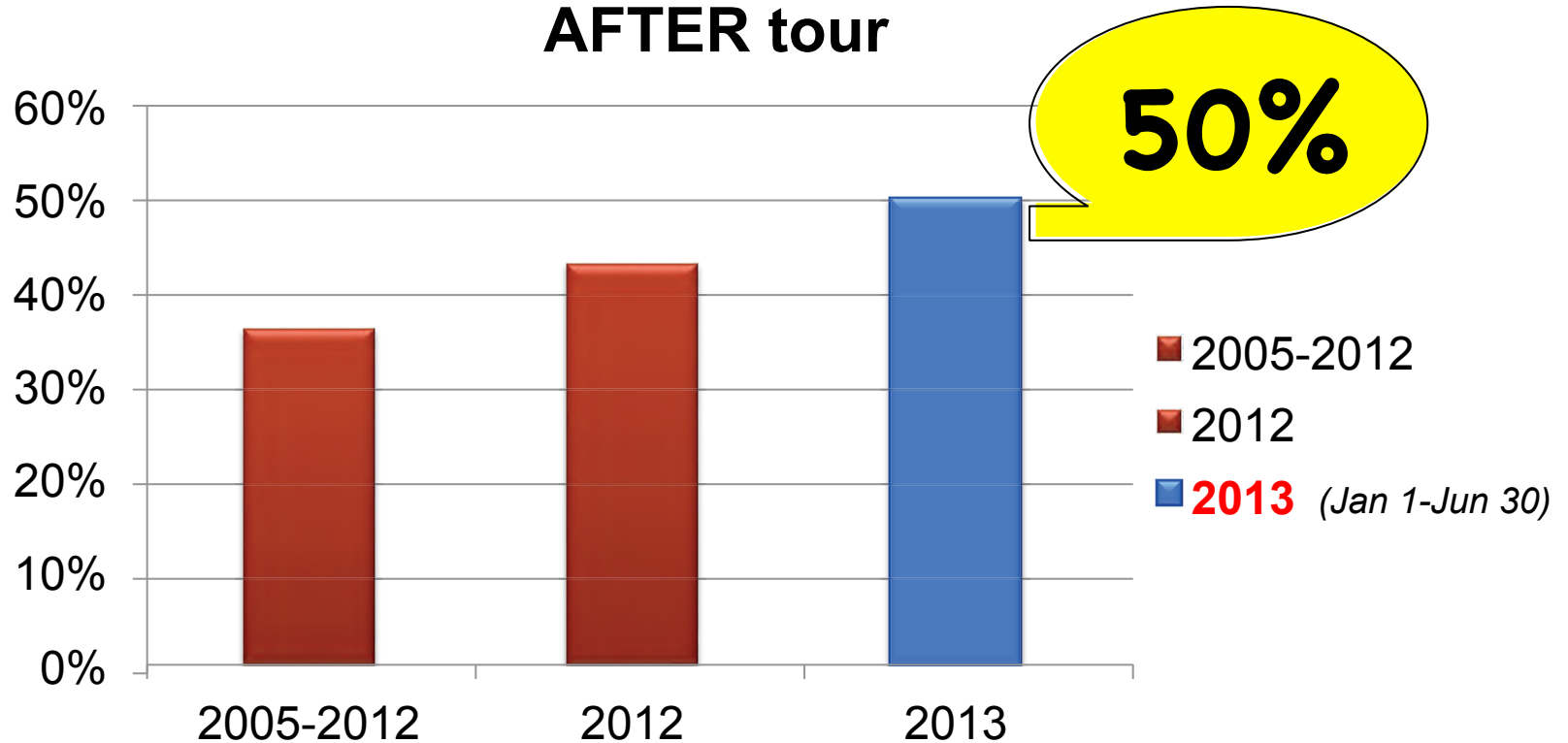
when	n (students)	strongly agree/ agree	relative to cummulative
2012	335	43%	+7%
2005-2012	2,292	36%	



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# what they say...

**% considering manufacturing career  
AFTER tour**



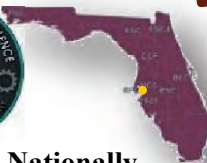
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# what they say

"Personally I LOVED the multi-tour day event because students got an overall exposure to three different types of manufacturing. Some found one industry more interesting than the others..."

