WASHINGTON STUDENT ACHIEVEMENT COUNCIL
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Washington State Governor's STEM Education Innovation Alliance

TO: The Honorable Governor Jay Inslee
FROM: Governor's STEM Education Innovation Alliance
DATE: November 4, 2015
RE: STEM BUDGET AND POLICY RECOMMENDATIONS

We appreciate and encourage your continued leadership in elevating STEM education and STEM careers in meetings, speeches, press releases and social media. As Governor, you have the greatest statewide opportunities to engage in a public campaign with the media, businesses, educators, parents, organizations and communities. We value the leadership you have shown in advancing STEM education in the state, for example, in recently issuing Governor Proclamations for Computer Science Week (December) and Environmental Education Week (April), and challenging local schools and youth serving organizations to participate in activities such as the Hour of Code. We encourage these efforts to engage with key stakeholders to communicate the importance of STEM in Washington.

As you are aware, in 2013 the Legislature passed Engrossed Second Substitute House Bill 1872 (E2SHB 1872), calling for the creation of the Governor's STEM Education Innovation Alliance. Our membership represents a broad range of business, labor, nonprofit, and educational organizations, with the role of advising you on strategic planning and the formation of effective partnerships in support of STEM education initiatives. Over the last year we have been working to develop recommendations to support quality STEM programming and policy in our state. Consider the facts about STEM in Washington:

- Washington's employers are predicted to face 50,000 vacancies by 2017 due to a lack of highly skilled STEM and health care workers. This costs our state $800 million in lost annual tax revenue, high-paying jobs moving out of state, and reduced job creation.
- Computer science and computational thinking is quickly becoming a high value skill set and is a core driver of the state's skills gap. Yet, only 47 high schools in Washington offer Advance Placement (AP) Computer Science, and out of the 711 AP Computer Science exam takers in the state in 2013, only four African-Americans and 14 Latinos passed.
- While Washington adopted Common Core State Standards (CCSS) in math and English and Next Generation Science Standards (Next Gen) with the good intention to foster critical thinking and career-and college-readiness for students, the state has yet to make significant investments to help teachers retool their classroom practices. Nationally, only 23 percent of teachers feel very prepared to teach to the standards. In science, 41 percent of elementary school teachers from across the county reported that they had

not participated in any science-focused professional development in the past three years.
- Only 31 percent of incoming high-poverty kindergartners in 2013 demonstrated "kindergarten readiness" in math among all students assessed by WaKIDS; yet research shows that early math skills are the greatest predictor of future academic achievement.

To address these shortcomings as well as the related questions you raised at our September STEM Alliance meeting in Olympia, we are recommending a mix of legislation, budget requests, and ideas that can move our state forward. Specifically, you asked us to consider three key areas of inquiry and focus:

1. McCleary – As the state puts more money out to districts, how do we ensure that it includes high quality STEM education? Are there some policy levers to require or incentivize that basic education dollars are spent on STEM?
2. Equity – How do we ensure underserved groups in STEM get better access and outcomes?
3. Computer Science – Should all K-12 students be required to learn computer coding?

We have prioritized the recommendations outlined in this memo taking into account their feasibility, impact, the possibility of Legislative champions, and the fact that this is a supplemental budget year. We are bringing these ideas forward because we strongly believe that they are critical to our state's economic future and build upon current efforts. Important work we support, and currently in implementation, include Common Core State Standards, Next Generation Science Standards, Smarter Balanced assessments, career and college ready graduation, dual credit coursework, and computer science education programs. We believe that these reforms move our state towards rigorous expectations and opportunities for all of our students.

In response to your question on how to support STEM state-wide in response to McCleary we recommend the following:

1. **Fund dual credit College in the High School courses for more low income students in STEM-related courses [BUDGET REQUEST: $7,462,975].**[1]

Students in our state need to be prepared for college level course work in STEM fields. One mechanism for achieving this is providing for dual credit. Dual credit allows high school students in our state to enroll in college courses for credit prior to graduation and the credits earned can be applied toward high school and college graduation and can be transferred to other colleges or universities. We support the College in the High School policy passed last year

[1] OSPI's estimate is $7,462,975 to fully fund dual credit in the current year. $2,864,000 was provided in the budget so the gap in the current year would be approximately $5M if to fund this next year (16-17 academic year).

in HB 1546. We are aware of budget constraints, however, so if additional funding is available, we strongly support (in the following order of priority): 1) funding for dual credit for all students in the state; 2) funding for dual credit for all students in STEM-related courses; and, 3) funding for students receiving free- and reduced lunch for all dual credit available.

