

Senate Education Committee

May 15, 2019

Background

Joint Interim Task Force on STEM Access & Success Recommendations (Dec 2012):

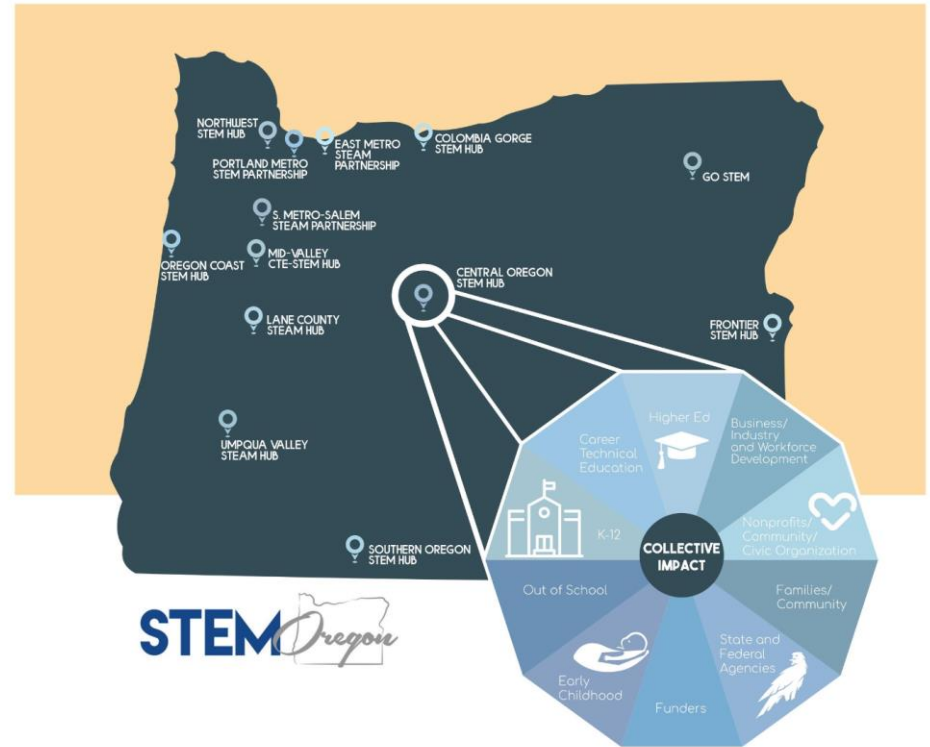
- STEM Investment Council - oversee an ambitious agenda for the P-20 educational system
- STEM Hub Network - connect & coordinate community, regional and state resources for P-20 students, teachers, & industry professionals

2013 Legislative sessions passes HB 2636

Impact of the Network

13 STE(A)M Hubs

- 223,559 students impacted (38.5%)
- 4,129 Educators engaged
- 2,892 Industry volunteers engaged
- \$4.8M non-state funding (2017-19)

