



**South Metro – Salem STEM Partnership
Science, Technology, Engineering, and Mathematics (STEM)
Education Partnership**

PARTNERSHIP PLAN V5.5

DRAFT

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Section One: Executive Summary

Vision Statement

The South Metro-Salem STEM Partnership catalyzes Oregon students to achieve STEM degrees and certificates, and reach Oregon's education goals by increasing the access, excitement and engagement of students in STEM courses and experiential learning.

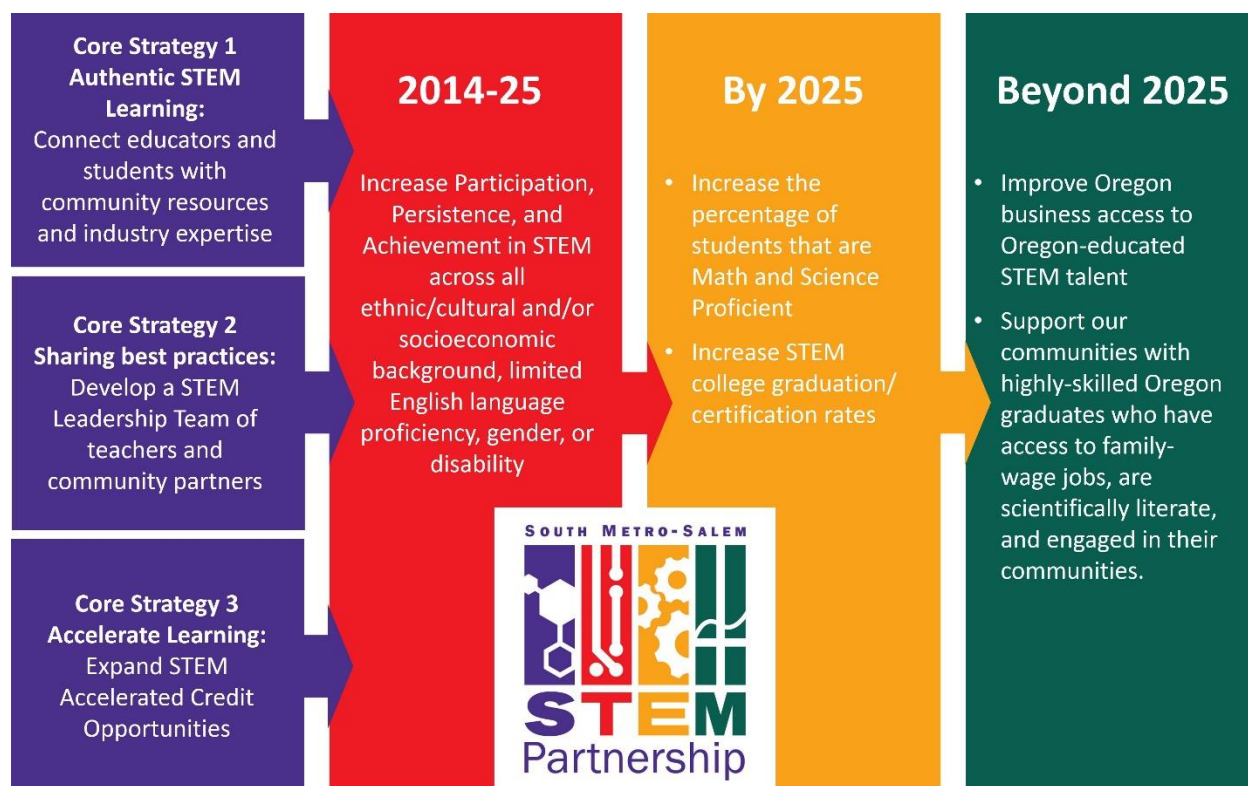
Mission Statement

The South Metro-Salem STEM Partnership will collectively optimize PK-20 STEM education by utilizing a full spectrum of public and private resources and model instructional practices to develop a career-ready, diverse, and adaptable workforce that enhances the regional economy and community.

Core Strategies

A collaborative comprising K-12 school districts, higher education, business and community partners, the Partnership will engage schools and organizations where emphases on STEM learning and teaching will produce measurable increases in the college and career readiness of PK-20 students, including traditionally underrepresented populations. The partnership will achieve its mission by engaging in three core strategies:

1. Supporting authentic STEM learning: Connect educators and students with community resources and industry professionals to enliven instruction and engage students.
2. Sharing best practices: Develop a STEM Leadership Team of teachers and community partners to identify, develop, and share best STEM instructional practices.
3. Accelerating STEM college pathways: Expand collaborations between schools, colleges and universities to accelerate dual credit in STEM subjects for students while in high school, and better transition students into STEM majors and career paths.



Goals

The partnership advances Oregon’s 40-40-20 goal and vision for students to achieve college and career readiness. Our goals and expected outcomes by 2025 include:

1. Increase STEM participation, persistence, and achievement based on ethnic/cultural and/or socioeconomic background, limited English language proficiency, gender, or disability.
2. By 2025, double the percentage of the region’s 4th, 8th, and 12th graders that are “proficient” and “advanced” in math and science.
3. By 2025, double the number of STEM college graduates that matriculate from SMS partner schools.
4. Improve Oregon business and industry access to an Oregon-educated STEM talent pool that is highly skilled, motivated and globally competitive.
5. Improve community livability by producing graduates who are highly skilled and have access to family-wage jobs, are scientifically literate, and engaged in their communities.

Our hope is that this new direction offers to the student, a promise; to the educator, an invitation to lead; to the taxpayers, a return on investment; and to legislators, employers, community leaders, and educational organizations, a new partnership that leads to higher educational achievement in Oregon.

Section Two: Overview

About the South Metro–Salem STEM Education Partnership

The South Metro–Salem (SMS) STEM Partnership is a collaborative of 15 school districts, three community colleges, three universities, 17 community-based STEM programs, and 11 business partners who share a common vision to engage students in Science Technology Engineering and Math (STEM). The South Metro-Salem STEM Partnership catalyzes Oregon students to achieve STEM degrees and certificates, and reach Oregon’s education goals by increasing the access, excitement and engagement of students in STEM courses and experiential learning. The overarching goal of this collective effort are to accelerate STEM learning with the outcomes of increasing the number of Oregonians with the skills to participate in the STEM workforce, and supporting communities with STEM-literate, engaged citizens with family-wage jobs.

About this Document

This partnership plan describes evidence-based strategies for transforming science, technology, engineering, and mathematics (STEM) education in K-20 schools. It constitutes a roadmap to become a collective impact partnership that leverages the resources of a community of STEM stakeholders in an intentional and transparent process to improve STEM teaching and learning across partnering organizations.

The South Metro – Salem STEM Partnership (SMSP) outlined in this plan was conceived as a regional initiative involving local school districts, institutions of higher education, business/industry, and community groups. The planned geographic scope for the partnership’s work is the southern part of the Portland metropolitan area along Interstate 5, covering a large and diverse section of the Northern Willamette Valley including the Salem-Keizer area. The SMSP is a member of Oregon’s Regional STEM Hub network, and as such, partnership activities are developed in a larger state context, with preference for those strategies that may be scalable across the state and to multiple regions.

