ORS 327.372 & 326.500 Combined Biennial Oregon Department of Education and Annual STEM Investment Council Report

Distribution of Funds for Science, Technology, Engineering and Math, and Career and Technical Education

December 2024

OREGON DEPARTMENT OF EDUCATION

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Executive Summary

The Oregon State Legislature passed House Bill 3072 (HB 3072) in 2015, recognizing that a strong educational foundation in science, technology, engineering, and mathematics (STEM) and Career and Technical Education (CTE) will help Oregonians achieve success in high-wage, high-demand careers. This House Bill was adopted as Oregon Revised Statutes (ORS) 327.372 & 326.500 to advance the following goals: improving student outcomes in Science, Technology, Engineering, and Mathematics; increasing participation in post-secondary STEM fields of study; and increasing the number of Oregon youth who enter high-wage, high-demand STEM professions.

The strategies identified in law to achieve these goals are: 1) funding a network of Regional STEM Hubs; 2) establishing a grants program to revitalize CTE programs and pathways in K-12 schools; and 3) establishing a STEM grants program. Additionally, ORS 327.372 & 326.500 require the Oregon Department of Education (ODE), the STEM Investment Council, and the CTE Grants Advisory Committee (ORS 344.075) to report progress on these goals to the Legislature. These reporting requirements are met through this combined report.

During the 2023-2025 biennium, distributions made under ORS 327.372 & 326.500 have:

- Funded the operations of the 13 Regional STEM Hubs for a total of $6,741,442;
- Funded four STEM Innovation Grant collaborations among Regional STEM Hubs for $5,569,941.
- Funded the Regional STEM Hub Network infrastructure which has allowed the STEM Hub Network to secure or leverage an additional $8,568,120 in funding from other sources (7/1/23-9/30/24), a total state investment of $12.1 million;

During the 2023-2025 biennium (7/1/2023-6/30/2025), distributions made under ORS 327.372 & 326.500 have:

- Funded 31 new CTE Revitalization Grants for a total of $7,628,849;
- Funded 25 new state chapters of Career and Technical Student Organizations and all existing state chapters in the 2023-2024 school year (789,645); and
- Funded over 700 CTE Programs of Study through the Secondary Career Pathways grants, for $8,429,460.

This legislative report begins with the background and legislative directive from ORS 327.372 & 326.500. It details the allocation of funds to support the operations and programming of the Regional STEM Hub Network, highlighting its work with Oregon's students and educators. Additionally, the report provides data that illustrates the impact of Regional STEM Hubs on students and educators, expenditures made in CTE for this biennium, and a description of the progress achieved in guiding Oregon's youth toward high-wage, high-demand careers through STEM and CTE.

Background and Legislative Directive

Critical thinking and literacy skills in science, technology, engineering, and mathematics (STEM) are essential for navigating today's world. With Career and Technical Education (CTE), STEM education is crucial for successfully entering high-wage, high-demand professions. Having a population that is highly skilled in STEM and prepared through quality CTE is increasingly important for the economic sustainability of the State of Oregon. In 2015, the Oregon legislature passed HB 3072, creating ORS 327.372 & 326.500, which authorized funds and created a grant account for statewide STEM education and CTE programs and activities that can lead to high-wage, high-demand careers.

Although the law established a Connecting Education to Careers account, this account was never created, and grant funds come directly from the General Fund via Grant-in-Aid. After amendments, approximately forty percent of the funds were allocated for STEM education and roughly sixty percent were allocated for CTE programs and activities.[1] Additionally, ORS 344.075 directed ODE to establish a CTE Grants Advisory Committee to recommend the CTE funds' disbursement.

ORS 327.372 & 326.500 advances the following goals:

- Improving student outcomes in STEM and CTE;
- Increasing participation in post-secondary STEM and CTE majors; and
- Increasing the number of Oregon youth who enter high-wage, high-demand STEM and CTE professions.

The strategies identified in ORS 327.372 (3) to achieve these goals are:

- Funding a network of Regional STEM Hubs;
- Establishing a grants program to revitalize CTE programs and pathways in K-12 schools to expose students to CTE programs that lead to high-demand and high-wage careers;
- Establishing a STEM grants program[2] that creates innovative and effective STEM experiences for teachers and students; and
- Develop a systematic survey of facility use to determine how savings for science, technology, engineering, and mathematics education can be achieved.

ORS 327.372 & 326.500 require submission of a biennial report from ODE and the CTE Grants Advisory Committee established under ORS 344.075, as well as an annual report from the STEM Investment Council. These reporting requirements are being met through this combined report.

