

# Classrooms to Combines

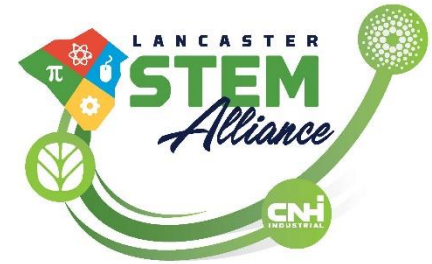
Teachers in the Workplace

STEM at Work Team

**Newport Beach, USA**

November 16th, 2018

Collaboration  
Need partner



# CNH

## INDUSTRIAL





 **12**  
BRANDS

 **63,356**  
EMPLOYEES

 **\$ 3.9**  
MILLION  
INVESTED IN  
TRAINING

 **53**  
R & D  
CENTERS

 **6,000**  
INDIVIDUALS  
DEDICATED TO  
INNOVATION

 **5.8%**  
OPERATING  
MARGIN  
INDUSTRIAL  
ACTIVITIES

## OUR COMPANY

Key Figures  
(31 December 2017)


 **66**  
PLANTS

 **9,629**  
ACTIVE  
PATENTS  
OWNED

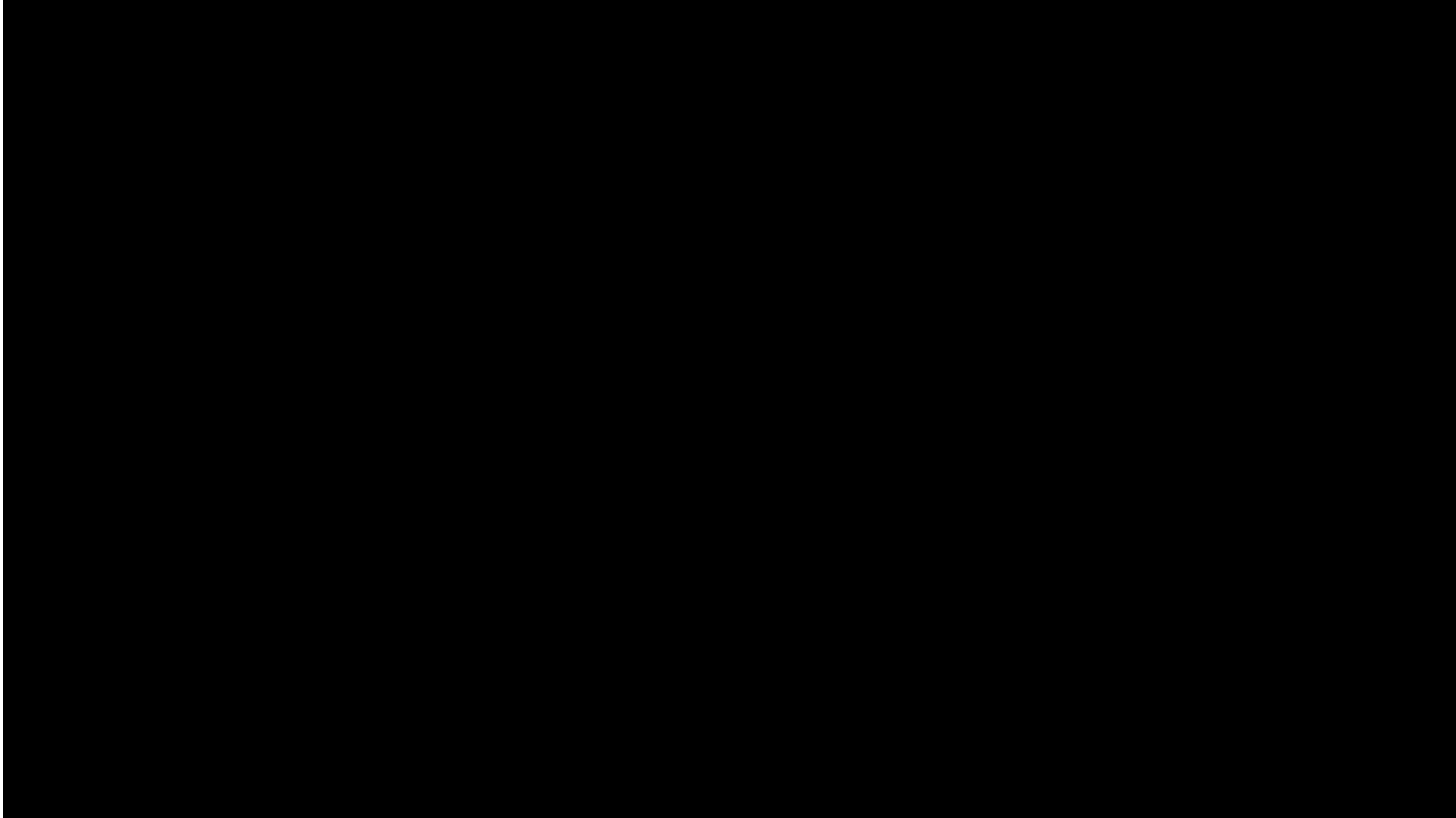
 **\$ 27.4**  
BILLION  
REVENUES

 **180**  
NATIONAL  
MARKETS

 **\$ 957**  
MILLION  
INVESTED  
IN R & D

 **\$ 9.4**  
BILLION TOTAL  
AVAILABLE  
LIQUIDITY

Note: all figures provided herein are on a US GAAP \$ basis unless otherwise indicated





Picture from [blogs.edweek.org](https://blogs.edweek.org)

When you were in High School.....