As a collective impact partnership, the SMSP has chosen not to form a new not-for-profit organization, but to leverage the non-profit status and expertise of its members on behalf of the whole partnership. The SMSP was selected in 2014 as one of six regional STEM hubs in the state of Oregon. Oregon Institute of Technology (Oregon Tech) agreed to host the backbone organization of the partnership at its Wilsonville campus. Oregon Tech, together with the Oregon Tech Foundation, will serve as the primary fiscal and legally accountable administrator of central partnership grants and activities, subawarding to other partners as capacities dictate. For example, the Salem-Keizer School District is the lead partner for subawards to school districts pertaining to the STEM Leadership Team. Partnering organizations will share responsibility and leadership positions to chair committees to advance the core strategies of the partnership. Other partners will take leadership roles to advance additional innovations and best practices in STEM education.

All of the STEM Partnership’s work will be aligned with a coherent statewide system of rigorous college/career-readiness standards, clear outcome targets, and accountability measures.

About Education Reform in Oregon

The legislated goal for Oregon's public investment in education is to ensure that by the year 2025:

- 40 percent of adult Oregonians have earned a bachelor's degree or higher;
- 40 percent of adult Oregonians have earned an associate degree or postsecondary credential as their highest level of education attainment; and
- 20 percent of all adult Oregonians have earned at least a high school diploma, an extended or modified high school diploma, or the equivalent of a high school diploma as their highest level of educational attainment.

Oregon established the Office of the Chief Education Officer, including a Director of STEM Education. The CEO is charged with creating a seamless, unified system for investing in and delivering public education, with particular attention to the points at which students transition between learning environments (preschool to K-12, high school to higher education, etc.) The SMSP will work closely with this office to ensure alignment of our regional strategies with state priorities as we work to increase the number of STEM workforce-ready graduates from all levels of the education system.

Section Three: Community Assets

The South Metro-Salem Region is comprised of the suburban and rural areas south and southeast of Portland, continuing through rural regions along surrounding the I-5 corridor extending into the urban community of Salem. The 15 partnering school districts serve over 125,000 students, or about 25% of the state's K-12 students. Importantly, our districts employ over 6,000 teachers, many of whom are creating and providing inspiring, rigorous STEM opportunities to students. The SMSP partners agree that these forward-thinking, motivated professionals are among our most important assets, and it is critical to harness the expertise of these educators to share locally-developed best practices.

Further, each district has historically focused on a variety of strategies for advancing student educational outcomes, whether in the arena of equitable instructional practices for underserved students, coordination of out-of-school learning opportunities, approaches to Next Generation Science Standards or Common Core Math, or use of data and metrics. The Partnership is harnessing the strengths and expertise of individual districts to share best practices throughout the region.

Our region is home to a wealth of research, manufacturing, computer hardware and software, energy, and healthcare employers that provide living-wage jobs to STEM-prepared workers at all levels of the educational spectrum: high school graduates, associate's degree and certificate holders, and bachelor's degrees and beyond. It is broadly acknowledged that the health of our regional economy and of these companies is dependent upon a healthy local educational pipeline that supports the acquisition of the skills, knowledge, and habits of mind that excellent STEM education can provide. The SMSP will harness the human, financial,

and political assets of these partners to connect students to professionals who bring context and inspiration to their learning, support partnership endeavors through sponsorships, hosting, and monetary support, and to support legislation and policy that favors applied STEM education to meet our stated goals.

Seven institutions of higher education are members of our partnership, including three community colleges and four universities. These partners have the capacity to work together with K-12 and industry partners to create smooth transitions between the education system and the world of work. They do so by advancing dual high school-college credit, serving as content experts for K-12 teachers, supporting Career and Technical Education (CTE) in partnering districts through collaborative projects, providing education research expertise and collaborating to advance education research in our region through grants, hosting college-going culture activities for K12 students, and providing credit-bearing professional development for teachers and other educators. Further, community colleges, in particular, have long histories of working with local school districts through CTE consortia (e.g. Clackamas CTE Consortium) and dual credit agreements, and will help connect aligned projects among partners.

Our many varied community partners bring tremendous assets to the table.

- Organizations like the Salem-Keizer Education Foundation and Woodburn Afterschool serve as STEM program delivery partners and provide deep expertise about reaching large numbers of underserved students after the school day.
- Out-of-school STEM education programs such as Oregon FIRST, Mad Science, Saturday Academy, MESA, Girls, Inc, and others provide both STEM learning opportunities for students as well as inspiration, excitement, and engagement in STEM content areas, allowing them to dig deep into areas of personal interest as students build their own identity as STEM learners. Several of these organizations specialize in programming developed specifically for underserved audiences.
- Organizations such as Oregon Afterschool for Kids, Oregon NASA Space Grant, and the Oregon Computer Science Teachers Association support STEM policy and create connections between the partnership and their core constituencies, lending cohesion to our efforts.
- Community STEM education sites, such as Evergreen Aviation & Space Museum and the Wilsonville Library, expose students and families to STEM learning opportunities and provide a community resource to educators as well.

Section Four: Needs Assessment

The SMS Partnership serves a large and diverse geographic region south of the Portland metropolitan, including 15 school districts from Tigard-Tualatin in the north to Salem-Keizer and Dallas in the south. It contains urban and rural districts. Amity, with single elementary, middle and high schools is one of the smallest, located in a town of 2,800 people. Salem-Keizer is the second-largest district in the state, serving over 40,000 urban students. This geographic mix means that the SMS Partnership must develop strategies that work for rural

and urban areas, with priorities for those strategies that can be readily be replicated, scaled, or transferred throughout Oregon.

The SMS Partnership districts reach 126,000 students and 5,899 teachers, representing 25% of Oregon's enrolled students. This area is diverse. Based on ODE district report cards, half of students (50%) are economically disadvantaged. An estimated 22% of students are English language learners, and at least 55 different languages are spoken. More than 37% of students are students of color, mostly identifying as Hispanic/Latino (27% of all students).

While our partners acknowledge that our region is rich in STEM resources, there has not historically been cross-district or cross-sector collaboration to tap these resources in a coordinated, systemic, equitable manner. Localized economic and geographic disparities have largely determined which students could access high quality STEM educational resources. Coordination of efforts across our three core strategies will ensure that best practices and highly valuable resources are shared among educators, across sectors, and between partner institutions for the good of all students in our region.

Section Five: Strategies and Activities

The strategic activities of the SMSP will be the shared responsibility of all partners.

STEM Network- Connects educators and students with community resources through a variety of strategies, including the establishment of a statewide resource-sharing portal, STEMOregon.org, and development and support of a next-generation matching tool, Oregon Connections, <http://stemoregon.org/connections/> to bring STEM professionals together with educators to enhance STEM Learning.

