



Conference School & District Leader Session

October 12, 2018



CONNECTING THE CAREERS OF TOMORROW
TO THE CLASSROOMS OF TODAY

We have four objectives for our session this morning

Session Objectives

1. Provide an update on PLTW in MA
2. Share emerging research insights
3. Preview school dashboards
4. Get people connecting!

Agenda

9:45-9:55

Introductions

9:55-10:05

MA PLTW Community Updates

10:05-10:35

Emerging Insights from Longitudinal Research Study

10:35-10:50

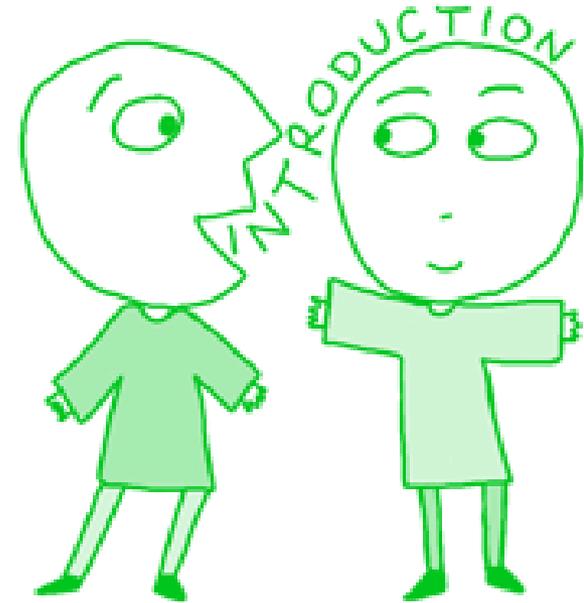
School Dashboards

10:50-11:20

PLTW Program Leader Moves & Small Group Discussions

Introduce yourself to a new face in the room

- Name
- School/District
- PLTW Program
- Favorite teacher while a student



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Teachers are doing amazing things...and so are YOU, we hear it from them all the time

"My principal reworked our schedule to make this happen. Every students gets to have PLTW every year now."

"We'll be at the Children's event and my leadership team is coming – once they saw the design challenge they were on"

"I couldn't do this without my principal."

"The showcase was awesome! We wouldn't have been here with our my principal."

"I was nervous about coaching, but my admin pushed me. Turned out great!"

"Our admin makes sure we get to training... every time"

"We are all set – Mrs. X is on it!"

"My principal helped me prep – I'm ready."

"My principal helped me prep – I'm ready."

We have three programmatic goals for 2018-19

Expand higher ed & industry network

Increase reach of student events aligned to the curriculum and # of higher ed partners

- Offer at least 25 student events & challenges to reach at least 6,500 students
- Sign on at least 4 new higher ed partners

Provide high quality coaching & PD for teachers

Utilize master teachers to provide high-quality coaching support and professional development sessions

- Provide master teacher coaching to at least 50 PLTW teachers
- Pilot at least 3 industry-led and 5 self-paced PD offerings

Get people engaged & collaborating

Build awareness of MA PLTW community, the offerings, and the oppy to improve quality in the network

- Expand networking conference & spring PD day
- Visit all 200 schools
- Launch school & district dashboards
- Support Community Leads to build robust learning teams that connect 100+ PLTW educators

We have some great supports for teachers planned and need your help getting them to opt in

- Learning Teams
- Master Teacher coaching
- Industry-led & self-paced PD
- School tours
- Spring PD day



We also have a number of student events and opportunities for connections to industry