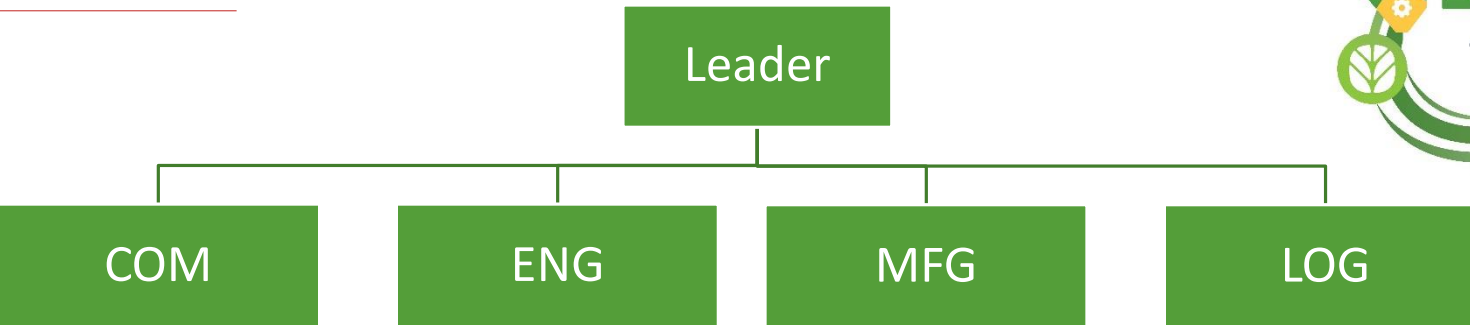


Picture from unsplash.com

Many destinations, even more routes.....

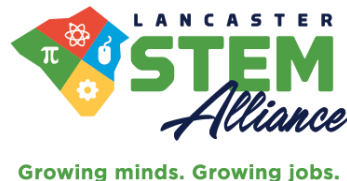
# Team Structure

Divide and conquer



- Started October last year
- Theme – Product life cycle
- Monthly core team planning meetings
- Focus group of teachers early in the planning cycle
- 9 CNHi people on core team – Business & HR
- 120 people, ~5000 hours invested

■ Supported by:





# Rotation by Day



Tuesday 14th August		
Time	Minutes	Red Team
<b>COMMERCIAL</b>		
8:15 - 8:30	15	Admin. Building Parking Lot for Transport
8:30 - 8:35	5	Refreshments and Welcome - Mark Lowery
8:35 - 8:50	15	Hay Industry / Hay Making - Tim Douglas
8:50 - 9:00	10	Defining the Need - Tim Douglas
9:00 - 9:45	45	Design/Create/Build (hands on activity)
9:45 - 10:00	15	Break
10:00 - 10:15	15	Product Launch - Aimee Culbert
10:15 - 10:30	15	Marketing/Advertising - Brooke Brown
10:30 - 11:15	45	Name product, create advertising poster (hands on activity)
11:15 - 11:30	15	Transport to Group Lunch
11:30 - 1:00		Group Networking Lunch
1:00 - 1:20	20	Transport Back
1:20 - 1:40	20	Financing Process at Capital - Stephanie Gill
1:40 - 2:25	45	Worksheet to Define Costs, Set Price (hands on activity) - Greg Arkatin
2:25 - 2:55	30	Aftersales/Machine Support - Kevin Brookhart & Zach Neiderer
2:55 - 3:10	15	Break
3:10 - 3:40	30	PLC summarized - Opportunities - Skill Requirements - Apprenticeship Program
3:40 - 4:00	20	Recap and awards to product design - Mark Lowery & Jon Hundley
4:00 - 4:15	15	Transport to NH Plant or Ride N Drive Track or Admin. Building Parking Lot
4:15 - 5:15	60	Optional Plant Tour and/or Ride N Drive
5:15 - 5:30	15	Transport back to Admin. Building Parking Lot

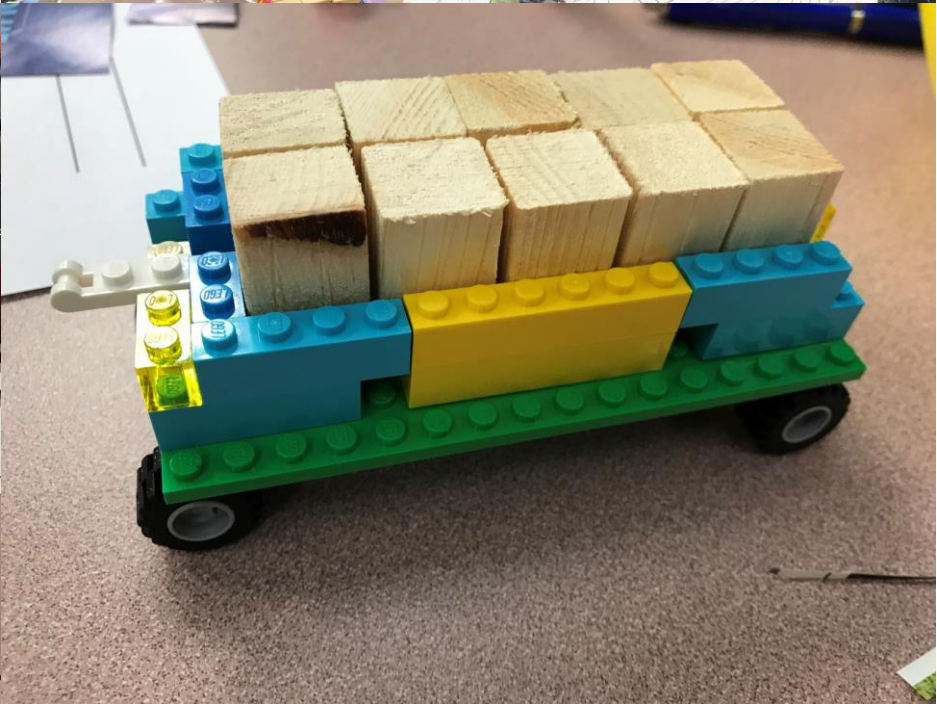
Tuesday 14th August		
<b>YELLOW TEAM</b>		
<b>MANUFACTURING</b>		
Admin. Building Parking Lot for Transport		
New Holland Plant Introduction - Ryan Alleman		
Machining Overview on Shop Floor - Ken Stephens		
Laser and Fabrication Overview on Shop Floor - Corey Messner		
Paint Department Overview on Shop Floor - Heather Rutenkroger		
Transport to Group Lunch		
Group Lunch and Networking		
Transport Back		
Welding Overview on Shop Floor - Jeff Bender		
Assembly Overview on Shop Floor - Ryan Heffner		
Design Project Time on Shop Floor - Greg Gerwitz		
Open time		
Transport to Headquarters, NH Plant or Ride N Drive Track		
Optional Plant Tour and/or Ride N Drive		
Transport back to Headquarters Parking Lot		

