

Bringing Together Industry Tours & The New Standards



Using Comprehensive Instructional Systems (CIS) Lessons with MFG Day



SDHC Teacher Workshop Industrial & Technology Teachers

Marilyn Barger-Danielly Orozco-Desh Bagley
Elizabeth Simpson

Tampa Bay Tech -August 13, 2014



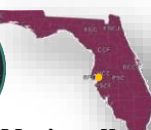
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Lead Nationally.**



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Outline

- ❖ **About FLATE**
- ❖ **Florida Standards/Common Core**
- ❖ **Comprehensive Instructional Systems**
- ❖ **Industry awareness & exposures**
- ❖ **Getting the best of both**



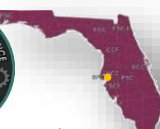
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NSF Advanced Technological Education



ATECENTERS
 www.atecenters.org

Partners with Industry for a new American Workforce



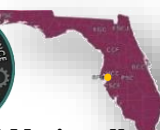
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FLATE VISION

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.

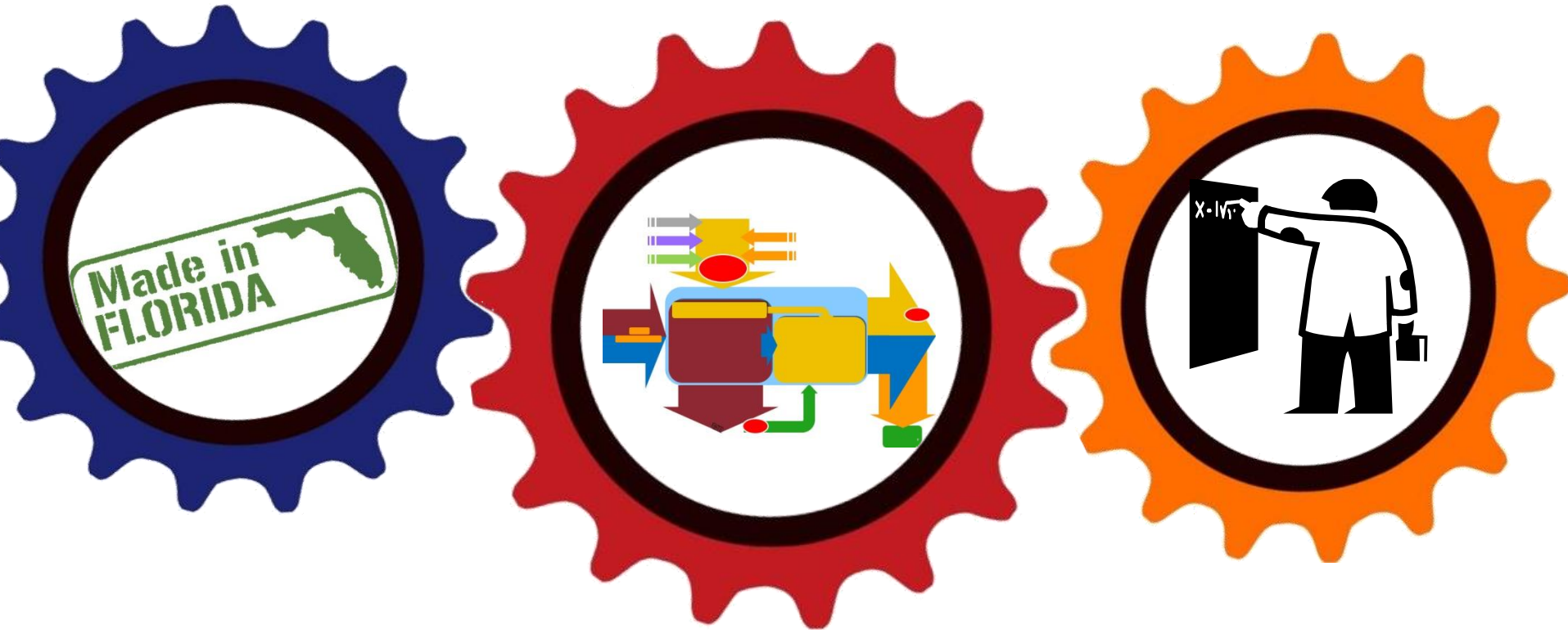
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Outreach ♦ Curriculum ♦ Professional Development