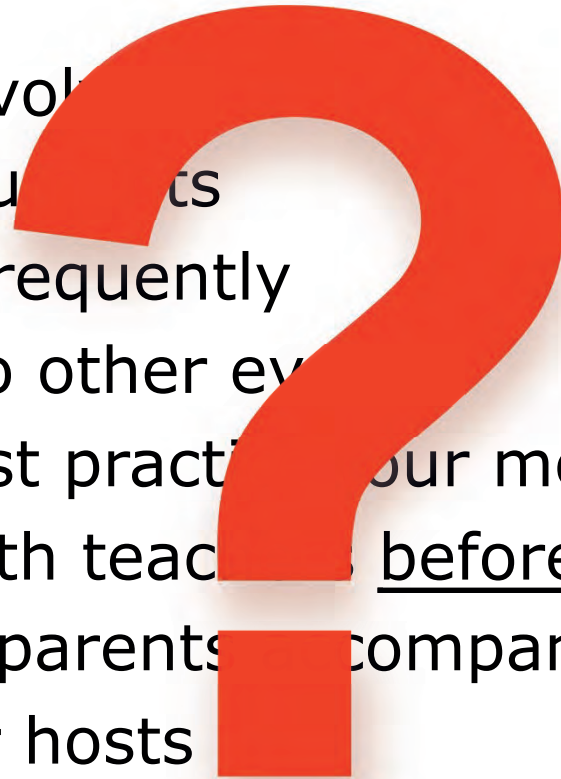
*"Man! That was COOL!  
When I turn 18, I'm going to come back here and apply for a job. They have so many opportunities!!"*

Roy Sweatman, President of SMT shares that he had received "20+ calls asking about a job in manufacturing from high school students who visited my facility," (and hired a couple for part-time work during the summer.)

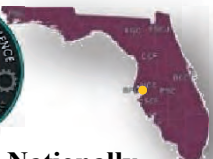




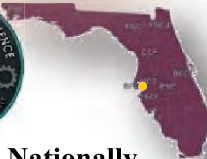
# what's next?



- Get more partners involved
- Improve survey instruments
- Monitor data trends frequently
- Incorporate tours into other events
- Continue to share best practices and our models
- Work more closely with teachers before/after tours
- Survey teachers and parents of accompanying students
- Survey company tour hosts
- Explore strategies to better connect tour experiences to college and career pathways



**ta ta! MFG DAY...**

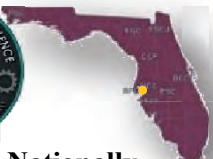
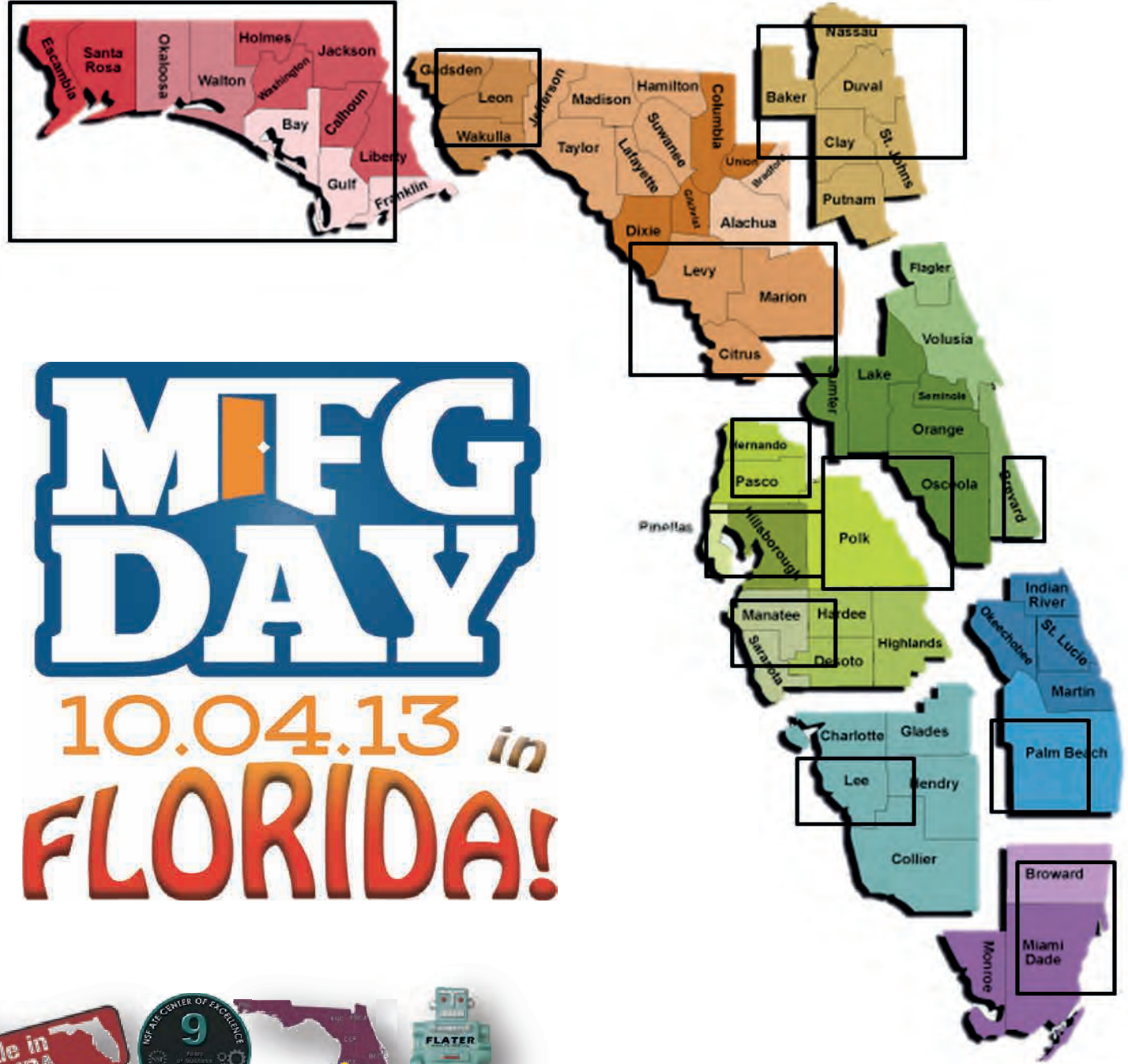