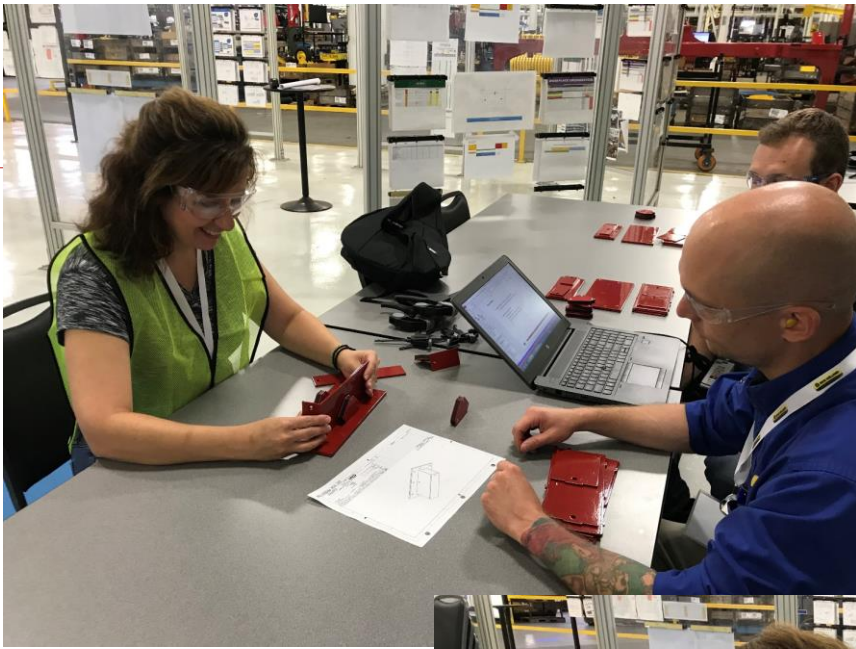
11:30 - 1:00		
1:00 - 1:20	20	
1:25 - 2:10	45	
2:15 - 3:00	45	
3:05 - 3:50	45	
3:50 - 4:00	10	
4:00 - 4:15	15	
4:15 - 5:15	60	
5:15 - 5:30	15	

August	
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12:50 - 1:00	10
1:00 - 1:10	10
1:10 - 2:00	50
2:10 - 3:00	50
3:10 - 4:00	50
4:00 - 4:15	15
4:15 - 5:15	60
5:15 - 5:30	15