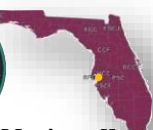


Tell

Teach

Train

Advancing Excellence in Engineering Technologies



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Outreach

Industry Awareness & Recruiting Students

Industry Tours



5,000 students

250 tours

100 facilities



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Outreach: Industry Awareness & Recruiting Students

MFG DAY™

10.03.14
in
FLORIDA!
JOIN US!



Help us reach FL goals for **MFG DAY10.03.14**

- 200 "Made in Florida" Student Industry Tours
- 200 Adopted schools (by manufacturers)

Open the Doors to Your Future!

- ✓ Host a "Made in Florida" Industry Tour
- ✓ Get a county commission proclamation
- ✓ Become a Manufacturing Mentor (*Dream !t Do !t*)

Dispel outdated myths about manufacturing • Tell your company's story • Inspire a new generation of manufacturers • Help our teachers & schools • Impact manufacturing curriculum • For more info visit: <http://madeinflorida.org/manufacturing-day/>

Sign up today: <http://tinyurl.com/on4edv3>

Contact: Desh Bagley, bagley@fl-ate.org 813.253.7838

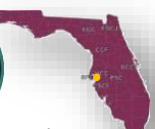
Marilyn Barger, barger@fl-ate.org 813.259.6578

Manufacturers / Professional Associations	Host tours and/or "adopt a school" • Provide lunch & shirts • Take photos • get a local proclamation
Districts / Schools / Community Groups	Recruit students, teachers, chaperones • Provide buses
Florida TRADE/CareerSource	Open house • manufacturing career expos
FLATE	Survey tour participants • Compile & disseminate data • Design & distribute T-shirts • Coordinate



www.fl-ate.org

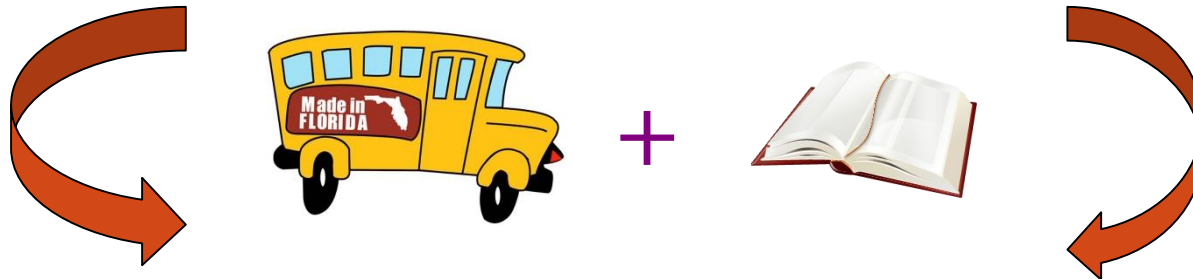




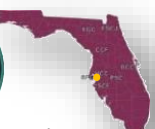
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Bringing Together Industry Tours & The New Standards