**DESIGN
SHOWCASE**

A Mass STEM Hub event for PLTW students



**PULL
TOY
SHOWCASE**

A Mass STEM Hub Event for PLTW Students

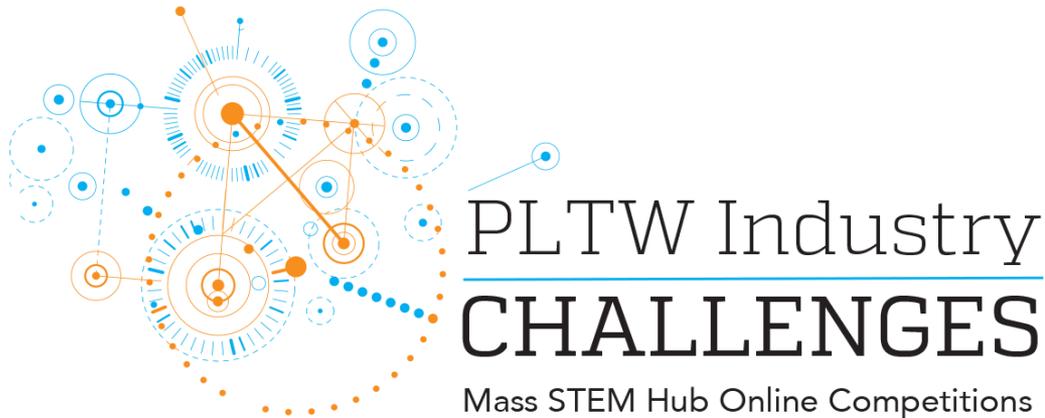
IN PARTNERSHIP WITH



A Mass STEM Hub event for PLTW students



In addition to in person events, we are also launching online industry challenges



Goals for the challenges

- Ensure an **authentic audience** for student work completed in class
- Provide students with **industry feedback** on their coursework
- **Celebrate & recognize** high-quality student work

SELECT CHALLENGES

LAUNCH

K-Structure & Function:
Exploring Design

GATEWAY

AC: Fitness Challenge App
AR: Factory Assembly Line
CSIM: The Blinking Message
GA: Shipping Container Home

HS ENGINEERING

IED: Manufacturing a Box
IED: Product Reverse Engineering
POE: Design Problem (aka Marble Sorter)
POE: Structural Design
CEA: Keystone Library Renovation

HS COMPUTER SCIENCE

CSE: Image Processing
CSE: Create Performance Task
CSP: Genomic Data
CSP: Investigate with Data

HS BIOMEDICAL SCIENCE

PBS: Future of Diabetes Mgmt
PBS: Heart Disease Interventions
HBS: Train a Champion
HBS: Rigor Mortis Models
MI: Tiny Treatment

Important administrative updates

- Rostering & engineering notebooks
- Course codes now available for all PLTW courses
- Student & teacher surveys
- 1st grant deadline is November 16th

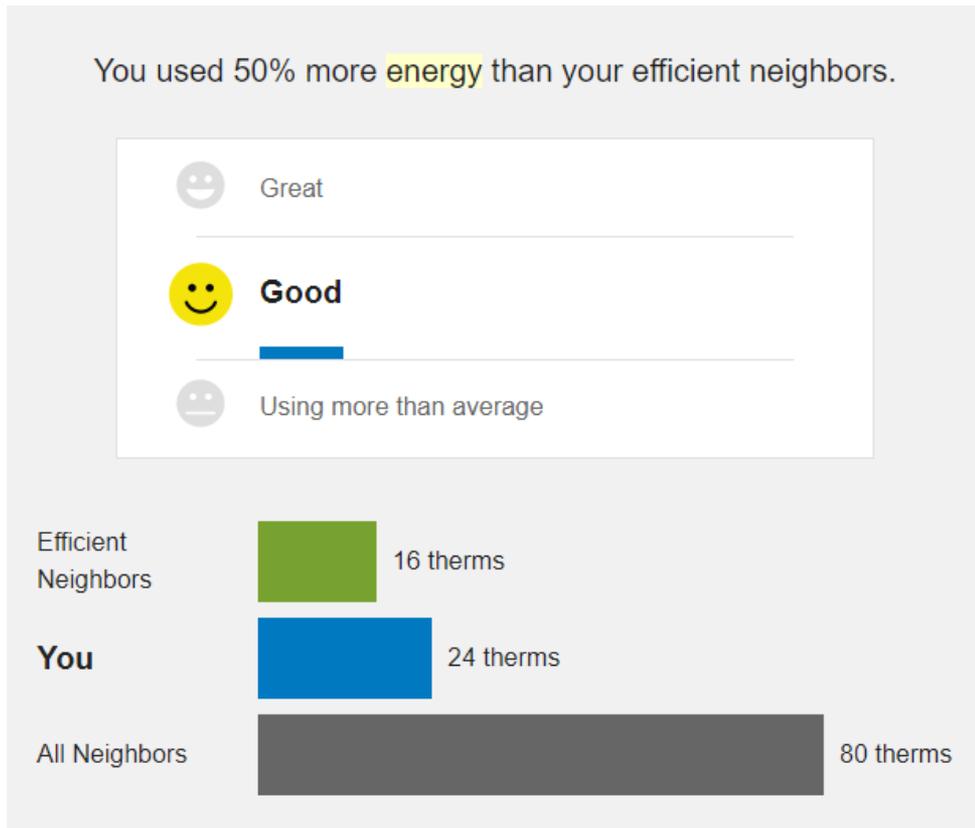
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Sneak peek of new school dashboards