Goal was for 1 on 1 interaction between participants and employees

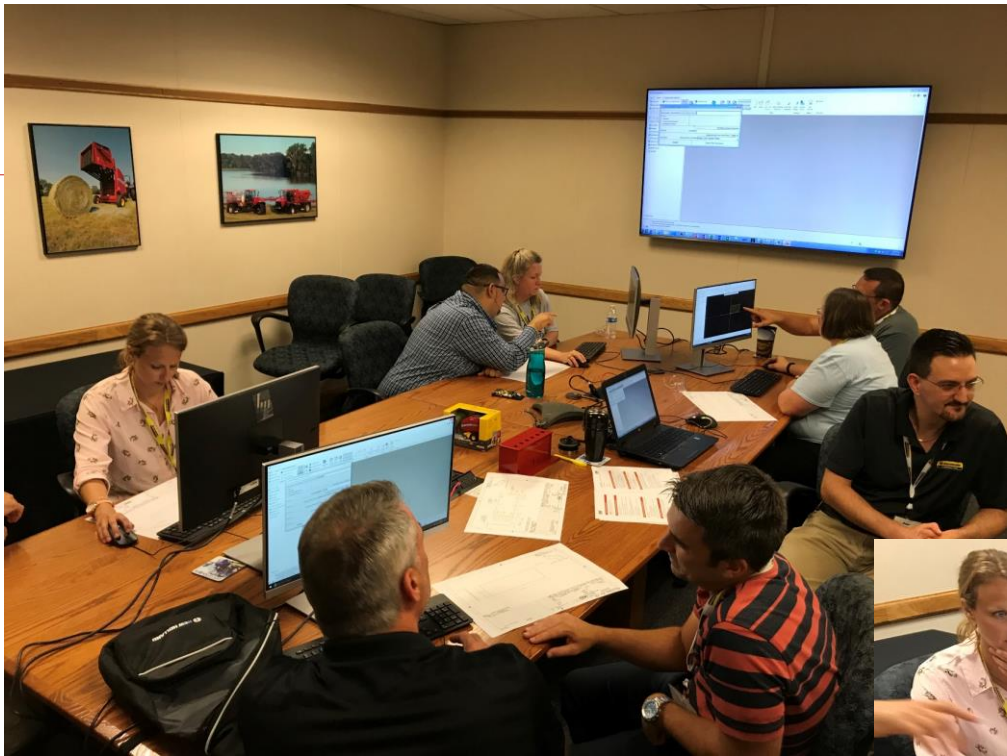
60 participants split into 15 teams

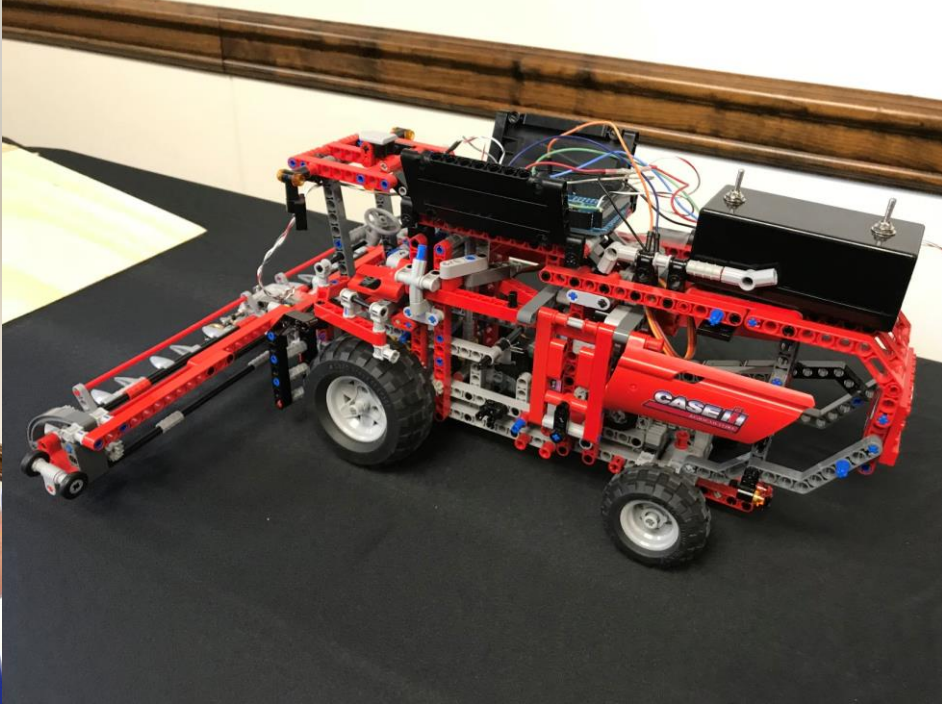
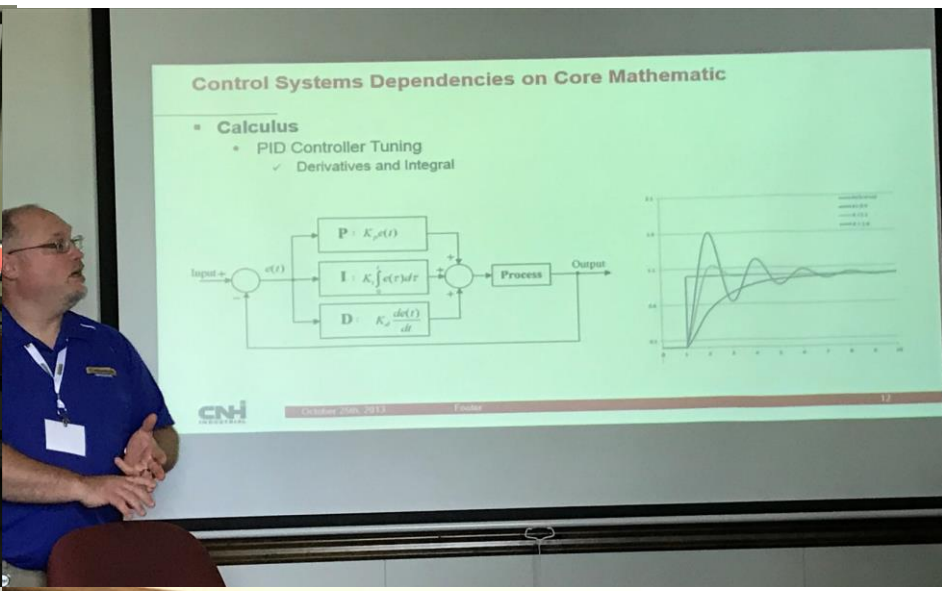


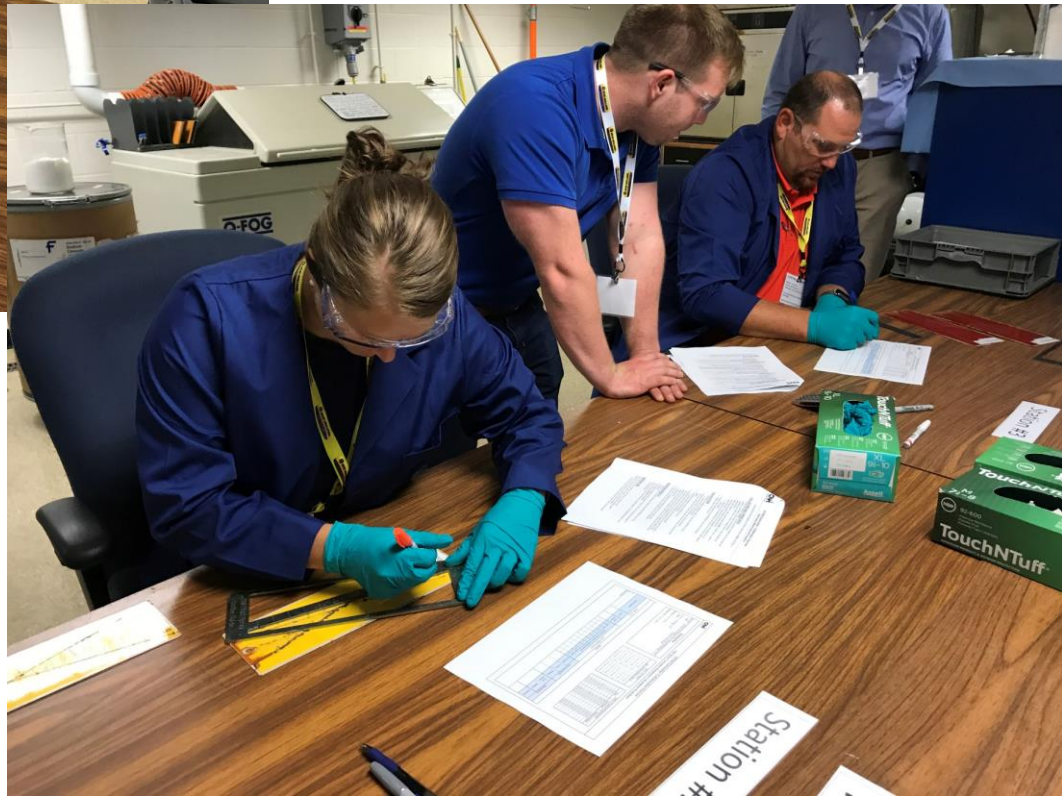
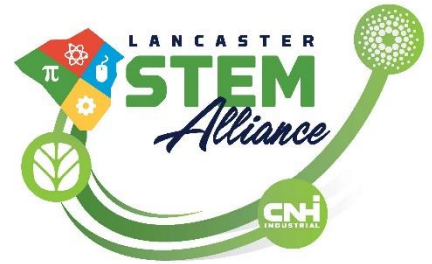














