Oregon Science Teachers Association

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Dr. Salam Noor, Deputy Superintendent of Public Instruction
Oregon Department of Education
255 Capitol Street, NE
Salem, OR 97310-0203
February 20, 2017

Dear Dr. Noor,

The Oregon Science Teacher Association (OSTA) would like to submit a letter of support for the intentional addition of strong STEM support in Oregon's ESSA plan (see attached letter). As the presidents of OSTA, we represent 1368 formal and informal science educators in Oregon.

Spending time in science gives all students the opportunity to experiment with STEM ideas in real-world situations. Such opportunities help spark curiosity. We need science to be taught every year beginning in kindergarten so more students begin to identify themselves as STEM capable. In order to ensure this, we need to change how we hold districts accountable and how we prepare teachers.

The success of our youth in today's ever-changing and high-tech society stands to be greatly improved if we begin to take advantage of the complementary nature of formal and informal STEM learning opportunities. This is the path that we need to follow if we want to build a diverse, scientifically literate citizenry that is capable of solving the problems of today and tomorrow.

We all will benefit when more of our children have a fair and equal chance to live up to their potential and contribute to our society.

Sincerely,

Dr. Susan Holveck
Past President

Jomae Sica
President

Noelle Gorbett
President-Elect

Oregon Science Teachers Association

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Dear State Policy Maker,

The Oregon Science Teacher Association (OSTA) is an organization that is comprised of PreK-20 educators from across Oregon who are interested in all levels of science education. Our purpose is to encourage, promote, and assist in improving science teaching and learning throughout the state so that all students experience an inclusive, intentional, directional and coherent science education. We received the April 13, 2016 "Dear Colleague" letter from the Department of Education with information about The Every Student Succeeds Act (ESSA) and the examples that were given to help provide access to high-quality STEM programs and resources. We noted many parallels with our work, and with Oregon's STEM Education Plan, and so are taking this opportunity to call our work to your attention and to seek your feedback on opportunities ESSA provides to improve Science and STEM education for all Oregon students.

We believe that ensuring access for every student to a science education is fundamental to the future of Oregon and our nation. The vision for Oregon's STEM Education Plan states that Oregonians of all races, economic status, and regions will develop STEM skills and yet, "there is a looming and growing disconnect between the demand for skills and talent in Oregon's economy and the number of young Oregonians emerging from our education system who possess such skills and talent, especially in the STEM disciplines," (p. 3, STEM Education Plan). As measured by the National Assessment for Education Progress (NAEP), this disconnect begins in elementary school where Oregon is 50th in the nation in the number of hours that science is taught in elementary school, following a national trend in the decline of instructional time spent on science in the elementary years (Blank, 2012). We believe that this decline of instructional time in science can be tied to AYP which did not include science as part of the school accountability formula. Being 50th in the nation is an indicator of a systemic problem in Oregon and one that needs new solutions. By reversing this trend, we believe that it will be possible to meet Goal #1 Priority Outcome 2 from the STEM Education Plan: by 2020, Oregon elementary classrooms will increase time on science and engineering by 50% from 1.9 hours per week to exceed the national average of 2.7 hours per week, using lessons and approaches consistent with the Next Generation Science Standards.

State and local policymakers now have the ability to leverage the enormous potential of Oregon's STEM education initiatives. ESSA puts a broad array of key decisions affecting teaching and learning back into the hands of states and districts. This increased state and local control will be critical to states and districts that are working to improve STEM education outcomes for all students. The steps you take now to prepare our children in STEM will have an enormous impact on Oregon's economy, America's national security, and this country's continued world leadership in science and technology. Please take the steps that will make STEM education a priority in this bipartisan and broadly supported law.

The undersigned OSTA board members ask you to consider these specific recommendations as you develop Oregon's plan for ESSA implementation.

- States leaders should utilize science assessments and outcomes as part of Oregon's accountability system. ESSA continues to require states to maintain standards in math and science and requires students to be tested three times between grades 3 and 12 in science, and annually in grades 3 through 8 and once in high school in mathematics. The law also requires new state accountability plans to include indicators including proficiency on assessments.