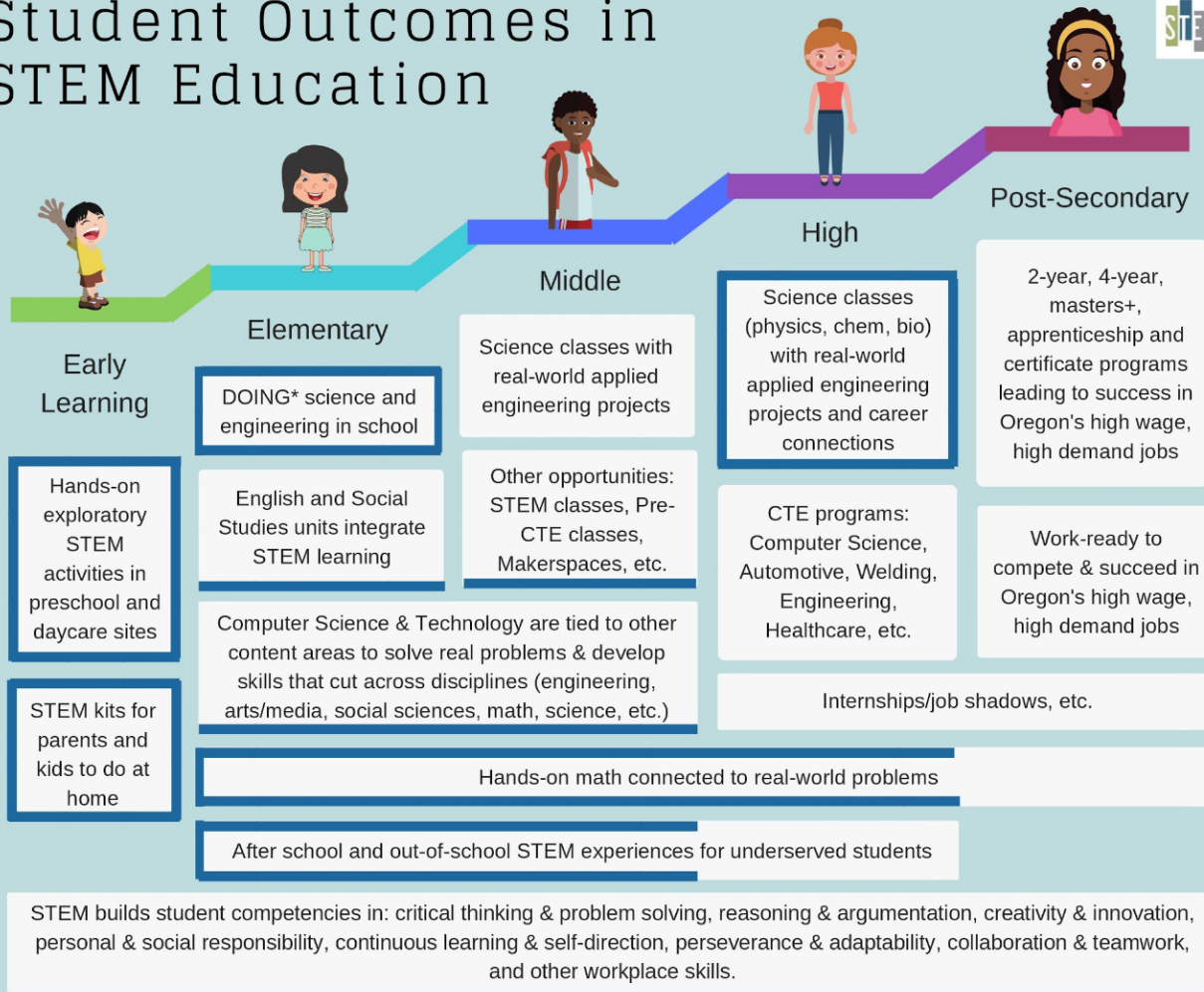


How Hubs Work

Bringing together P-20 partners to work together with larger effective, to improve outcomes, reduce duplication, and maximize effectiveness with the shared goal of a STEM-capable workforce and STEM-literate & engaged citizenry.

- Neutral connector & convener
- Leverage regional assets & relationships
- Design effective, research-based STE(A)M programming
- Share & build capacity to use research, data, and evaluation

Student Outcomes in STEM Education



Students are ready to engage in a technology-driven, globally-connected society where citizens are called to think critically and work collaboratively to solve complex challenges.

Portland Metro STEM Partnership Initiative Areas

DOING* = Investigating, Building Models, Engineering Design, etc.
STEM = Science, Technology, Engineering & Math
CTE = Career & Technical Education