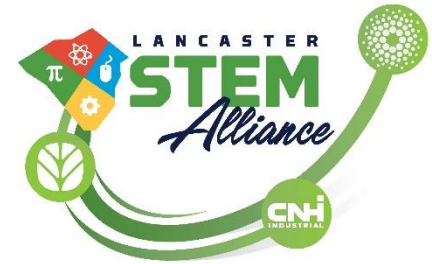


Excel spreadsheet titled "CNH STEM Externship Simulation Calculator V1.xlsx - Excel" by DECHRISTOPHER David (CNH Industrial). The spreadsheet contains data for grain measurements and volume calculations.

Mass of Grain in Cup			Angle of Repose		CNH Box Volume	
Replicate	Material	Mass of Grain in Cup, g	Replicate	Material	Angle of Repose, °	Value
1	Wheat	0	1	Wheat	0	220
2	Wheat	0	2	Wheat	0	60
3	Wheat	0	3	Wheat	0	90
Average, M <sub>c</sub>		0.0	Average, α <sub>c</sub>		0.0	
1	Rice	0	1	Rice	0	
2	Rice	0	2	Rice	0	
3	Rice	0	3	Rice	0	
Average, M <sub>c</sub>		0.0	Average, α <sub>c</sub>		0.0	

Mass of Grain in CNH Box						
Grain Type	Internal Box Volume, mm <sup>3</sup>	Pile Volume, mm <sup>3</sup>	Total Volume, mm <sup>3</sup>	Predicted Mass, g	Measures Mass, g	Error, %
Wheat					1054.2	
Rice	1210000				726.8	





# Participant Testimonial

Willonda McCloud



# What We Learned

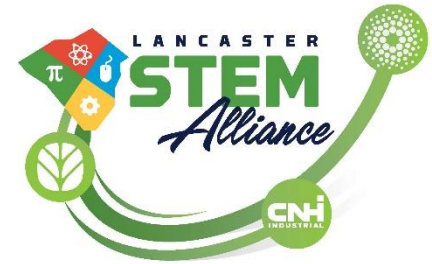
Willonda McCloud



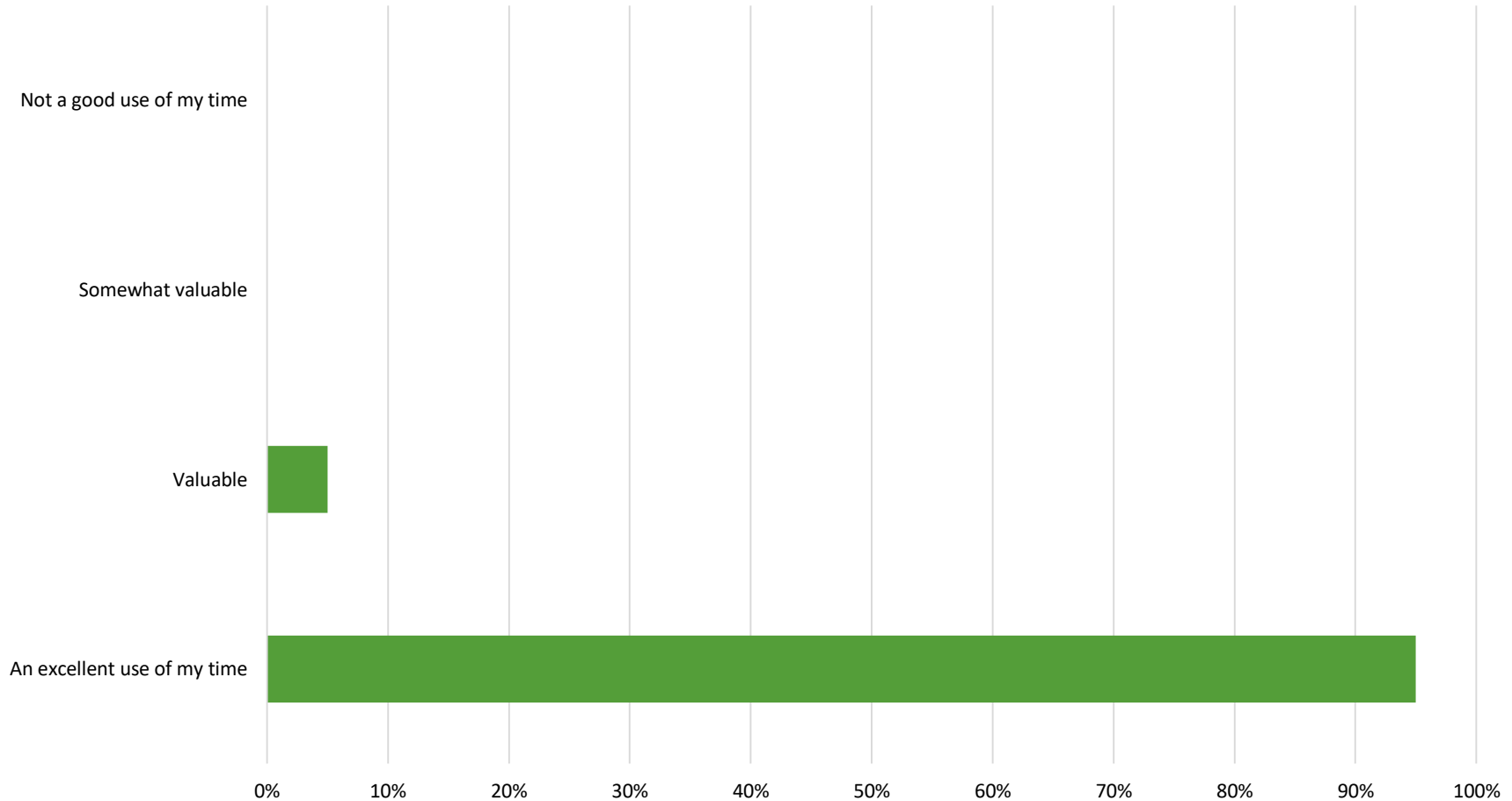
- CNHi is an employer with many and varied employment opportunities for all Lancastrians.
- You will use Algebra 2 some day!
- Agribusiness is about more than farming, it's about feeding the world.
- Work-based learning makes a lasting impression in many areas.