Our PLTW dashboards are

- Non-evaluative
- Meant to share information back and spark a conversation
- Focused on a few metrics
- Include comparisons to community and model schools
- Allow for some drill down by course & grade level

Before diving in with the dashboards it is important to understand where the data is coming from

PLTW roster files

Mass STEM Hub PLTW student
& teacher surveys

PLTW end-of-course exams

Massachusetts Department of
Elementary & Secondary
Education (matched by SASID)

Each dashboard provides three views



School overview

- Look at school-wide stats
- Get quick read on access, exposure, equity and program outcomes
- Compare to MA PLTW community and model schools

Deep dive by course or grade level

- View the same metrics at the grade or course level
- Understand if certain grades/courses are driving school-wide trends

Data input **summary** table

- Check the data sources
- Understand if some stats look off because underlying data are missing

Each school has access to a PLTW dashboard from MSH

MASS STEM HUB

School PLTW Dashboard | Deep Dive | Data Summary

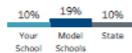
Sample School

Participation

Strong PLTW programs draw in a broad set of students and provide a meaningful level of programming. The Access metric shows the percent of students participating in PLTW, while Exposure reports the number of hours of PLTW content that participating students receive, on average.

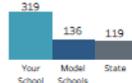
Access

Percent of Student Body Participating



Exposure

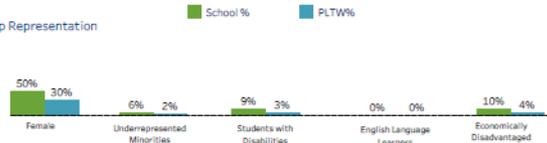
Average Contact Hours



Equitable programs are ones in which the full diversity of a school's student body is represented within its PLTW program. The charts below show the composition of the student population for the full school compared to the composition of those participating in PLTW.

Equity

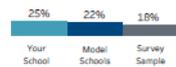
Subgroup Representation



Outcomes

Students Highly Engaged

Self-reported student engagement is a critical input to heightened levels of student learning. This chart depicts the percentage of students who report high levels of engagement on a series of related questions on the Mass STEM Hub survey.



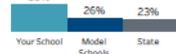
STEM Interest

PLTW courses are designed to teach STEM content in the context of real-world problems tackled by STEM professionals to enhance students' connection to possible STEM careers. The chart below depicts the percentage of students reporting on the Mass STEM Hub survey being "Quite interested" or "Extremely interested" in STEM or being "Somewhat more interested" or "Much more interested" in STEM due to PLTW.



End of Course Exam

At the end of each high school course, PLTW programs include an end-of-course exam available to all participating schools. The exam is designed to provide a signal of the extent to which students have mastered key course content; some colleges offer students credit for achieving certain scores. This chart shows the percent of students scoring "Proficient" or "Advanced" on the end-of-course exam.



MASS STEM HUB | PLTW

MASS STEM HUB

School PLTW Dashboard | Deep Dive | Data Summary

Sample School

School Snapshot

Strong PLTW programs draw in a broad and representative set of students and provide a meaningful level of programming. The Access metric shows the percent of students at your school participating in PLTW, while Exposure reports the number of hours of PLTW content that participating students receive, on average. The Equity metric illustrates the extent to which your PLTW program represents the diversity of the full student population at your school. The charts below depict the extent to which these metrics vary by course.