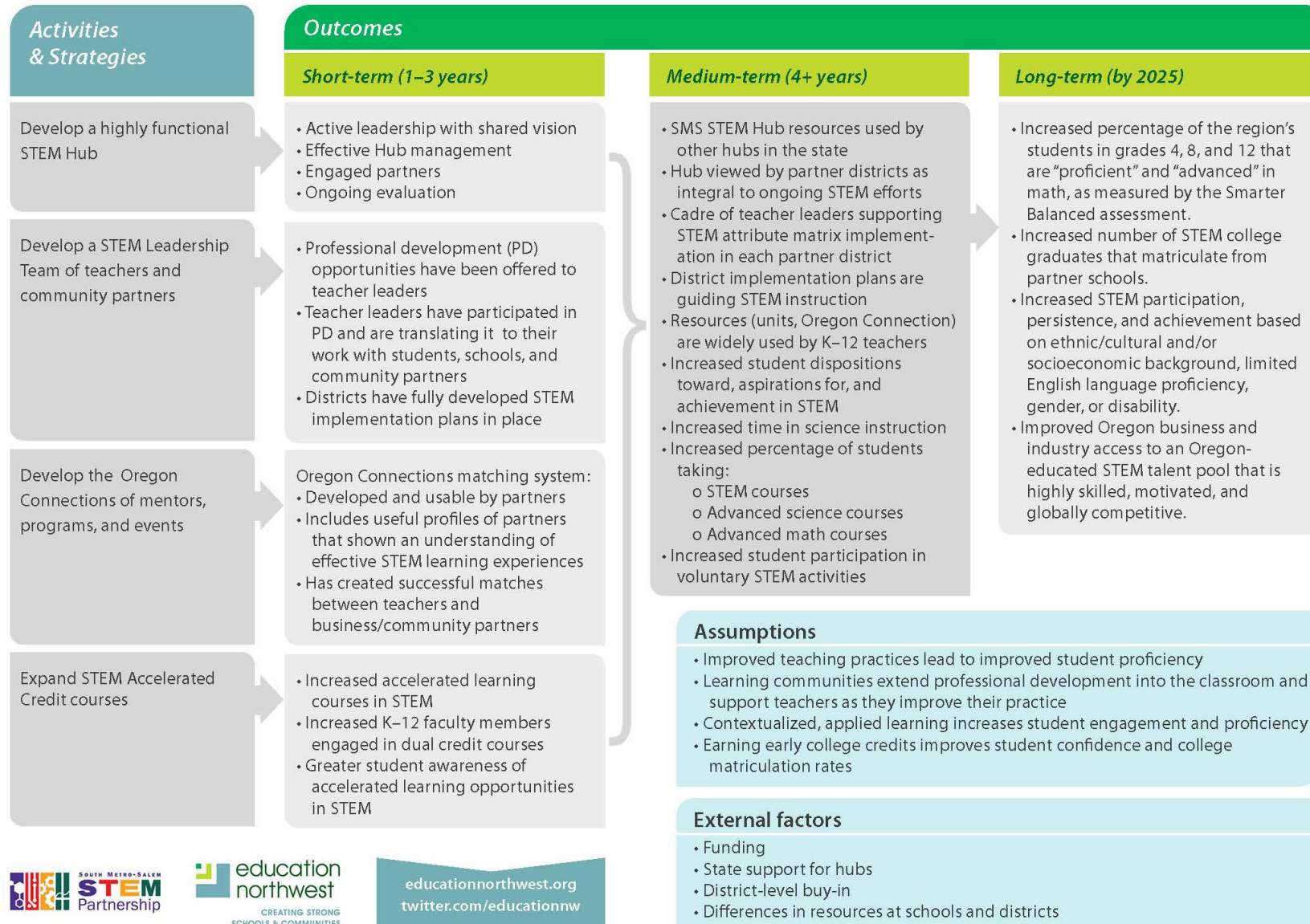
STEM Leadership Team- Accesses the human assets and expertise of our region's professional educators to develop and implement a framework for excellent STEM teaching attributes. The STEM teacher leadership team designs and implements professional development workshops for our region's teachers to identify, develop, and share best STEM instructional practices that support STEM learning for every student, regardless of background, circumstances, or future aspirations, to keep students on a successful pathway to college and career readiness. This team supports district-level implementation of a locally relevant STEM strategies.

Accelerated Credits – Connects students and families with dual high school-college credit that research shows increases persistence in STEM college pathways and careers.

Develop a highly effective STEM Hub- Establishes a backbone organization that incorporates active leadership from multiple partners with a shared vision, advances equity for all students, engages all partners, effectively manages and grows partnership resources, and develops ongoing metrics and evaluation that identify successful strategies and encourage course-adjustment for unsuccessful activities. Common metrics will help build a regional community of practice focused on the collection, analysis, and reporting of STEM education data across instructional contexts, leading to identification of effective interventions. These common measures will also support more effective knowledge transfer across diverse educational settings.

South Metro-Salem Science, Technology, Engineering, & Math (STEM) Hub

Simplified Logic Model



Strategy: SMS STEM Network

The STEM Network is being established to bring experiential learning into classrooms, schools and programs throughout our region, and with it, excitement and engagement in STEM. The STEM Network builds bridges between the rich STEM resources in our local community, and the schools, teachers and students who are seeking relevant, hands-on, career-focused experiences that help students envision how their academic learning relates to their future career plans.

The STEM Network incorporates multiple related strategies to connect educators with community resources.

1. STEMOregon.org is envisioned as a one-stop online portal for STEM educators and stakeholders throughout Oregon. Established in 2014 by SMSP, the web-based tool houses information on STEM opportunities for students and families, professional development and grant opportunities for teachers and out-of-school educators, as well as curricular resources. As usage grows, the functionality of the site is evolving to include jumping-off points for national open educational resources and has become a shared asset for organization of multi-hub or statewide efforts such as STEM Week Oregon.



2. Oregon Connections is a next-generation web-based tool designed to connect STEM professionals with educators to help students make connections between what they are learning and how it is used in the real world, the kinds of jobs people do that apply those concepts, and the real people who do those jobs for a living. The teacher-focused tool allows educators to request specific expertise for activities that enhance student learning, thus ensuring that pairings are timely and impactful for students and rewarding for all involved. Launched in 2015 in partnership with an award-winning national developer, Nepris, the tool can match teachers with a national database of STEM professionals for real-time, virtual meetings, as well as support regional requests for in-person activities with STEM professionals. Over time, Oregon Connections will serve stakeholders through the state.



Staffing and Sustainability: The SMS STEM Partnership has raised funds, through grants and partner contributions, to hire a 0.65 FTE STEM Network Director. The Director is responsible for the strategic direction of the STEMNetwork and its component projects, guiding its implementation and expansion to other regions as appropriate, ensuring robust delivery of projects, working with local business and community partners to enhance STEM learning for students and educators, collaborating with the STEM Learning Team to support teachers in their

use of the STEM Network, and collecting and analyzing data to guide project implementation and ongoing success. The tool will begin with early piloting in the SMS and Portland Metro STEM Hub regions to ensure alignment with regional industry needs.

The SMS STEM Partnership is seeking support from the state of Oregon and local workforce investment boards to support expanded functionality of both STEMOregon.org and Oregon Connections. Investments may include funds to support statewide licensure as well as support staff. Increasing demand and evolving functionality of STEMOregon.org as a statewide shared asset has necessitated that SMSP distribute responsibility for staffing to manage the tool, likely through direct state support for staff. Oregon Connections has been enthusiastically received by STEM Hubs and workforce boards throughout the state, and SMSP will work with state and private entities to develop a sustainable, shared model for funding the continued licensing and technical support of the tool.