- ❖ We encourage you to use Title I state funds to create or improve science assessments that are aligned to the Next Generation Science Standards. ESSA Title I provides federal funding for the development of state assessments that would integrate engineering and technology concepts into science tests. ESSA continues prior requirements requiring states to maintain standards in math and science and test students three times between grades 3 and 12 in science, and annually in grades 3 through 8 and once in high school in mathematics. The law does require new state accountability plans to include indicators including proficiency on assessments.

- ❖ Use ESSA Title II (Preparing, Training, and Recruiting High-Quality Teachers, Principals, and Other School Leaders) funding to provide professional development to teachers on STEM content areas and develop STEM leaders and mentors. ESSA Title II focuses on raising student achievement by improving the quality of teachers, principals, and other school leaders. Currently, only 30 percent of 8th graders are taught math by teachers with an undergraduate degree in the field and only 39 percent of elementary school teachers feel very well-prepared to teach science. Title II also supports the integration of career and technical education into academic instructional practices, including training on best practices in understanding workforce needs and transitions to postsecondary education and the workforce. This will strengthen college and career readiness and ensure that more students enter the workforce with the skills they need to compete for high-skilled, in-demand jobs. We encourage this action which can help the state achieve Oregon's STEM Education Plan Goal 3: Continuously improve the effectiveness, support, and the number of formal and informal P-20 STEM Educators.

- ❖ Utilize Title II funds to establish, expand, or improve alternative certification for STEM teachers and provide for differentiated pay and other incentives to recruit and retain teachers in math and science. The law allows states to develop career academies for STEM educators and we urge states using these funds to strengthen and enlarge the pipeline of STEM teachers.

- ❖ Ensure Title IV, Part A funding is used to support the wide range of activities that are specifically allowed in the statute to improve STEM teaching and learning. ESSA Title IV, Part A —the Student Support and Academic Enrichment Grants-- provides funding directly to states and districts to support a wide range of school programs designed to support a well-rounded education for students, create safe and healthy school environments, and improve the use of technology in every school district. Title IV-A program can be used to support collaborations that can improve the integration of programming and instruction in the STEM subjects. Considering the strong connections between excellence in the STEM fields and our ability to compete locally, statewide, and nationally in the global economy, we encourage you to prioritize STEM education activities within this program. For example, the state can propose matching district funds with state funds for certain types of activities like STEM programming. Some encouraged examples of how this funding could be used include:
  - ➢ **Expansion of high-quality STEM courses;**
  - ➢ **Increased access to STEM for underserved and at-risk student populations;**
  - ➢ **Support for student participation in STEM nonprofit competitions;**
  - ➢ **Providing hands-on learning opportunities in STEM;**
  - ➢ **Integration of other academic subjects, including the arts, into STEM subject programs;**
  - ➢ **Creation or enhancement of STEM specialty schools;**
  - ➢ **Integration of classroom based, afterschool, and informal STEM instruction; and**
  - ➢ **Expansion of environmental education.**

Spending time in STEM gives all students the opportunity to experiment with ideas in real-world situations. Such opportunities help spark curiosity. The success of our youth in today's ever-changing and high-tech society stands to be greatly improved if we begin to take advantage of the complementary nature of formal and informal STEM learning opportunities.

This is the path that we need to follow if we want to build a diverse scientifically literate citizenry that is capable of solving the problems of today and tomorrow that will help us meet the STEM Education Plan Goal #2: Ensure equitable opportunities and access for every student to become a part of an inclusive innovation economy. We all will benefit when more of our children have a fair and equal chance to live up to their potential and contribute to our society.

As you begin to implement the new federal education law it is critical that STEM education programs be given high priority so that stakeholders can work together to design strategies for achieving scale for STEM learning experiences and schools that foster long-term sustainability and improve STEM educational outcomes for all students

If you are interested in having further discussions about how the Oregon Science Teachers Association can be of assistance to you, please contact Dr. Susan Holveck at (503) 356-4544 or Susan_Holveck@beaverton.k12.or.us.

Respectfully,

The Oregon Science Teachers Association Board and Members

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