In response to your question on how to support underserved groups in STEM state-wide we recommend the following:

2. **Increase the funding and expand the MESA program from 6 Community Colleges to 12 Community and Technical Colleges this session [BUDGET REQUEST: $1.5M], then to 34 CTC's in the following biennium [BUDGET REQUEST: $4.3M].**

The MESA program has successfully provided community college students with innovative, hands-on opportunities in mathematics, basic and applied science, and engineering in both formal and informal settings. With a STEM focus, MESA successfully targets underrepresented minorities and women and provides this support and enrichment to at-risk and economically disadvantaged students leading to higher rates of enrollment in and completion of STEM courses and degrees. Specifically, we support increasing the amount for MESA college sites to $125,000 (from $58,000) and doubling MESA from 6 Community Colleges to 12 Community and Technical Colleges this session **[BUDGET REQUEST: $1.5M].** In addition, we endorse The State Board of Community and Technical Colleges' request to increase the amount for MESA college sites to $125,000 for all 34 community and technical colleges in the following biennium **[BUDGET REQUEST: $4.3M].**

In response to your question regarding computer science in K-12 we recommend the following:

3. **Invest in educators' endorsements in computer science teaching by providing professional development opportunities so that they can nurture student interest and computational thinking in preparation for post-secondary programs and good jobs in this high demand field [BUDGET REQUEST: $1M].**

Employers in our state know that the demand for computer science graduates is at an all-time high, yet they lack the ability to fill these jobs with graduates from our state's top programs. Moreover, computer science skills and computational thinking are critical to enabling Washington state citizens to be part of a 21st century STEM capable workforce and to reach our goal of building STEM literacy for all. Meeting this demand will require investments including exposing K-12 students to computer science and computational thinking**. Our goal is for every student to experience computer science learning as a part of his/her education. As well, we recommend that EVERY classroom in the state participate in the Hour of Code this year during Computer Science Education week in December.** Previous efforts have made good progress towards this end and we recommend building on these efforts. Recent legislation enacted has included:

- Two years ago, schools were required to give academic credit for AP computer science.
- Career and technology (CTE) credit equivalencies that that earn math or science credits.
- This past session, HB 1813 directed development of computer science learning standards and teacher preparation.

The place to start building is by supporting our educators in computer science with professional development opportunities. Teachers with computer science endorsements are key to introducing our students to computer science. We advocate for funding for computer science educator grants and scholarships as incentives for teacher preparatory programs in higher education to create courses for pre-service and certificated teachers to learn computer science – and in particular supporting teachers who are working in schools serving low income and underrepresented students in STEM. Our specific recommendation is to consider accelerating the path to get computer science for all students in Washington by investing more in the computer science endorsement educator scholarships legislated last year. The Legislature invested $2M in 2015-2017 with the assumption that with a 1:1 match and $2M every biennium, all students would be reached by 2025. We recommend accelerating that path by investing an additional $1M now in this supplemental budget.

Finally, we have one additional recommendations for your consideration:

4. **Endorse the Washington Student Achievement Council's (WSAC) request to sustain the Governor's STEM Alliance and the STEM Data Dashboard [BUDGET REQUEST: $155,000].**

To date, the Governor's STEM Education Innovation Alliance and STEM data dashboard's creation have been supported through a National Governor's Association grant and contributions from the Washington Student Achievement Council (WSAC) and Washington STEM. A budget request has been submitted for $155,000. This funding will allow the WSAC team to provide necessary guidance for the work of the STEM Alliance. The funds will support salary, benefits and expenses for one FTE policy associate ($115,000); and provide for Service Contract Expenses for collaborative work with Washington STEM, a nonprofit organization focused on advancing STEM education in the state, which will continue to develop and refine a STEM data dashboard and foster the creation of robust and sustainable industry-education partnerships ($40,000). We support WSAC's request to sustain this important work.