SMSP STEM Network goals:

1. Build and maintain ongoing relationships with SMS STEM partners (K-12, higher education, informal education, companies and their STEM employees/volunteers).
2. Bring partners together on a regular basis to develop a short and long-range plan for the SMS STEM Network.
3. Oversee the implementation of SMS STEM Network-sponsored programs, e.g. STEMOregon.org and Oregon Connections.
4. Support usage and maintenance of SMS STEM Network resources, e.g. STEMOregon.org and Oregon Connections.
5. Maintain SMS STEM Network online resources.
6. Collaborate with partners and other regional STEM hubs to build capacity of volunteers to provide meaningful classroom experiences for students, tied to learning outcomes, and build capacity of teachers to align volunteer activities with curriculum.
7. Collaborate with other committees within the SMS STEM Partnership to align programming to established objectives, learning outcomes and assessment measures to insure that appropriate education resources are provided to partner educators.
8. Collect and analyze assessment data from STEM Network –sponsored efforts; create reports on efficacy of SMS STEM Network programs.

The STEM Network will be responsible for supporting STEM education improvement by collecting and disseminating information about evidence-based best practices, and by aggregating learning about best practices that emerges from the experiences of partnering organizations and educators.

Proposed long-term student measures:

- 1) Increased number of STEM college graduates that matriculate from partner schools.
- 2) Increased STEM participation, persistence, and achievement based on ethnic/cultural and/or socioeconomic background, limited English language proficiency, gender, or disability.

Short- and intermediate-term metrics:

- 1) Number of students taking STEM courses in HS
- 2) Number of students taking advanced science and math.

- 3) Number of students involved in STEM programs that are voluntary
- 4) Number of teachers and STEM professionals using STEM Network
- 5) Quality of matches and experiences for educators and STEM professionals.
- 6) Teacher feelings of self-efficacy in inviting community partners to the classroom.
- 7) Number of students impacted by experiences with STEM professionals.
- 8) Student feelings of excitement and engagement stemming from experiences with STEM professionals.
- 9) STEM professionals' feeling of value for time spent

This video was produced to encourage more industry professionals to volunteer their time through the Oregon Connections platform. <http://stemoregon.org/connections/>

Strategy: STEM Leadership Team and Professional Development

Moving from Isolated Interventions to a Collaborative Learning Community

At its core, the SMS STEM Partnership is about bringing together varied entities, interests, and expertise into a collaborative learning community. This model of learning extends to the establishment of professional development for regional teachers to improve and transform their STEM instructional practices. Working together, each partner school district will contribute to the community of learning.

Initially coined the SMSP Learning Community, but later evolving in mission into the STEM Leadership Team (SLT), the SLT was envisioned as a collaboration of teachers and education practitioners joined together to engage and excite more students in science, technology, engineering and math. In the first year, each district in the partnership identified three teachers or science/math/technology specialists in their districts, at three education levels – k-5, 6-8, 9-12 – to join the community of practice in order to improve their own practice as well as lead STEM improvement within the district. The SLT also assesses gaps in professional development for district teachers, and works with district leaders to formulate a plan for shared professional development and approaches that leverages the resources and expertise in partner districts.

The learning community began in 2014 by identifying results-oriented, successful teaching practices, and established the SMSP STEM Attributes Framework (Figure 1) to collectively define excellent STEM teaching and learning. Early efforts demonstrated that the learning community needed to expand beyond the instructional practices of the teachers in attendance, to develop the leadership skills and STEM expertise of those teachers so they may become assets within their district for expanding great STEM teaching in their schools. Thus, the group was rebranded as the STEM Leadership Team, with teacher-leaders actively being acknowledged and utilized as district leaders in STEM education through their inclusion on district STEM Planning teams, and as professional development providers to their peers.

Participants will increase the effectiveness of their STEM practice while implementing the Next Generation Science Standards and the Common Core State Standards. Participants will also learn how to integrate informal education and community-based experiences through use of the STEM Network. SLT members will work to build their leadership capacities to support

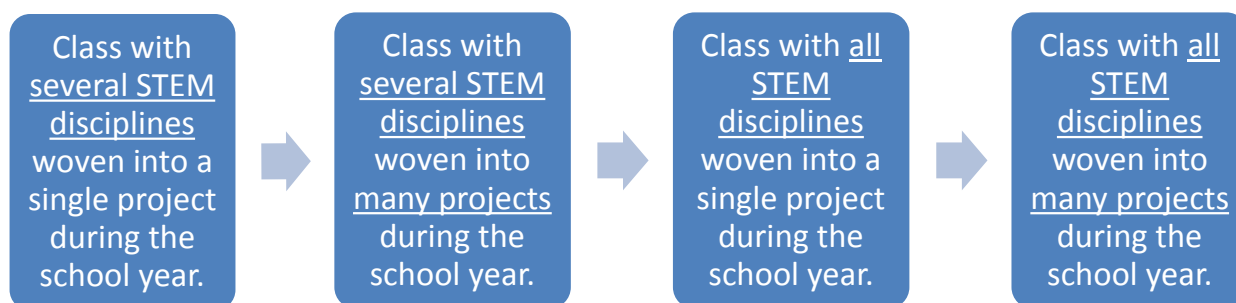
adoption of the SMSP STEM Attributes throughout their schools and districts, and work to support a culture of STEM learning and district-focused professional development.

Are the following STEM attributes clearly represented in a Unit of Study?	Present	Not Present
Integrates Science, Technology, Engineering, and Math.		
Develops communication and literacy skills.		
Provides authentic, real-world experiences through contextual learning (may include active citizenship).		
Forms partnerships with business, industry, agencies, and nonprofits (may occur outside the school).		
Provides career awareness through postsecondary and career relevant connections.		
Fosters problem-solving, critical thinking, and argumentation skills through inquiry and design.		
Includes effective instructional strategies that develop collaboration and teamwork.		
Uses equitable instructional practices that are inclusive to all students regardless of gender, disability, ethnicity, race, language, socioeconomic status, gender identity and sexual orientation.		
Uses standards-based performance/proficiency assessments.		

Figure 1. SMSP STEM Attributes Matrix: The Framework for excellent STEM teaching and learning in the SMSP.

This video explains the SMSP STEM Attributes and is a tool, developed with STEM Leadership Team teachers, to demonstrate the effectiveness of the STEM framework to other teachers and administrators in their districts. <https://www.youtube.com/watch?v=t00428Jscpg>

STEM Continuum of Practice



Staffing and Sustainability

The STEM Leadership Team is led by a 0.5 FTE Learning Community Coordinator, with the support of a planning team comprised of Teachers on Special Assignment and Curriculum

Specialists from partnering districts. Initial funds for this position were secured through state grant funds, along with support for workshop implementation and teacher stipends to participate, when possible. The partnership continues to solicit funds to supplement school district professional development investments. The STEM Leadership Team and partnering districts will also explore models by which the STEM Leadership Team can become self-supporting. Possibilities include grant- or corporate-funded implementation of professional development programming coupled with district investments in teacher participation through stipends and extended contract pay, or a voluntary teacher-participation model supported wholly by tuition paid by districts for credit-bearing workshops and courses.