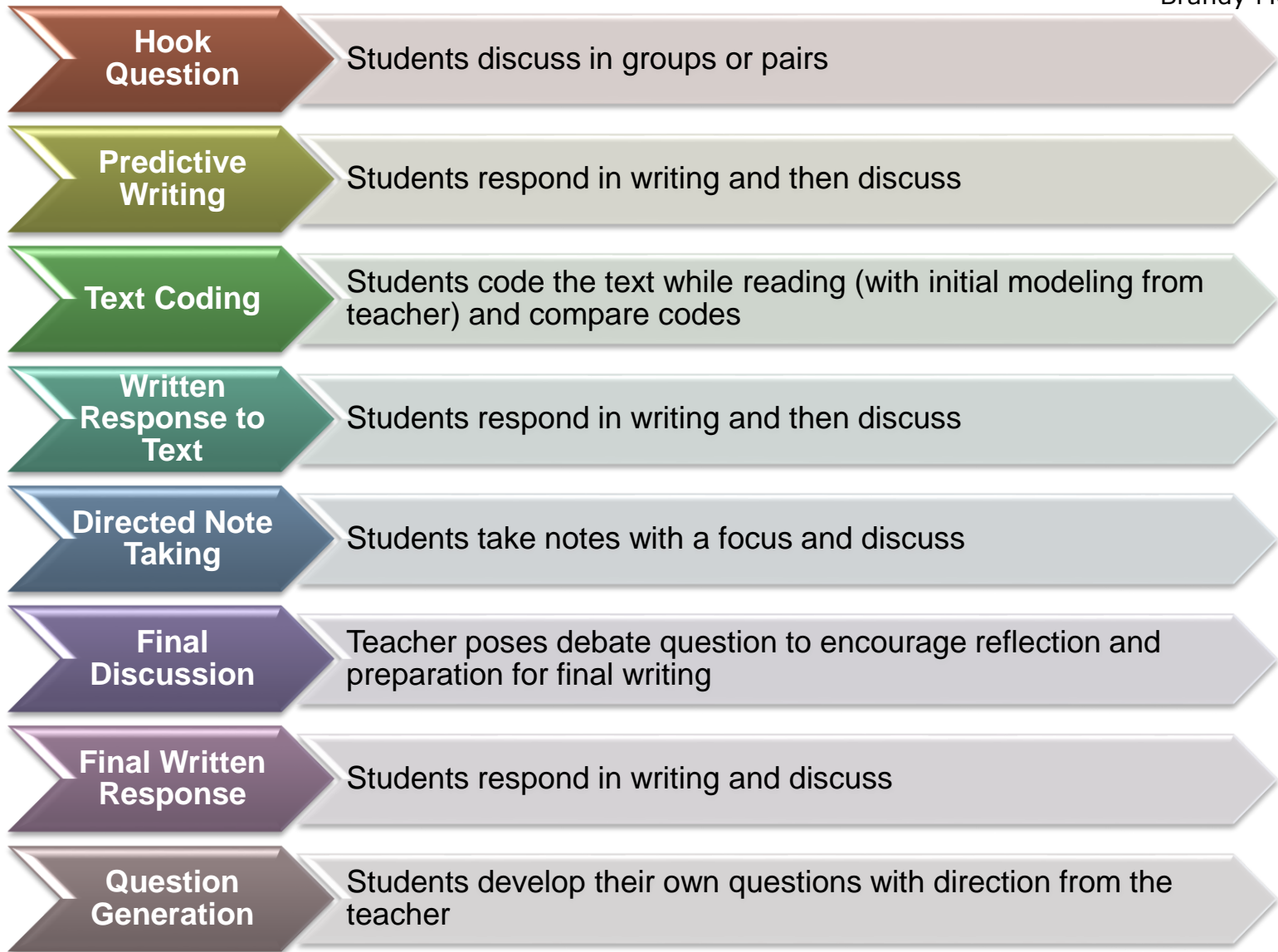
Comprehensive
Instructional
Systems
(CIS)



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Comprehension Instructional Sequence-CIS

Brandy Meetze

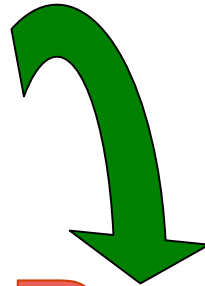




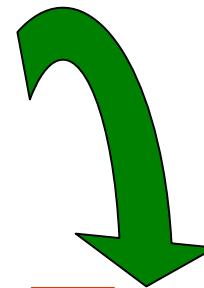
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Final written response & questioning