# Follow Up Survey Results

Overall Experience – 74% response rate

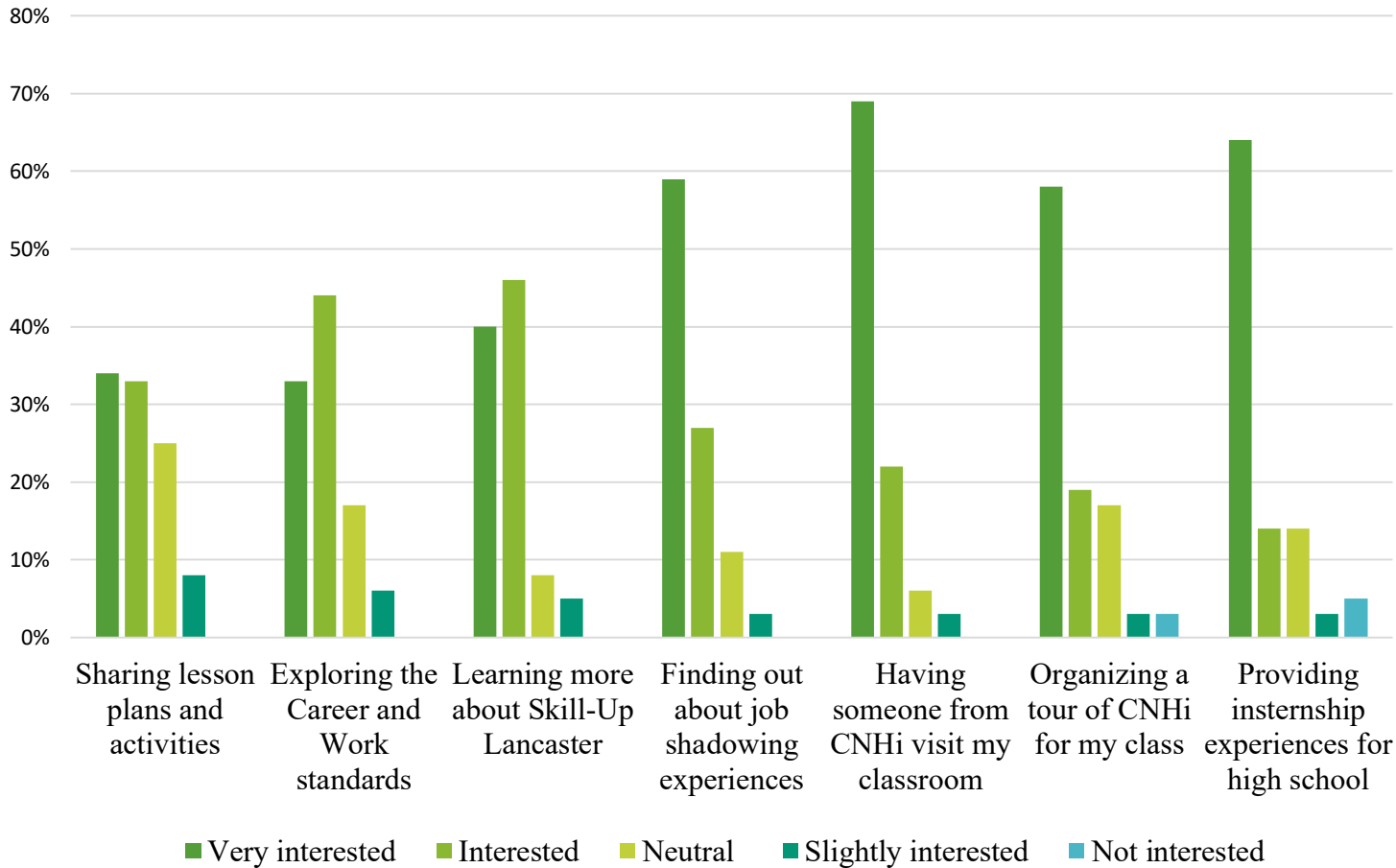
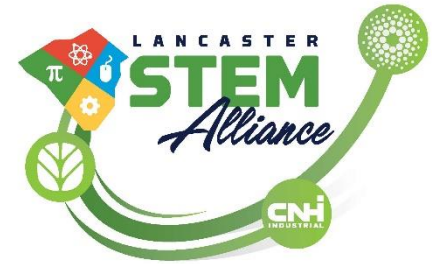


Overall, the externship experience was:



# Follow Up Survey #1 Results

## Interest in Follow Up Activities



# Follow Up Survey #1 Results

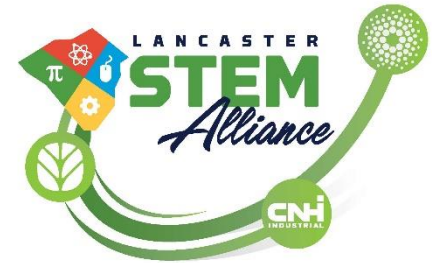
How can the externship team support you throughout the school year?