SMSP STEM Leadership Team and Professional Development Goals

- 1) To develop and support a common framework for STEM instruction through professional development
- 2) Teacher-leaders build community of practice and support through sharing of STEM lessons, instructional resources, and building professional relationships across partnering districts.
- 3) Teacher-leaders participate in professional development and improving classroom STEM instruction.
- 4) Cadre of teacher-leaders build leadership capacity and are utilized by their districts to lead and support STEM professional development in alignment with district STEM Implementation Plan goals.
- 5) To support district-level implementation of District STEM Plans.

Proposed Long-term student measures:

- 1) Percentage of students who are proficient or advanced in science (instrument to be determined) and math (Smarter Balanced assessment).
- 2) Increased STEM participation, persistence, and achievement based on ethnic/cultural and/or socioeconomic backgrounds, limited English language proficiency, gender, or disability.

Proposed short-medium term measures:

- 1) District implementation plans are demonstrably guiding STEM activities, investments, and instruction- annual district interviews
- 2) Increased time in science instruction
- 3) Increased percentage of students taking:
 - STEM electives, including Career and Technical Education
 - Advanced science courses
 - Advanced math courses
- 4) Increased student participation in voluntary STEM activities
- 5) Number of teachers participating in STEM professional development (as defined by learning community framework)
- 6) Number of teachers who have changed practices in alignment with the SMSP STEM Attributes Framework– pre- and post-workshop survey
- 7) Number of teacher-leaders supporting STEM professional development in their districts

- 8) Teacher self-efficacy in STEM instruction, and elements of STEM Attributes Framework (e.g. use of Equitable practices, use of inquiry-based learning strategies)-survey

Strategy: Accelerated College Credits

Expanded School, College, University collaborations that accelerate students in STEM

Colleges and universities in the SMS STEM Partnership are expanding opportunities to provide more students with college credits before they enter college. Courses are said to be "articulated" when the high school course has the same content and outcomes as the college course. Although taught in the high school, the course materials, content and instructional quality are consistent with (or "articulated" with) courses offered by the community college or university. Students who receive advanced college credits are more career-focused and better prepared to successfully complete college courses when they transition, and are more likely to enroll in college after high school, so they can "spend" their hard-earned college credits. Advanced college credits, when they satisfy college-level general education or major requirements, can save students time and money. Credits may also be awarded for Career and Technical Education courses, advancing students toward certificates and licenses that allow them to join the skilled workforce more quickly. Further, successful completion of rigorous college-level courses impacts students' belief that they are college-capable, which is particularly important for students without a family history of college degree attainment.

Our partnering institutions deliver many dual credit programs, and participate broadly in statewide and regional initiatives to advance dual credit for high school students. These include:

- Chemeketa Community College "[College Credit Now](#)" program
- Clackamas Community College Dual Credit programs (e.g. AP, [Advance College Credit](#), College Level Examination program, Credit for Prior Learning, International Baccalaureate, and Military Credit)
- Portland Community College <http://www.pcc.edu/prepare/head-start/dual-credit/> Dual Credit programs, including programs leading to University Transfer Credit and Career and Technical Education and Associate of Applied Science credits. Oregon Institute of Technology [Advanced Credit Programs](#) (ACP), [High School Transition \(HST\)](#), and credit by examination in Project Lead the Way courses, as well as incentive scholarship programs for students who attain advanced college credits in STEM subjects prior to college admission and students who have participated in FIRST Robotics programs.

Additionally, organizations through our region and the state continue to advance Accelerated Credit policies and opportunities through a number of avenues, including the advancement of Eastern Promise Replication strategies. SMSP will continue to monitor state efforts and work closely, as appropriate, with other regional organizations, particularly those with whom are partners are already working (e.g. Willamette Promise replication site housed at Willamette ESD).

Further, our partners acknowledge that challenges persist in how students perceive dual credit and which students historically access these opportunities. The Accelerated Credit Work Group is dedicated to helping *all* students and families understand the value of dual credit for their future careers and/or college pathways. Finally, we are committed to using our collaborative structure to create smooth transitions for students between high school and college, and identifying/developing transition strategies that empower students to succeed as they move to the next step.

This video was produced by the SMSP partners, with the help of our students, to encourage their peers to take accelerated credit courses to expedite their paths to college.

<http://stemoregon.org/jumpstart/>

Staffing and Sustainability

The Accelerated Credit Work Group (ACWG) is staffed via in-kind donation of FTE for two co-chairs from partnering higher education institutions. This arrangement is made possible due to employment of a dedicated dual credit coordinator(s) and other staff at each higher education institution participating in the ACWG. Co-chairs convene a committee comprising high school counselors and principals, dual credit staff at post-secondary institutions, and community programs that provide dual credit to students. State policy and legislation is swiftly changing the conditions under which post-secondary institutions offer dual credit, and partners are adapting policies and reallocating institutional resources accordingly. Specific projects undertaken by the ACWG will be funded by application for specific grants from state, federal, and private sources.

Accelerated Credit Working Group Goals:

- 1) Increase accelerated learning courses in STEM across all K-12 districts and post-secondary institutions.
- 2) Increase the number of K-12 faculty engaged in and qualified to teach dual credit courses.
- 3) Expand student and family awareness of accelerated learning opportunities in STEM
- 4) Improve transition programming between high school and college to ensure smooth transfer of students between learning environments.

Proposed Long-Term Student Measures:

- 1) Increased number of STEM college graduates that matriculate from partner schools.
- 2) Improved Oregon business and industry access to an Oregon-educated STEM talent pool that is highly skilled, motivated, and globally competitive.

Proposed Short-Medium Term Measures:

- 1) Number of dual or accelerated credits in STEM Courses among students in partner districts – common measure.
- 2) Number of college-going incentives: scholarships, preferential admissions,

Strategy: Develop a highly effective STEM Hub

The partners of the SMSP commit to aligning and advancing mutually reinforcing activities toward the achievement of a common mission. To do so, the partners agree that a strong and coordinated backbone structure is needed to execute tasks in four key areas:

- 1) Create an atmosphere of active leadership among all partners with a shared vision.
- 2) Advance equity practices through all aspects of the partnership, and support partners in doing the same, through the adoption and implementation of the Oregon Department of Education Equity Lens.
- 3) Exercise effective Hub management, including fiscal and human resource management and procurement of hub financial, human, and programmatic resources through fundraising, partnership development, and outreach.
- 4) Build and maintain partnership engagement in shared activities through the establishment of an Executive Advisory Board, and ongoing communication with partners.
- 5) Ongoing evaluation of core strategies, including data management of individual partner contributions to the overall strategies, as well as evaluation of partnership functionality.

Staffing and Sustainability

The SMSP will be led by a 1.0 FTE Director, hosted by the Oregon Institute of Technology in Wilsonville. Funding for the Office of the Director will be obtained through biennial applications to the Oregon Department of Education Regional STEM Hub grant program. Bridge funding to support transitions between biennia will be secured through partnering organizations until an ongoing funding mechanism can be established by the state. External grants will include staffing costs to create additional bridge funding, when allowable. In support of Task 5 above, the Director will be responsible for establishing mechanisms and agreements with partners to track and analyze common metrics in the absence of an external evaluation team. Grant-funded projects of substantial size will include resources for external evaluation when possible, and the Director will collaborate with partnering organizations and other regional STEM hubs to establish internal measurement systems.