Access

Percent of Student Body Participating



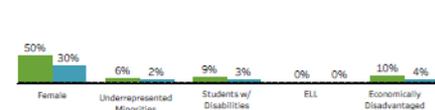
Exposure

Average Contact Hours



Equity

Subgroup Representation



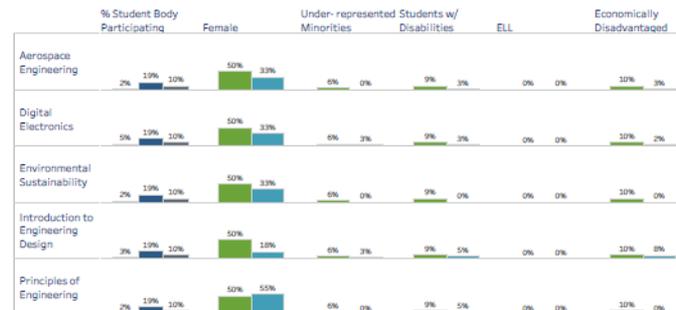
Course Level Detail

Access and Exposure

Legend: Your School (blue), Model Schools (dark blue), State (grey)

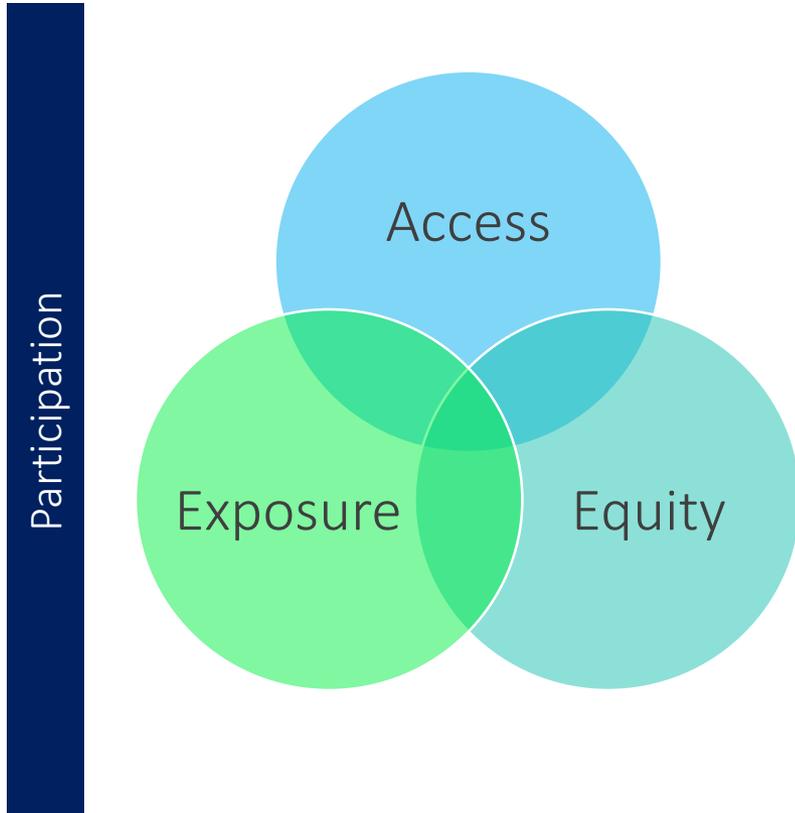
Equity

Legend: School % (green), PLTW% (blue)



MASS STEM HUB | PLTW

Given our statewide goal to increase access, the first half of the dashboard unpacks student participation



*Strong PLTW programs draw in a **broad and representative** set of students and provide **meaningful level** of programming*