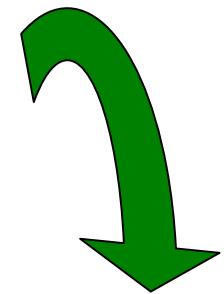
Research



Read



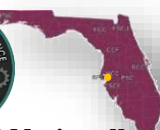
Tour



Write

Students compile their experience to create a written statement/reflection

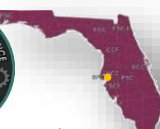
Students discuss their statements by generating questions and using evidence (text and tour) to support their opinions



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Manufacturing focused CIS lessons:

- ❖ Additive Manufacturing
- ❖ Assembly
- ❖ Automation
- ❖ Design
- ❖ Electronics Assembly
- ❖ Quality
- ❖ Subtractive Manufacturing/Machining
- ❖ Welding



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Sample Lesson



**Technology Education Curriculum
Recommended for 7th - 10th grade**

Assembly



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Teacher Lesson Plan: page 1



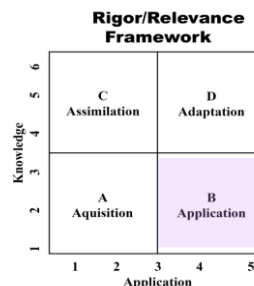
Technology Education Curriculum Recommended for 7th - 10th grade Teacher Lesson Plan

INDUSTRIAL & TECHNOLOGY EDUCATION Career & Technical Learning Activity - CTLA

Lesson Objectives & Student Expectations

Rigor/Relevance Framework: B

Length of lesson: 4 class periods



The student will:

1. Explore the history of the assembly line process.
2. Identify how manufacturing assembly has been made more efficient.
3. Analyze the affect new technologies have on the modern assembly line process.

Common Core Standards Addressed

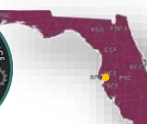
Benchmark#	Description
LACC.68.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts.
LACC.68.RST.1.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions
LACC.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
LACC.68.WHST.1.1	Write arguments focused on discipline specific content
LACC.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.

Key Vocabulary Terms

Crude	Efficient	Hydraulic	Innovation	Leisure
Monotonous	Productivity	Precise	Specialization	Standardize

Standards alignment

Key vocabulary terms



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Teacher Lesson Plan: page 2

Teacher Sequence To Present Lesson *Day 1 of 4*

Est. Time (minutes)	Description of Teacher Action	Notes
5	Bell work activity - Have students answer the question then review the answer.	Use the Assembly power point to guide your lesson.
10	Have students come up with a plan of how to quickly assemble 100 mechanical pencils. Have students do a think pair share to address the question.	Prepare groups ahead of time
5	Review vocabulary words with students	Prepare word boards or add words to your word wall
15	Hand out the "Ford Assembly Line" article and student worksheets. Prepare students for reading by explaining the text marking process and that students will read the article silently marking the portions of the article. Mark "H" if something is describing the history of assembly lines. Mark "M" if something is modern methods or new technology. Mark "E" if something is referencing making things more efficient.	Prepare copies ahead of time
10	Have students answer the questions from the text.	
5	Have students clean up and complete a daily reflection.	Do any type of reflection, ex. Exit slip, daily reflection log, discussion, or answering a question.

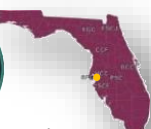
Hook

Text coding

Written response

Student Procedures To Do This Lesson *Day 1 of 4*

1. Begin Bellwork activity per teacher's directions.
2. Participate in Bellwork discussion.
3. Plan out how to assemble 100 mechanical pencils.
4. Answer the discussion question.
5. Review vocabulary terms and mark paragraphs in the article.
6. Read the article and answer questions.



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Lesson Plan: reading

Ford Launched the Modern Assembly Line a Century Ago and Changed Society

The assembly line cut the amount of time it took to assemble a Model T from 12.5 hours to just 93 minutes.