STEM Hub Goals

- 1) Hub is viewed by partner organizations as integral to advancing their internal STEM efforts.
- 2) Hub establishes policies and protocols to utilize the Oregon Equity Lens to guide partnership decision-making.
- 3) SMS STEM Hub resources are scaled to, used by, and valued by other hubs in the state.
- 4) Participation in the Regional STEM Hub network yields resources and opportunities for partnering organizations.

Proposed Short- and Medium-term Measures

- 1) Leadership/Shared Vision
 - a. Hub director, advisory board, and partners have shared vision for the partnership- leadership interviews

- b. Communication among participants is regular and effective- partner survey and document review, meeting minutes
 - c. Increased strength of relationship with host organization- leadership interviews
- 2) Equity Lens
 - a. Partners understand how Equity Lens relates to their work, and is utilized in Partnership decision-making- partner survey, district reflection survey
 - b. Partners focus work on underserved students- partner survey, district reflection survey
- 3) Effective Hub Management
 - a. Infrastructure in place for hub operations, including pursuit of additional funding- document review
 - b. Business plan is updated and enacted as intended- document review
 - c. Website is active and useful to partners- website analytics, partner survey
 - d. Partners integrate shared practices into their work- partner survey, district reflection survey
 - e. Backbone is leveraging financial and programmatic opportunities
 - i. Funded grants and programs to backbone and partner institutions that expand student opportunities- number, size of grants
 - ii. Industry support or sponsorship of backbone and programs- number, size of gifts
 - iii. Shared Learning and Activities across other state hubs/initiatives, e.g. Regional Achievement Collaboratives, STEM Hubs, Promise Replication sites, etc.
- 4) Engaged Partners
 - a. Partnership is expanded through community and business organizations- document review
 - b. Increased levels of partner engagement (schools, community, business)- partner survey, district reflection survey
- 5) Evaluation and data management
 - a. Data is shared across districts and partners- leadership interviews, district surveys, partner surveys
 - b. Data-informed decision-making modeled continuously by Hub leadership- leadership interviews, partnership surveys, exits slips, etc.

Four-Year Process of Regional Engagement and Transformation in STEM

2012 Phase 0: Envision

- ❑ Establish a shared vision for STEM transformation
- ❑ Sign Partnership Agreement

2013 Phase 1: Plan

- ❑ Develop STEM Partnership Strategic Investment Plan
- ❑ Identify key strategies and work plan
- ❑ Develop common measures
- ❑ Identify funding sources and secure STEM investment commitments
- ❑ Hire STEM NET Director

2014 Phase 2: Build

- ❑ Develop Strategic Implementation Plan for each partner district, tailored to the unique challenges and assets of the district
- ❑ Engage Teachers in Learning Community
- ❑ Launch initial teacher professional development
- ❑ Launch STEM Network
- ❑ Expand dual credit opportunities
- ❑ Make Infrastructure Investments
- ❑ Aggregate baseline data for common measures

2015 Phase 3: Implement

- ❑ Deliver STEM Network programming
- ❑ Showcase effective practices from Learning Community and assess scalability
- ❑ Continue teacher professional development
- ❑ Expand dual credit opportunities
- ❑ Continue STEM Impact measurement
- ❑ Expand leveraged opportunities with community partners and grant funders

2016 Phase 4: Refine

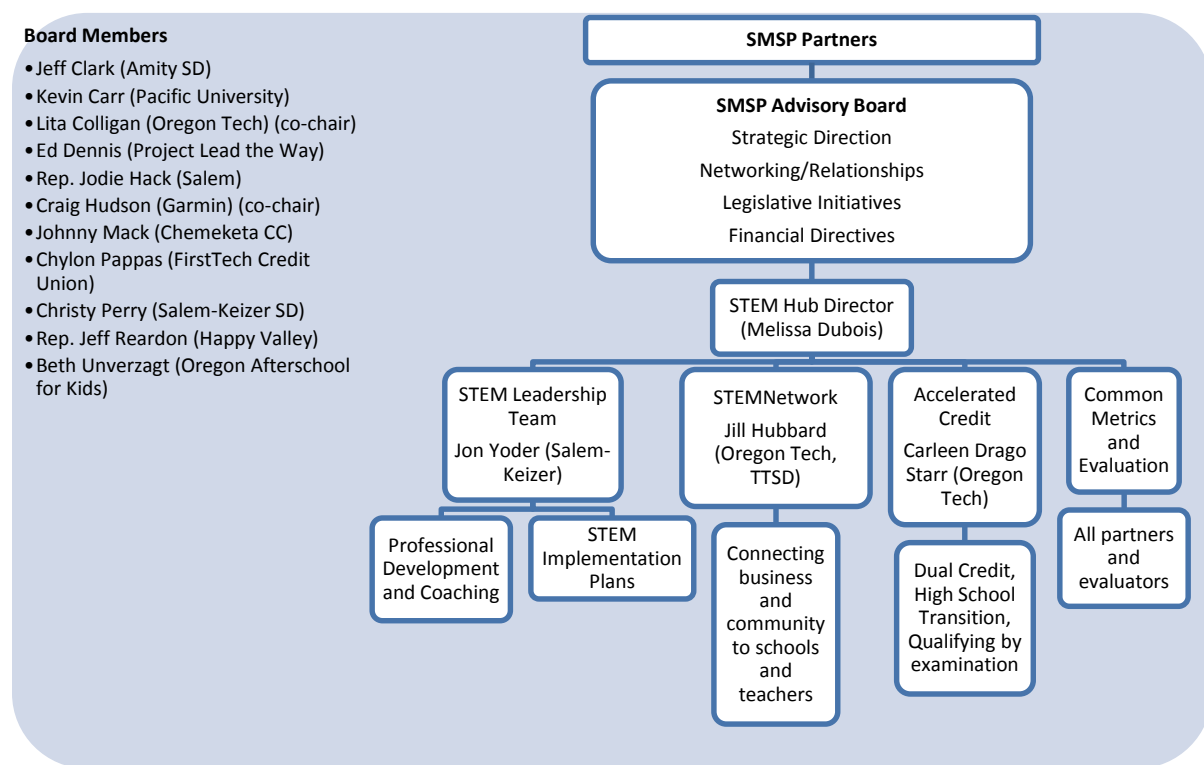
- ❑ Use assessment data to revise programming
- ❑ Transition to sustainable program partnerships
- ❑ Report on STEM Impacts

Section Seven: Partnership Governance and Management Structure

Governance

The SMS STEM Partnership convenes an Executive Advisory Board (EAB) to provide policy direction, leadership, and oversight. All of the core partners in good standing are eligible to participate on the EAB. The Board consists of at least one representative from K-12, community college, four-year university, business/industry, out-of-school STEM programs, and state legislature, as available. Special attention will be given to recruiting and retaining board members who work with and represent underrepresented communities. Board members will elect a Chair or Co-Chairs at their September meeting. The Chair will convene a minimum of four board meetings per year and will serve renewable two-year terms. The Board may meet more frequently in early years at the discretion of the Chair. The Roles and Responsibilities of the Executive Advisory Board are included in Appendix A, [and linked here](#).