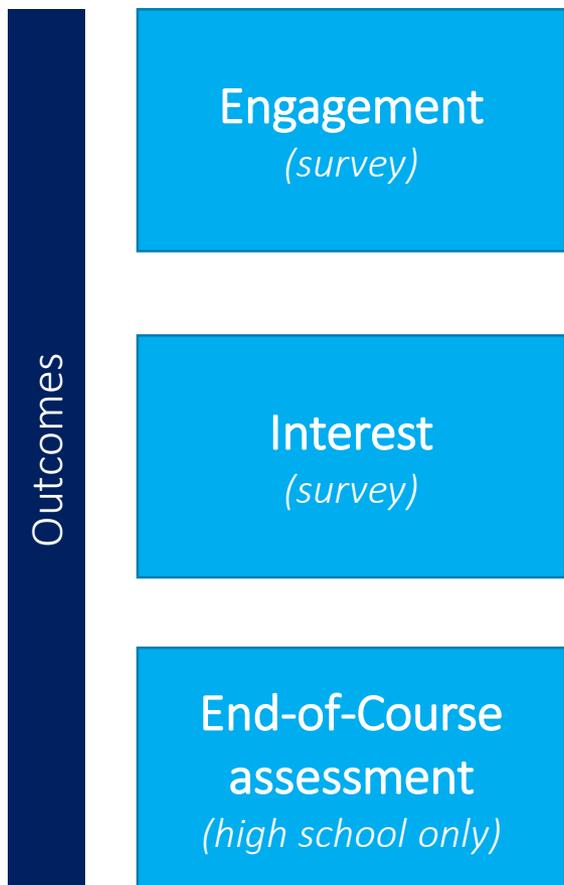
Metrics: Access, Exposure, & Equity

Drivers: Schedule, course offering, student recruitment, teacher selection

Questions to consider:

- How are access & equity related?
- How does our school compare to model schools?
- Does our schedule support student access? Equity?

In addition to participation, the dashboard also provides a high-level look at student outcomes



Students are engaged in strong PLTW programs, report increased interest in STEM, and at the high school level demonstrate mastery of the content on EoC exams

Metrics: Engagement, Interest, & EOC

Drivers: Time, materials, student feedback, student satisfaction, training, coverage of material

Questions to consider:

- What is surprising? What is expected?
- Are the three metrics similar?
- How does our school compare to model schools?
- How would our school rate ourselves on the drivers that the research is pointing to (e.g., time, training, materials, student feedback)

The dashboards are non-evaluative and meant to provide data to inform programming (i.e. continuous improvement)

Potential next steps

- Pick up a printed copy of your dashboard on your way out (and online access code)
- Review your data!
- Schedule a follow up call/meeting with the MSH team to discuss
- Connect with another leader you met today to compare notes
- Share the dashboard (or metrics) back with your team to spark a discussion

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In the spirit of collaboration and #learning is social, we have 5 leaders ready to share an idea or lesson learned

- **Alison Riordan**, Plymouth Public Schools | Articulation
- **Joyce Nelson**, Leicester MS | MS schedule to ensure participation & equity
- **Mike Rubin**, Uxbridge HS | Innovation Pathway
- **Jamie Flynn**, AC Whelan | Launch Lessons
- **Sarah Davis**, Hudson Public Schools | Landmark Experiences

Its time to network!

We'll meet back at 11:15

MSH's PLTW school & district leader challenge for 2018-19

There is momentum, excitement, and support for our PLTW community MA. Together we are meeting the needs of students and teachers to better prepare them for our rapidly changing world. Mass STEM Hub challenges YOU, the leaders in our community, to accelerate our work this year by:

- Visiting/connecting with another PLTW school
- Contributing to the community & study by ensuring roster data are accurate, surveys are completed, and EoCs are administered
- Getting your students to an event so they can connect with industry professionals and receive real-world feedback
- Encouraging teachers to participate in PD offerings from Mass STEM Hub, PLTW, and WPI
- Making your PLTW student work visible at school (e.g., include in open houses, display in entry way, post submissions from the online industry challenges)
- Setting a time to review programmatic data with your team and revisiting school/district structures to boost access, quality, and quality (e.g., schedule, student recruitment)
- Sharing ideas/feedback/questions with Mass STEM Hub so we can better serve you, teachers, and students

3-2-1 Exit Ticket

- **THREE** things you learned
- **TWO** contributions you can make to this group
- **ONE** question you still have

Please complete the yellow forms in the center of your table and then hand them in on your way out

For more information, please contact:

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