Oct. 7, 2013 Agence France-Presse



DETROIT - It began on Oct. 7, 1913, when engineers constructed a crude system using a rope and winch to pull a Ford Model T past 140 workers in a sprawling new factory dubbed the Crystal Palace.

Text coding

1

2

Henry Ford launched the modern assembly line in a suburb of Detroit a century ago -- and helped spark a radical transformation of both manufacturing and society.

3

By drastically reducing the cost of production with standardized parts and more efficient assembly, Ford (IW 500/8) was able to bring the luxury, convenience and freedom of the automobile to the masses.

4

Other industries soon adopted the innovation and today, everything from cereal to caskets is made on assembly lines.

5

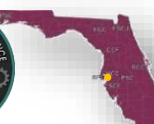
"It had a huge, huge impact," said Stephen Burnett, a professor with Northwestern University's Kellogg School of Management. Standardization led to lower costs, higher quality and more reliable products.

From Hours to Minutes

6

Most critically, the assembly line cut the amount of time it took to assemble a Model T from 12.5 hours to just 93 minutes.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it's resting on a surface.



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Lesson Plan: company host profile



Company Profile



Student Name: _____ Date: _____ Period: _____

Directions: Using the internet or the specific company website to answer the following questions for the company you will be visiting.

1. What is the name of the company you will be visiting? _____
2. When and where was the company started?
3. When the company first started did it make products differently than it does now, if so what was different?
4. What products does the company make now?
5. Who is the customer for this company?
6. What manufacturing processes does the company use to make its products?
7. What quality control measurements does the company take to make sure their products are to specifications?
8. What are two technical jobs available at the company and what education/skills would be needed for that job?



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Lesson Plan: directed note taking

Directed Note-Taking

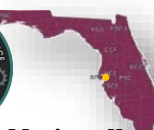
“Ford Launched the Modern Assembly Line a Century Ago and Changed Society”

Guiding Question: How do new machines, like robots, create changes to the assembly line in manufacturing products?

Paragraph Number	Evidence from our (checkbox)	Write your notes from your reading and tour in the rows below, check the appropriate boxes based on the type of observation you make.	Assembly Process	Machines Used	Jobs People Do	Improving Efficiency or Reducing Costs
1	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Guiding question

Directed notes

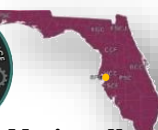


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Lesson Plan : Manufacturing Assembly

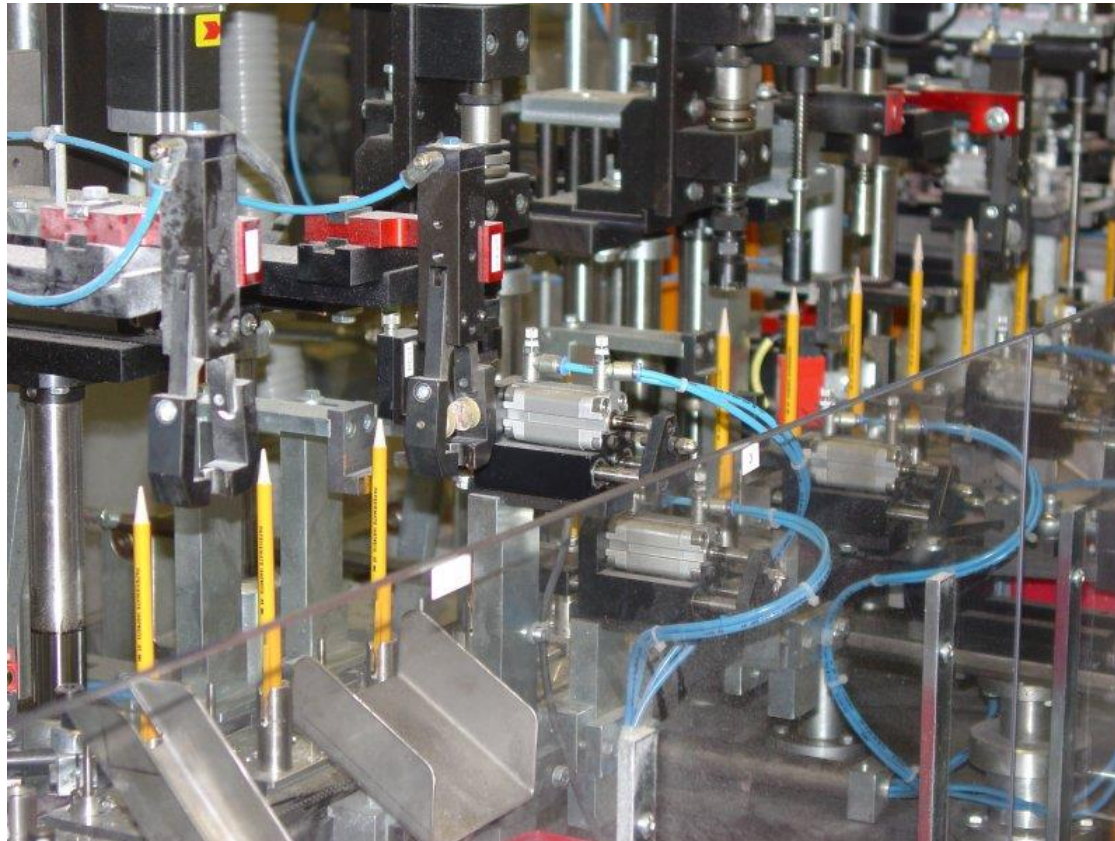
MANUFACTURING ASSEMBLY
MADE IN FLORIDA - INDUSTRY TOURS