SMSP Organizational Structure



The SMS STEM Partnership Agreement defines the participation of each of the core partners. The terms of the Partnership Agreement for each core partner are renewed biannually. At the annual meeting, Agreements are submitted to the SMSP Executive Advisory Board, which accepts the terms of Agreement and declares the core partner in good standing through a majority vote.

At the quarterly meetings Board members receive an oral report on the partnership activities, program implementation, and program evaluation. All partners make recommendations to inform continuous improvement and long-range planning, with particular attention to the Oregon Equity Lens. At the annual meeting the Board will review a written summary and evaluation of the partnership's activities.

Fiscal Authority

- Oregon Institute of Technology serves as the fiscal and administrative authority for grants that support the core programming administered or overseen by the hub backbone. Oregon Tech Foundation serves as the responsible 501c3 for philanthropic gifts and foundation grants, as appropriate.
- Collaborating school districts serve as fiscal agents for grants and philanthropic gifts that finance the STEM Education Strategic Implementation Plans in their schools/districts.
- Partnering colleges and universities retain administrative and financial authority for the grants and contracts for which their employees serve as principal investigators.

Section Six: Investment Overview

The South Metro – Salem STEM Partnership will execute its business plan through the collective work of all its partners to achieve a shared vision. The staff and programming for partnership activities are funded through cost-sharing arrangements from four sources: annual financial support from the state of Oregon through the Oregon Department of Education, grants and contracts that are secured by partners from public and private sources, revenue generated by partnership activities, such as professional development, and industry and community memberships and sponsorships. All partners will work together to raise funds for collective activities that benefit all members.

All funds: Develop plan, Lead entity for each proposal, and Timeline

Source	Subject, Lead Applicant	Due Dates
Federal		
Dept of Education I3 Program	Oregon Connections, lead applicant TBD	Winter 2016
State Sources		
ODE Regional STEM Hubs	Hub backbone, Oregon Tech	Summer/Fall 2015
ODE Regional STEM Hubs	Programming, Oregon Tech	Fall 2015
ODE MSP Program	iSTEM Grant (5 districts), Pacific University	Fall 2014

Foundation Sources (non-corporate)		
Oregon Community Foundation	Oregon Connections, Oregon Tech Foundation	Summer 2014
Lemelson Foundation	SLT/Contract invention professional development, Oregon Tech	Summer 2015
Murdoch Foundation	Oregon Connections; Oregon Tech Foundation	Summer/Fall 2015
Private Sources		
Eaton	Partnership unrestricted, Oregon Tech	2013
FLIR	Oregon Connections, Oregon Tech	2013, 2014
First Tech Credit Union	Oregon Connections, Oregon Tech	2013, 2014
Mentor Graphics Foundation	Partnership unrestricted, Oregon Tech	2013
PGE Foundation	SLT and Oregon Connections, OregonTechFoundation	2013, Summer 2014
Intel	Oregon Connections, Oregon Tech Foundation	Spring 2015
McKinstry	Oregon Connections, lead pending	Pending
Other business partners TBD		
Revenue-Generating Activities		
Professional development		
Consulting on grant applications, convening grant applications	Girls, Inc Youth Development Council, Oregon Tech Pacific University MSP, Oregon Tech	Summer 2014, Fall 2014
Sponsorship/logo rights, Oregon Connections		

Approximate 2015-16 Operating Budget

Draft operating budget, 2015-16	Operations		
Staffing	Total	Salary	OPE
Hub Director (1 FTE)	118012	80004	38008
STEMNetwork Director (.65 FTE)	81300	50004	31296
STEM Leadership Team Coordinator (0.5 FTE)*	70560	48000	22560
Student Worker (STEMOregon)	2085	2025	60
Industry Coordinator (OregonConnections)	15000	15000	
Staffing subtotal	286697		
Backbone Activities		Cost-share or external project funds needed	
S&S, travel	11000		
Communications, SMS Website management	1700		
Evaluation*		50000	
STEMNetwork Programming			
S&S, Marketing, Travel	3000		
Oregon Connections Licensing	5000		
web domains, licenses, etc	2000		
Teacher stipends for Train-the-Trainer expansion (20/yr at \$250/teacher)*		5000	
STEMOregon, Oregon Connections management*		8000	
Virtual teacher sessions (\$10/session)	10000		
STEM Leadership Team Programming			
Summer Professional Development Workshop	9000		
School Year Workshop	4000		
Teacher Participation SUMmer*, assuming 45 teachers, \$100/teacher/day x 1 Cohort x 4 days, 1 Cohort x 1 day		22500	
Teacher Participation, AY*, New Cohort (5 x 2 hr meetings @ \$50/hr)		22500	
Teacher Participation, AY*, Returning Cohort (3 x 2 hr meetings x \$50/hr)		7500	
STEMapalooza*		2000	
Accelerated Credit Programming			
S&S, events, convenings	10000		
Marketing Materials		3000	
Faculty stipends*		16000	
Teacher stipends*		30000	
Total	342397	166500	
*denotes highly desirable program supports			

Industry Partners

- 3D Systems
- Autodesk
- Eaton
- First Tech Credit Union
- FLIR Systems
- Garmin AT
- Intel
- Legacy Meridian Park Hospital
- Mentor Graphics
- NASA Space Grant Consortium
- PGE Foundation
- Xerox

Community Partners

- Business Education Compact
- Clackamas CTE Consortium
- Evergreen Aviation and Space Museum
- Girls Inc, of the Pacific Northwest
- Oregon AfterSchool for Kids
- Oregon Computer Science Teachers Association
- Oregon FIRST
- Oregon MESA
- Mad Science of Portland and Vancouver
- Project Lead The Way
- Technology Association of Oregon
- Tualatin Chamber of Commerce
- World of Speed

School Districts and ESDs

- Amity School District
- Canby School District
- Central School District
- Dallas School District
- Gladstone School District
- Lake Oswego School District
- Molalla River School District
- Newberg School District
- North Clackamas School District
- Oregon City School District
- Salem-Keizer School District
- Tigard-Tualatin School District
- West Linn-Wilsonville School District
- Woodburn School District

Community Colleges

- Chemeketa Community College

- Clackamas Community College
- Portland Community College

Universities

- George Fox University
- Oregon Tech
- Pacific University

Appendix 2: Executive Advisory Board

Kevin Carr	Pacific University
Christy Perry	Salem Keizer SD
Jeff Clark	Amity SD
Lita Colligan	Oregon Tech
Ed Dennis	Project Lead the Way
Craig Hudson	Garmin
Rep. Jodie Hack	State Representative, Salem
Johnny Mack	Chemeketa CC
Chylon Pappas	First Tech Credit Union
Christy Perry	Salem Keizer SD
Rep. Jeff Reardon	State Representative, Happy Valley
Beth Unverzagt	Oregon Afterschool for Kids



Executive Advisory Board

Roles and Responsibilities

June 2014

Background:

The South Metro-Salem STEM Partnership formally signed a partnership agreement in December 2012. In Spring 2014, the South Metro-Salem STEM Partnership was recognized and funded as an Oregon Regional STEM Hub.