<https://www.pdxstem.org/>



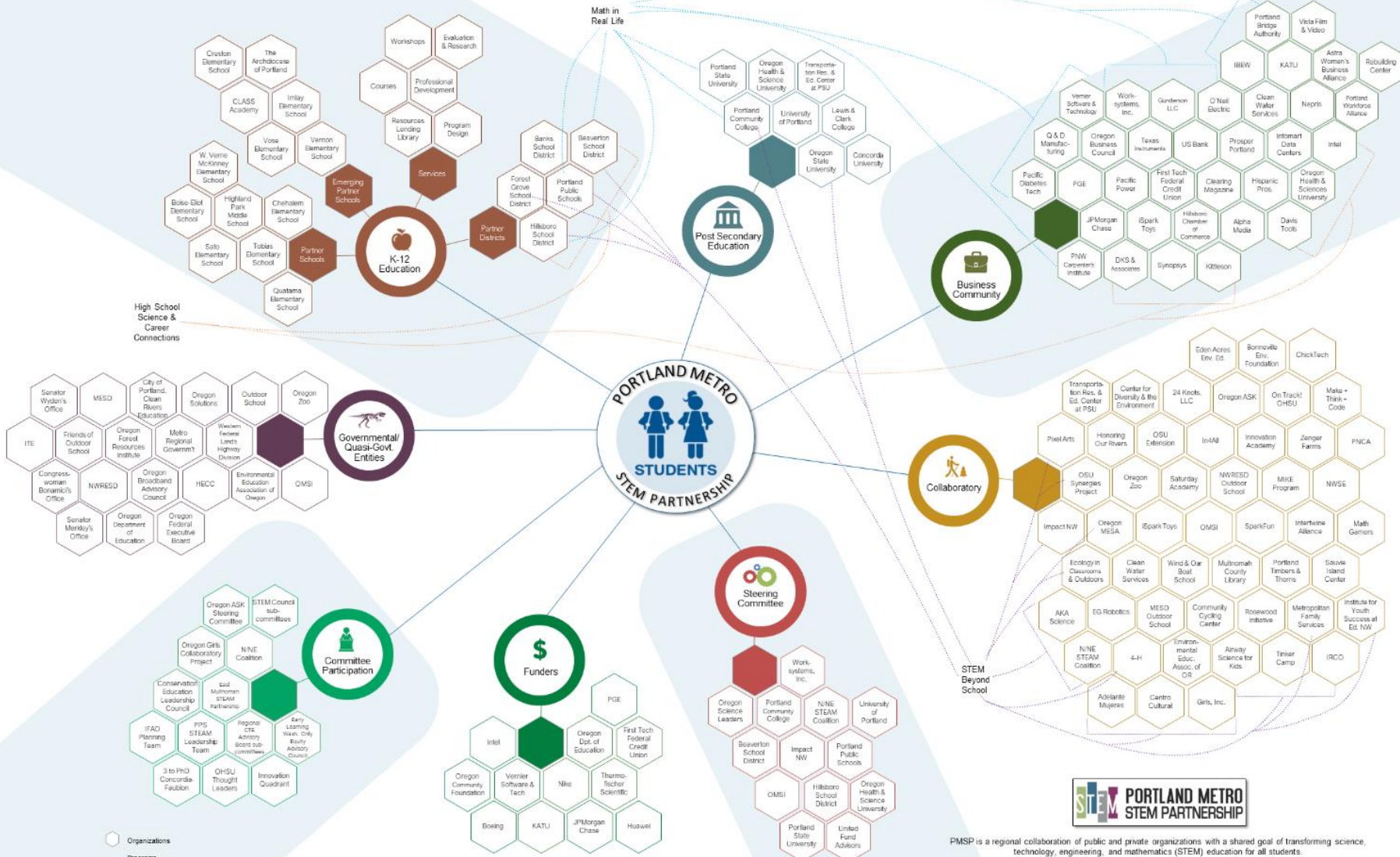
Our Region

Key Partners

- Beaverton, Hillsboro, Portland Public, Forest Grove and Banks School Districts
- PSU, OHSU, & UP
- Worksystems, Inc. & industry partners
- Close to 100 community partners

Facts:

- Washington & most of Multnomah Counties
- Over 115,000 students and over 6,000 educators (K-12)
- 44% of students considered economically disadvantaged



STEM PORTLAND METRO STEM PARTNERSHIP

PMSP is a regional collaboration of public and private organizations with a shared goal of transforming science, technology, engineering, and mathematics (STEM) education for all students.

This mindmap was adapted from Marion County STEM Education Network.

Updated: March 2019



What we do

Educator Professional Development

- **900 educators,**
- **totaling 12,176 person-hours,**
- **with the potential of impacting a projected 79,039 students.**
(Summer 2017 to January 2019)

Empowering Educators

STE(A)M School Transformation

- **11 elementary schools & 2 middle schools**
- **Planning support to 9 additional elementary & K-8 schools** seeking to become STE(A)M focused

Transforming Learning

Collaborative Projects

- **Regional 3-year High School Science Curriculum (& PD)**
- **Career-Connected Learning**
- **STEM Beyond School**
- **STEM Kits for Early Child Educators & Care Providers**

Changing Systems

Summer School ELL/Migrant Programs

Since summer 2017, over 400 5th-8th grade students participated in STEM projects, engineering design challenges, and field experiences as part of the Hillsboro & Beaverton migrant education programs.



Can students design and build a canoe that will support the teacher?

- 97% Students of color
- 44% Migrant students
- 79% English Language Learners

Career Connected Learning

- Paid Teacher Externships
- Industry Connection Videos
- Industry Classroom Visits
- Career & School Pathways Handouts
- Career Connections Embedded into the Regional HS science curriculum



High School Science Sequence

Challenge: The Next Generation Science Standards were adopted in Oregon in 2014. They call for significant shifts in curriculum and pedagogy.