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Bell Work Day 1: Assembly Line



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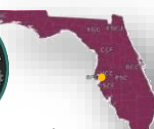


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BUILD IT BEST

- ❖ What process would you use, if you had to make 100 mechanical pencils in the shortest amount of time possible?
- ❖ Share ideas with your partner
- ❖ Share with the class



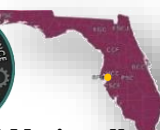


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Words to know

- ✓ Crude - constructed in a rudimentary or makeshift way.
- ✓ Standardized - to conform to a certain level of quality.
- ✓ Innovation - the action or process of innovating.
- ✓ Productivity - the state or quality of producing something.
- ✓ Specialization - the act of specializing; making something suitable for a special purpose.
- ✓ Monotonous - dull, tedious, and repetitious; lacking in variety and interest.
- ✓ Leisure - free time.



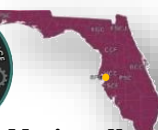


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Words to know

- ✓ Hydraulics - the conveyance of liquids through pipes and channels.
- ✓ Precise - marked by exactness and accuracy of expression or detail.
- ✓ Efficiency - achieving maximum productivity with minimum wasted effort or expense.





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Now...Read the Article and Mark Your Text

Mark “H” if something is describing the history of assembly lines

Mark “M” if something is modern methods or new technology

Mark “E” if something is referencing making things more efficient.



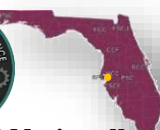


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Questions From the text

1. What two factors allowed Henry Ford to reduce the cost of production?
2. How did the assembly line change the way people worked and lived?
3. What new technological innovations have made manufacturing even more efficient?





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Bell Work Day 2



- ❖ Based on your company profile research and the article you read.
- ❖ Write one question you plan on asking on the tour to help gain further understanding of the companies use of robotics.





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On your trip

While your on your tour
complete the directed note
taking activity.

Bring your observations back to
class to discussion and review.





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Bell Work Day 4: A Reflection



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Discussion



WHAT MACHINES OR TECHNOLOGIES MADE THE ASSEMBLY OF PRODUCTS FASTER OR EASIER?



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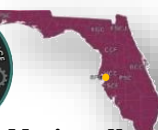


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Discussion

- ❖ Review your notes from the tour
- ❖ Discuss your observations with your team and class





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Thank you!



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