The Partnership is a collaborative of 15 school districts, three community colleges, four universities, ten community-based STEM programs, and eleven business partners who share a common vision for improving STEM education in our region.

Vision:

The South Metro-Salem STEM Partnership catalyzes Oregon students to achieve STEM degrees and certificates, and reach Oregon's education goals by increasing the access, excitement and engagement of students in STEM courses and experiential learning.

Mission:

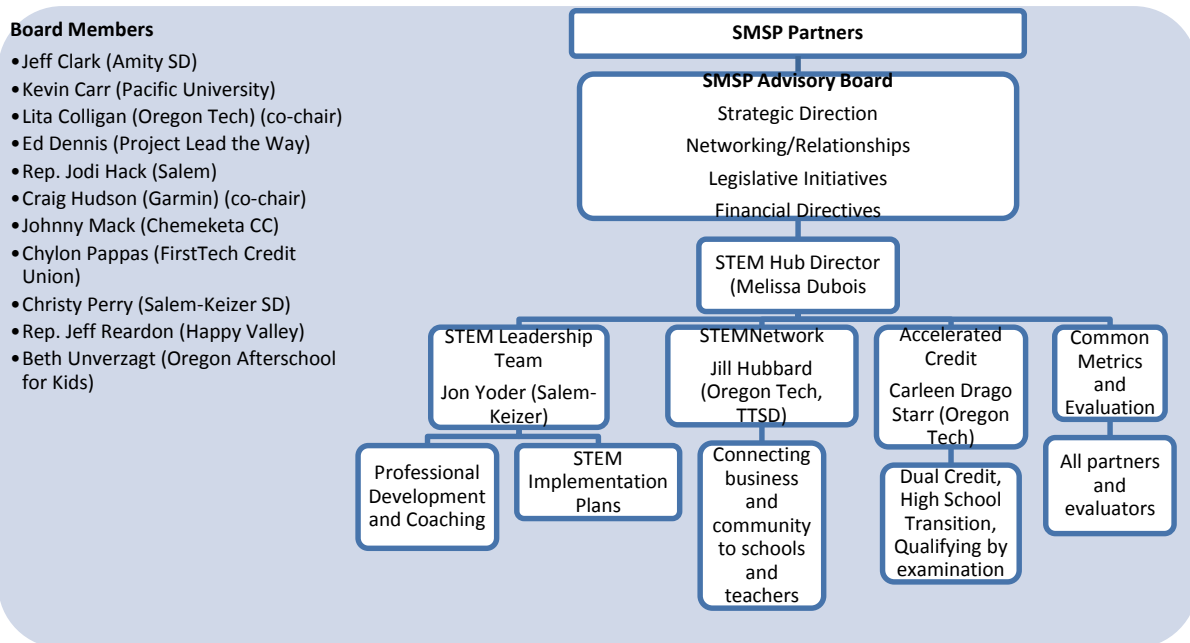
The South Metro-Salem STEM partnership will collectively optimize PK-20 STEM education by utilizing a full spectrum of public and private resources and model instructional practices to develop a career-ready, diverse, and adaptable workforce that enhances the regional economy and community.

As a collective partnership, we are striving to leverage our resources differently in three strategic ways:

1. **Forming a STEM Leadership Team of teachers and community partners to share effective instructional practices** and integrate contextualized, experience-based teaching and learning methods, as well as to build capacity in teachers and administrators to implement district-wide STEM priorities.
2. **Organizing and facilitating a network** of mentors, programs, and events that inspire students and sponsors to utilize the state's rich industry and community resources (STEMOregon Connections, at STEMOregon.org)
3. **Expanding collaborations between schools, colleges and universities to accelerate dual credits in STEM subjects** and better transitions for student into STEM career paths.

The partners will leverage their existing resources, staff, and facilities, and will raise funds and other in-kind donations to expedite the collaborative work.

South Metro Salem STEM Partnership Structure:



Executive Advisory Board Key Tasks:

- Strategic Direction
- Networking and Building Relationships
- Legislative Initiatives
- Financial Directives

SMS STEM Partnership Executive Advisory Board (EAB):

The Advisory Board will be 10 -15 members, drawn from industry, education leaders from all sectors of education, legislative members and non-profit STEM program providers.

Responsibilities:

The Advisory Board will offer strategic direction, networking, legislative advice and support, and fundraising direction for the Partnership's three strategic elements and for program evaluation. The three elements, as described above, include the STEM Leadership Team, STEMNetwork/Oregon Connections, and Accelerated College Credit, along with determining metrics and evaluation of the effectiveness of the work in achieving the partnership's goals.

The partners have agreed that they will not form a formal legal entity, but will utilize various partner organizations to advance their collective work. Multiple and varying partners will be the lead, legal organizations that are responsible for specific program areas within the overall partnership plan, based on grant sources, relationships, expertise and willingness of partners to assume programmatic responsibilities.

For example, the SMS STEM Hub, established through a grant by the Oregon Department of Education to support the backbone organization of the SMS STEM Partnership, operates as a collaborative effort with Oregon Tech as the lead fiscal agent. Oregon Tech handles financial transactions and provides accounting services, and serves as the employer of record for the STEM Hub Director as well as the STEMNetwork director. Subawards were made to Salem-Keizer School District to manage awards for 15 school districts, as well as to employ a part-time STEM Leadership Coordinator. Other program areas will be staffed on a volunteer or cost-shared basis by Partner members, until funds are raised for direct support.

Advisory Board Member Expectations:

- Members should embrace the *South Metro-Salem STEM Partnership* mission and values, and wish to make a huge impact on the STEM career pipeline in our region.
- The time commitment of the STEM EAB is:
 - Approximately 5 monthly/bimonthly EAB meetings, 1 hour in duration
 - Quarterly partnership meetings, 2 hours in duration
 - Participation at Oregon Connections outreach events where they serve as hosts for industry, government officials, and educators.
- Attend 80 – 100% of monthly board meetings
- Annual time commitment estimated at 20 hours/year
- 2 year commitment by all board members
- 2 year commitment by chairperson
- Attend SMS Oregon Connections outreach events
- Attend other STEM/Educational events as available
- EAB members are expected to actively engage:
 - Help shape the strategic direction of *SMS STEM* Partnership and programs in the core strategic areas
- Leverage professional networks to assist with STEM Partnership and STEMOregon Connections initiatives.

The *SMS STEM Partnership EAB Chairperson(s)* is responsible for following up on activities for the Executive Advisory Board and working with the Partnership Director.

Ideal Board Member Qualifications:

- **Vision** – Should be capable of bringing innovative thinking to bear when discussing board planning strategy and be capable of partnering with SMS STEM Partners to develop a vision for the future of the organization and its Advisory Board leadership.

- **Strategic perspective** – Should demonstrate an ability to develop recommendations and evaluate recommendations from a multi-functional perspective.

Annual Board Member Contribution:

- Chair or serve on a sub-committee
- Promote and secure partnerships with industry, educational institutions and associations
- Secure sponsorships
- Lead strategic initiatives
- Host outreach events

Appendices on Website

[South Metro-Salem STEM Partnership Agreement: September 2014](#)