- **What the research shows:**
 - Students who have three full years of rigorous science courses in high school are far more likely to pursue and succeed in STEM majors.
- **Oregon Districts have struggled to fully implement NGSS**
 - Challenges: funding and professional development capacity
 - The Need: access to high quality Professional Development and NGSS-aligned curriculum

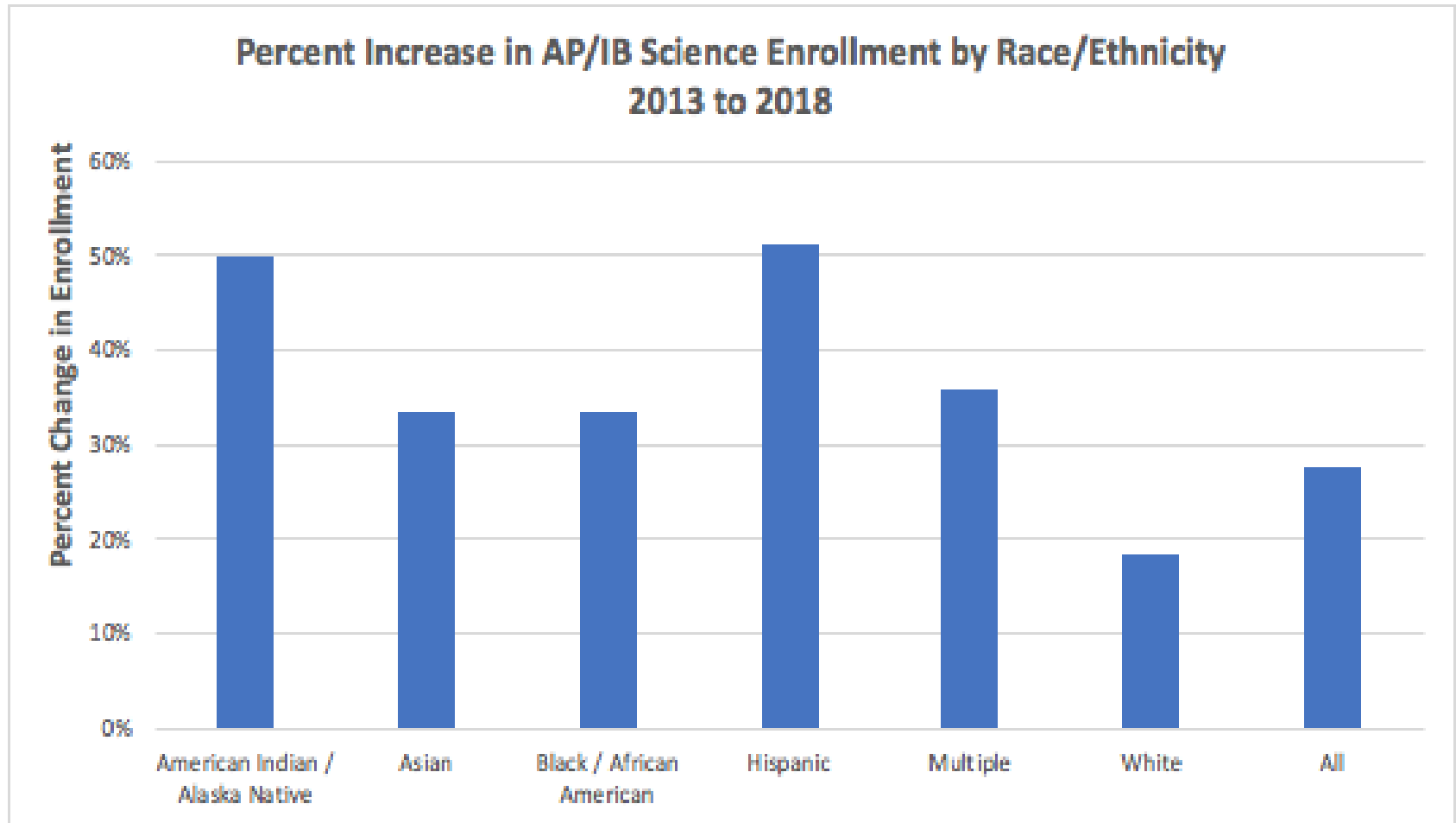
The Sequence

- Three full year courses: Physics → Chemistry → Biology
- PMSP Actions:
 - **Connected partner districts to co-develop** the courses
 - Supports **continuous improvement of the curriculum** and teacher leader development
 - Provides **ongoing summer professional development**, onboarding new districts and schools and providing ongoing training for new teachers and new hires.
 - Embeds **career connected learning** opportunities:
 - Teacher externships
 - Career connections in the curriculum
 - Articulation with CTE pathways
 - Community classroom volunteers