- Availability for follow up
  - Field trip to CNHi
  - Guest speaker in the classroom to support lessons we were given
  - Engineer to help robotics club
  - Provide opportunities for students to experience externship presentations
  - Provide some of the materials (tractor building block kits)
  - Guest speaker for career opportunities
  - Provide project ideas for STEM club
- 
- There will be additional surveys at the 3 and 6 month marks



# Not a destination

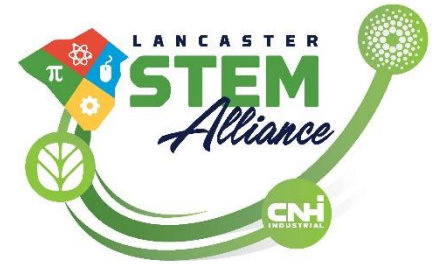


- Teacher in the workplace grant - 8 Webinars
- Continued dialogue and support of the educators
- New STEM at Work team

# Experiential Learning

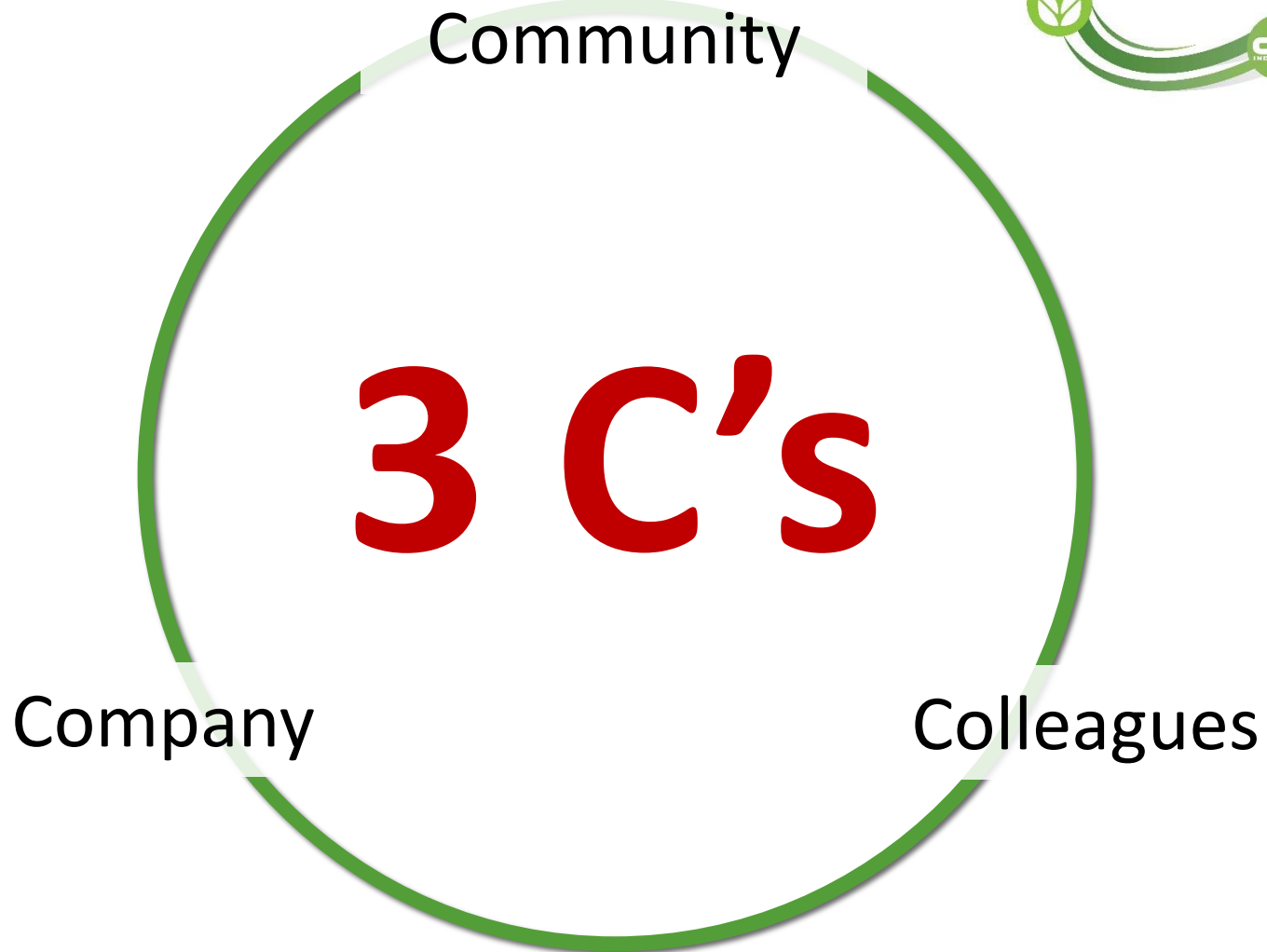
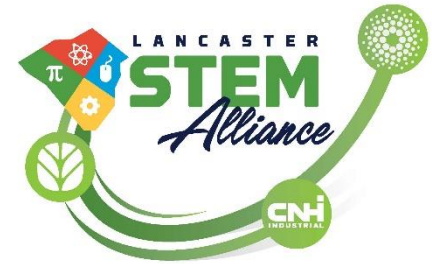
A balanced assembly line

- Olivia Walters



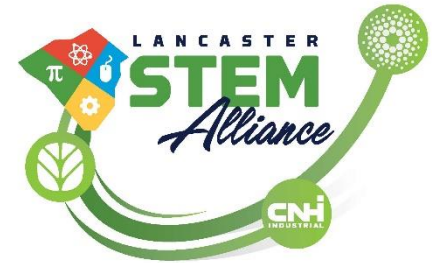
# CNHi Testimonial

Why did CNH Industrial invest well over half a million dollars in this program?