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# stamp of approval





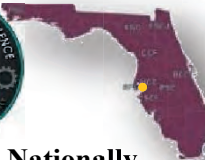


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# MEEG DAY

10.04.13 *in*  
FLORIDA!

regional teams  
local proclamations  
state proclamation  
tours  
student t-shirts  
pre/post lesson plans  
pizza/lunch  
student surveys  
tour host surveys  
educator surveys  
adopt-a-school  
certificates for hosts  
press  
survey reports  
website



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# ...the numbers

## Florida Statewide Totals\*

**23** Counties participated

**2,307** students

**1,175** student surveys returned

**110** teachers

**66** parents

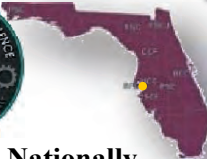
**67** Florida schools

**225** employees from **71**

manufacturers & colleges

> \$30,000 in kind and cash support

*\*events that partnered with FLATE*

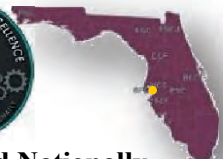




# ...the numbers



Based on **1,175** individual responses, student interest in advanced manufacturing careers **increased by 32.8 %** statewide.



# ...what they said

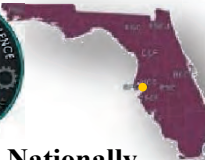
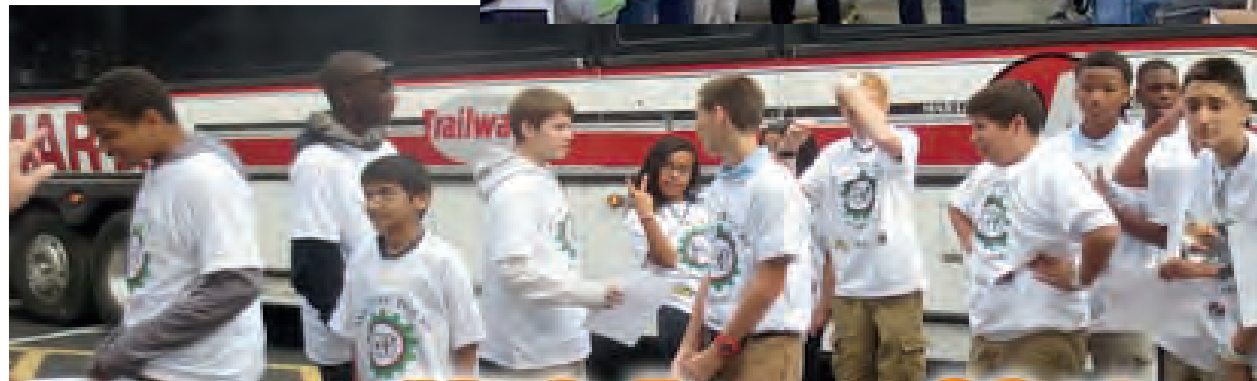
*“Liked learning about what the robots did. I also enjoyed watching the robots work, and how almost the entire factory was automated. A lot of the robots worked without people controlling or watching them.”*

Yes, it is not often you get the opportunity to have the full attention of 24 students in your facility

**“It was really cool and interesting, and provided a unique experience.”**

*Absolutely! 2 main things: Good team building exercise in planning and preparation and growth opportunity for new engineers to be in front of an audience to explain our product*

*We appreciate the opportunity to expose youth in our community to the career opportunities available at xxxx,*



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# Thank you!

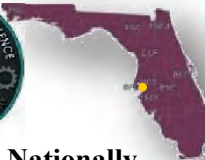
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**www.fl-ate.org**  
**www.madeinflorida.org**  
**www.flate.pbwiki.com**

*\*\*Find this presentation on FLATE's wiki:*

**<http://flate.pbworks.com/w/page/51765115/FLATE%20presentations>**



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# High Impact Technology Exchange Conference

Educating America's Technical Workforce

[www.highimpact-tec.org](http://www.highimpact-tec.org)

**July 21-24, 2014**

**Chicago, IL**