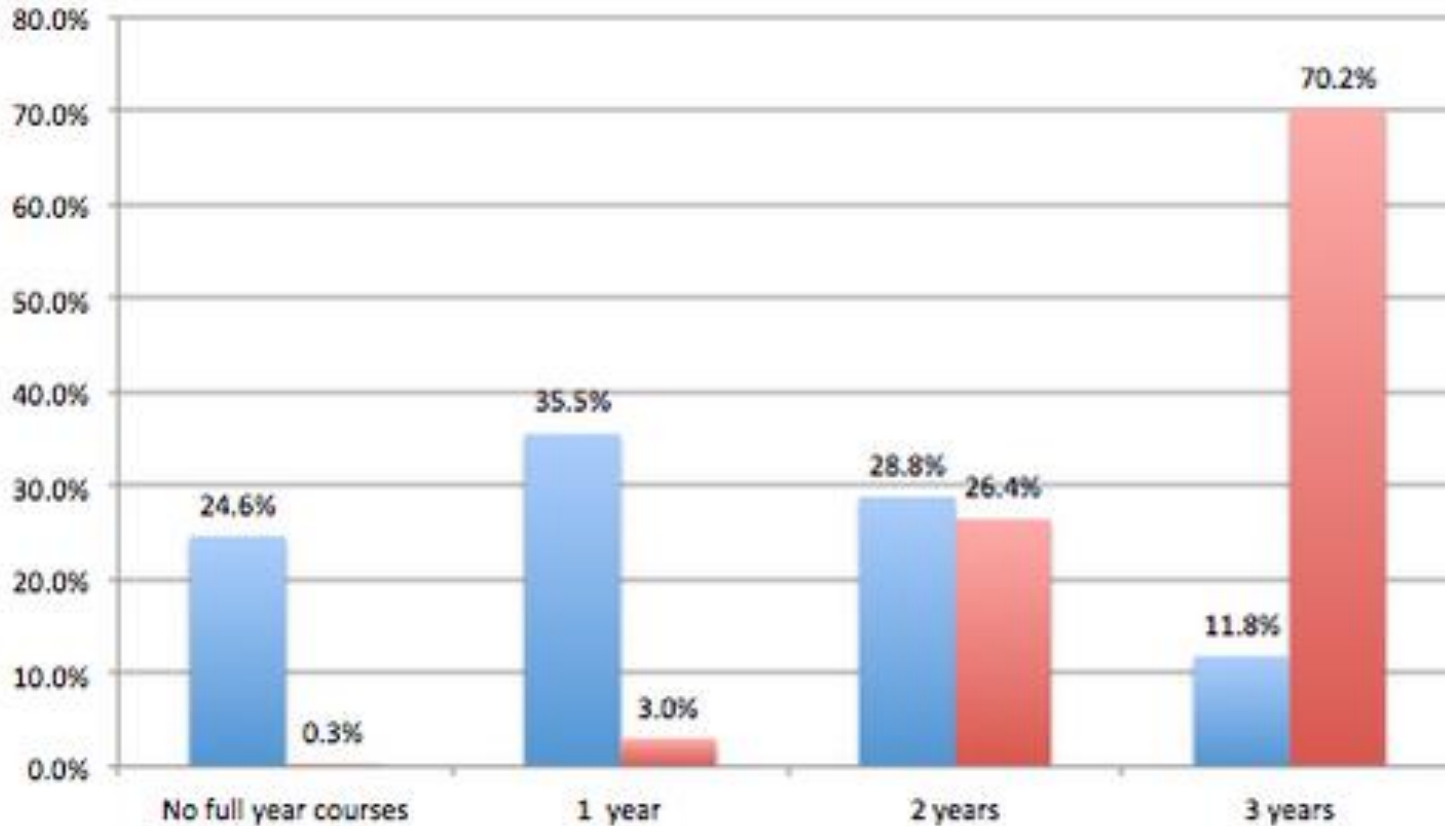
Statewide Outcomes

- 19 Districts have now adopted the sequence, many more currently considering and attending the summer PD courses for teachers
- Total students impacted so far: 25,695
- Lane and Mid-Valley Hubs now bringing the PD to their regions
- Cost Savings and Capacity Building

Beaverton Outcomes



2010 vs 2016: % BSD Graduates vs # of years of Physics, Chemistry, and/or Biology



Questions?