



# **STEM Education Alliance Data & Metrics Subcommittee**

Washington STEM &  
Education Research and Data Center (ERDC)



# Framing

## Metrics Committee Co-Chairs:

- Jim Schmidt - Director, Education Research and Data Center
- Angela Jones - CEO, Washington STEM

**Purpose:** Identify, update, and make available appropriate metrics for the STEM Alliance

**Opportunity:** As the STEM Alliance refreshes and refines our vision and goals, we have the opportunity to identify the metrics that will inform our strategy development and implementation. These metrics will be critical to the creation of the STEM Alliance's annual report card to ensure it's a useful tool in informing decision-makers and practitioners.

**Timing:** Q2 and Q3 workgroup meetings; update metrics by July for use in identifying policy goals and creation of next Report Card; 3-5 meetings in May, June, possibly early July.



# Approach

Values of antiracist data strategies & measurement for change

- Measuring (and making available) systems inputs, not just student outcomes (not gap gazing)
- Recognizing how data has been weaponized against minoritized communities

Improvement & learning mindset

- Review of feedback from past reports + deep listening to constituents throughout the state
- (Purpose & Audiences = next slides)

Utilizing currently available tools, data, and dashboards (nonduplication, “aligning & combining” per RCW)

Relevance & Usefulness of the data and metrics

- Regionality, disaggregation of demographics, K-12 originators vs. all other adults



## Framing: STEM Alliance purpose & audience

- “The STEM education innovation alliance is established
- to advise the **governor** and to provide vision, guidance, assistance, and advice to support the initiatives under this chapter [RCW 28A.188.030],
  - as well as **other current or proposed programs and initiatives** across the spectrum of early learning through postsecondary education, that are intended to increase learning opportunities and improve educational outcomes in STEM.”



## Audiences in WA Who Need STEM Data

“...as well as other current or proposed programs and initiatives across the spectrum of early learning through postsecondary education, that are intended to increase learning opportunities and improve educational outcomes in STEM.”

1. Birth to career education leaders/agency leaders
2. K-12 administrators & teachers
3. Higher education leaders
4. Apprenticeship program leaders & supporters
5. Employers and business organizations
6. Early learning leaders and supporters
7. Nonprofits
8. Scholarship initiatives (Washington State Opportunity Scholarship)
9. Networks, collective impact collaboratives (STEM Networks, Strive Networks)
10. Career Connect Washington networks, coordinators, intermediaries
11. Families/students/(nothing about us without us)--translation to tools that use data for students and families to use for their own pathway navigation



## Framing: Alignment, Metrics, Data

The STEM education innovation alliance shall initiate its work by

- aligning and combining previous STEM education strategic plans into a single, cohesive, and comprehensive STEM framework for action and accountability.

The framework must

- concentrate on a limited number of selected and specific measures
- that are meaningful indicators of progress in increasing STEM learning opportunities
- and in achieving the intended longer-term outcomes of such efforts.

The framework must use measures that are quantifiable and based on data that are regularly and reliably collected statewide.



# Indicators Available on 2020 Report & Dashboard

## Pre-K STEM Readiness

What percent of students show up “math ready” in Kindergarten, and what, if any, differences are there by gender?

What is the associated Kindergarten math readiness outcomes for students who participate in specific early learning programs?

## K12 STEM Achievements

- What percent of K12 students demonstrate grade-level skills in Math and Science on standardized assessments, and what are the disparities in outcomes by race and by students’ family income?

## College Readiness

- What percent of students pass AP Exams in STEM subjects and what are demographic disparities in AP Exam passage rates?
- For which AP subjects have we seen increases or decreases in exam rates?
- What is the participation by gender in STEM subjects in high school as represented by completion of AP exams?

## Student Interest

- What percent of Washington SAT test takers indicated an intended college major in a STEM field?



# Indicators Available on 2020 Report & Dashboard (Cont.)

## STEM Degrees

- How many awards are conferred to students completing STEM programs?
- What are the gender and racial disparities in STEM postsecondary degree completion?
- What are the STEM degree completions totals over time for mid-, baccalaureate-, and graduate-level degrees?

## STEM Awareness

- What percentage of Washington residents have heard of the STEM acronym?

## Workforce Alignment

- How many job openings are posted over time, with regard to STEM and non-STEM jobs, in Washington?
- Workforce Gap Analysis for Bachelor's and Advanced Degrees in Computer Science and Engineering
- How has workforce demand increased/decreased for specific STEM industries and occupations over time?





# Feedback: What Should be Added, etc?

## Requested disaggregation:

- Race (including sub panethnic categories), income status, ELL, foster youth, disability status, and gender for all metrics
- Geography, including but not limited to, Education Service District, Legislative District, County, and School District, whenever possible for all metrics
- Outcomes for public K-12 originating students versus out-of-state individuals whenever possible and relevant
- Outcomes by high school adjusted cohort whenever possible and relevant
  - This is especially salient for higher education outcomes and workforce outcomes

## Requested Additions:

- Financial aid applications & use among STEM-interested students and STEM-declared majors
- Apprenticeship outcomes for related STEM apprenticeship occupations/SOCs/programs
- Career Connect Washington outcomes in STEM programs (Apprenticeships, Career Launch Endorsed Programs, Industries)
- Advanced STEM Subject Availability in Districts and Schools
  - Such as: STEM Dual Credit availability as well as enrollment and completion rates (including CTE)
- Teachers and school leaders with STEM-related degrees, credentials, and other experience needed for teaching STEM courses
  - Including gaps in the STEM teaching workforce
  - AP/CHS qualified teachers (generally, teacher credentials)
  - CTE course availability and teacher credentials held
- Profile students who switch majors (to STEM, from STEM, both?)
- Systems inputs (See WA STEM's STEM by the Numbers, which we will review on next slide)



# Jamboard

[https://jamboard.google.com/d/1hCXpyAi2oawqsW0ivrI0RnLAwwLrA1Ulmy0n\\_moT1U0/viewer?f=0](https://jamboard.google.com/d/1hCXpyAi2oawqsW0ivrI0RnLAwwLrA1Ulmy0n_moT1U0/viewer?f=0)



# Related Boards/Workgroups, Tools, Reports, Dashboards

## WA STEM:

- State of the Children
- STEM by the Numbers
- Labor Market Data Dashboard (with Employment Security Department)
- Credential Opportunity by Region & Industry Matrix (CORI)
- Career Connect Washington outcomes dashboard

## ERDC:

- High School Graduates Outcomes Dashboard
- Public Higher Ed Enrollment Dashboard
- STEM Alliance dashboard

## Boards/Groups:

- WSAC-led Dual Credit Taskforce
- OSPI Dual Credit work (internal dashboard)
- Workforce Education Investment Act Oversight Board
- Career Connection Washington initiative