# Transforming Lancaster County

Everyone needs to be engaged



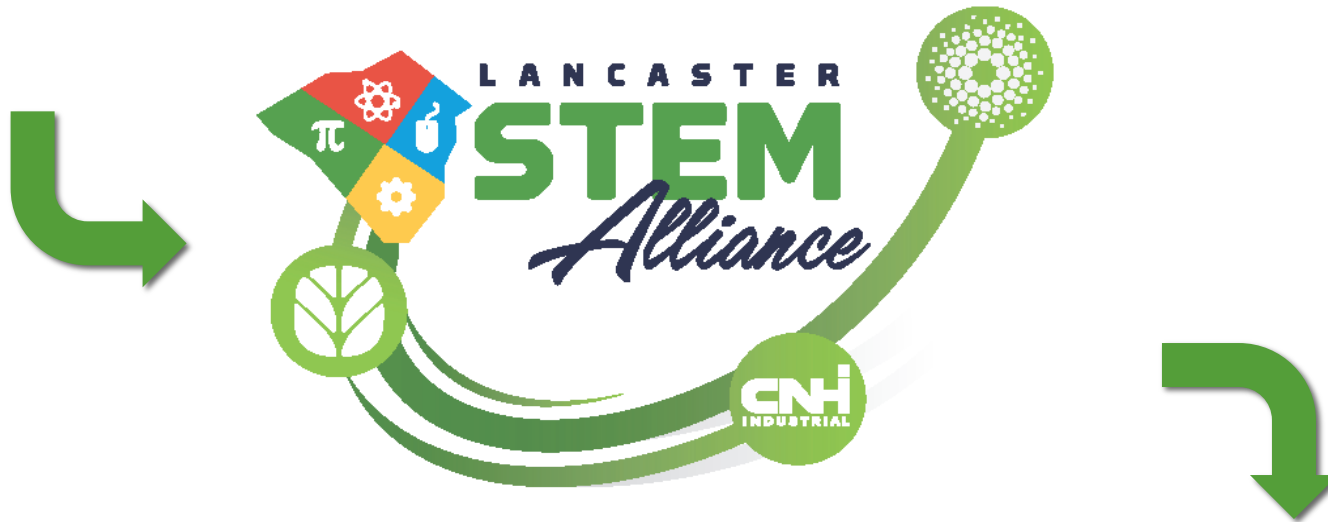
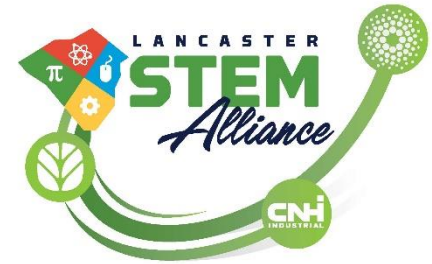
- CNHi employees have dedicated nearly 5,000 hours to narrow the industry/education gap through the externship
- CNHi is committed to creating meaningful experiential learning opportunities for the community
- Full, active collaboration of all stakeholders is required to change Lancaster County into a STEM literate community with needed 21st Century skills
- Failure to act will drive job creators to find alternate solutions without Lancaster County



As a hub for STEM literacy and experiential learning, Lancaster County will attract and retain visionary job creators, inspire learners of all ages to achieve academic excellence, and engage all its citizenry in building a prosperous future.

# Process Already Underway for next Year

Passing the baton





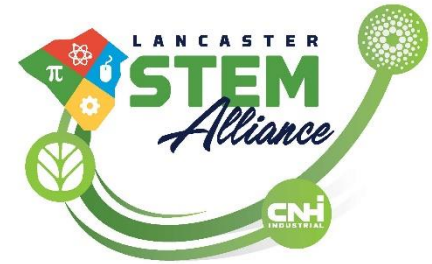
## Getting Started – Lessons Learned

- Start planning a year out; *everything* takes longer than you think it will.
- Context matters; one size does not fit all.
- Create a core team to represent various business functions and unleash their creativity.
- Choose a relevant and meaningful learning theme to provide overall coherence.
- Set the dates a year out and communicate them well in advance to school leaders.



## Recruiting Teachers – Lessons Learned

- Involve school leaders in the recruitment process.
- Design slots equitably across different sized districts.
- Create scoring criteria tied to individual commitment and relevance of learning outcomes.
- Have a teacher point-of-contact outside the business setting.
- Accept teachers early and maintain regular contact with them prior to the externship.
- Repeat safety and logistical information multiple times.



## Designing Activities – Lessons Learned

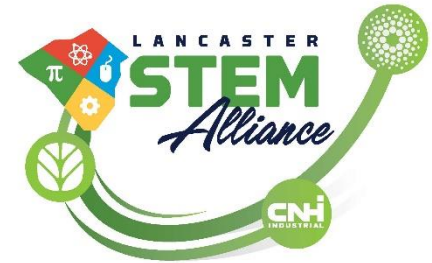
- Stress the importance of **hands-on learning** for teachers.
- Try to ban PowerPoint!
- Incorporate employee career stories whenever possible.
- Use tangible manipulatives that teachers can take back to the classroom.
- Encourage competition among planners and among participants.
- Don't forget to plan logistics such as travel time, meals, extra activities.
- Schedule a practice session or two with each business unit.





## Show Time – Lessons Learned

- Prepare for last-minute cancellations and late arrivals.
- Engage VIPs in showcasing your business.
- Have back-up plans in place for inclement weather.
- Distribute an onsite emergency phone contact for all participants.
- Take lots of pictures and videos to share with the community.
- Have fun!



## After Action Plan – Lessons Learned

- Don't underestimate the impact of the experience on employees, teachers, students and community members.
- Collect evaluation data that can be shared with others.
- Plan follow-up conversations with teachers who try to implement activities in the classroom.
- Create communication structures for teacher support requests.
- Plan community engagement activities to roll out following the externship.

Thank you for your participation in today's session.



# Questions?

Peter Caddick, [peter.caddick@cnhind.com](mailto:peter.caddick@cnhind.com)

Sandy Strunk, [sandy\\_strunk@comcast.net](mailto:sandy_strunk@comcast.net)

Olivia Walters, [owalters@lnpnews.com](mailto:owalters@lnpnews.com)

Willonda McCloud, [wmcccloud@brightsideopportunities.org](mailto:wmcccloud@brightsideopportunities.org)