As the report will detail, funds authorized by ORS 327.372 & 326.500 in the first year of the 2023-2025 biennium have been used for many purposes. They have allowed the Regional STEM Hub Network to fund the operations of 13 Regional STEM Hubs and provide the Regional STEM Hub Network infrastructure that has allowed them to secure or leverage funding from other sources. In addition, the funding has provided four STEM Innovation Grants, 31 new CTE Revitalization Grants, the opportunity for over 7000 students to participate in state chapters of Career and Technical Student Organizations annually, and over 700 CTE Programs of Study through the Secondary Career Pathways grants impacting tens of thousands of CTE students. As directed by ORS 327.372 & 326.500, this report also includes

[1] The exact division of funds has been directed by legislatively approved budgets and does not always follow the 40/60 split.

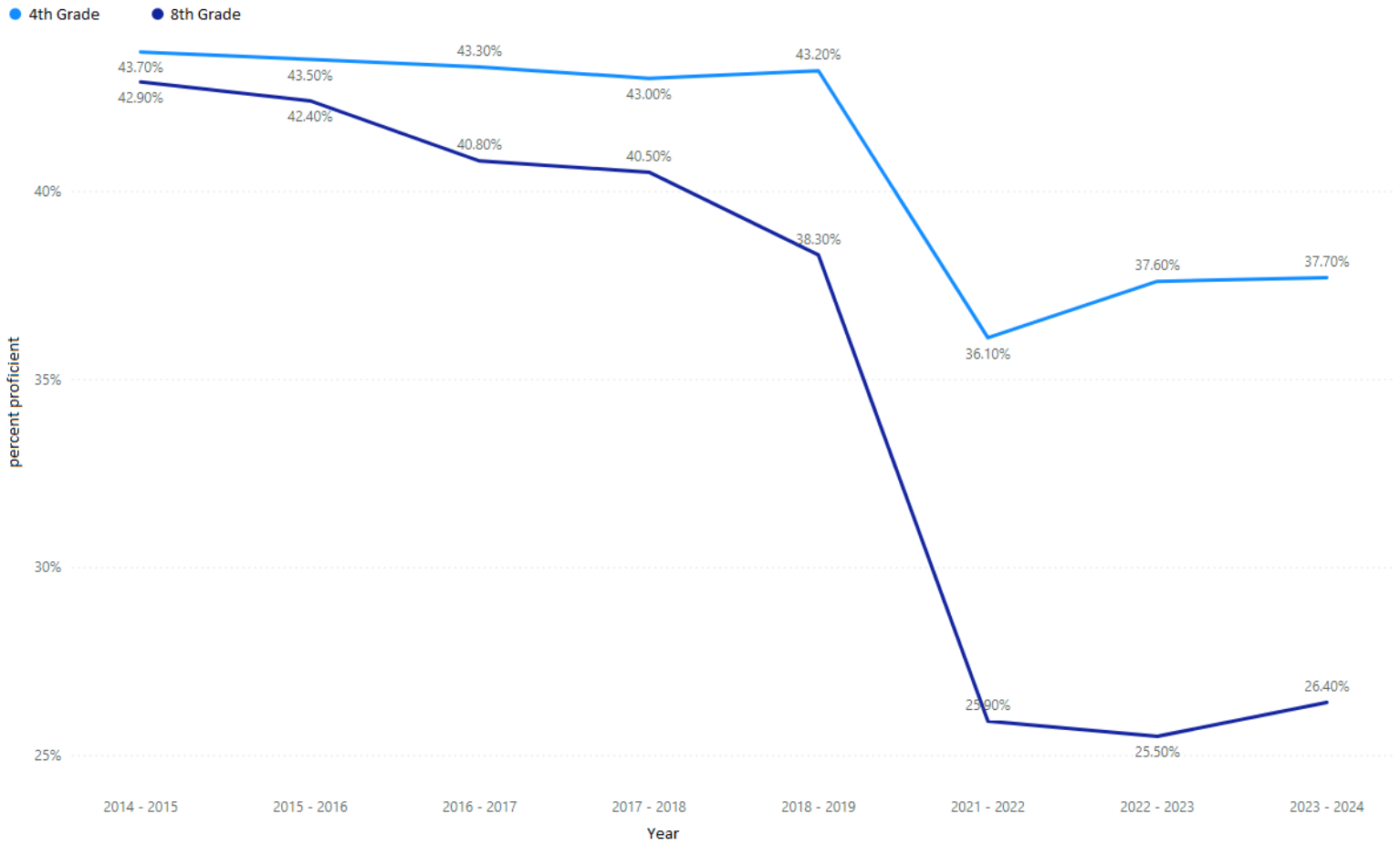
[2] The STEM grants program is referred to as the STEM Innovation Grants.

metrics that identify how distributions made under this section contribute to developing a skilled workforce that can secure high-wage and high-demand jobs.

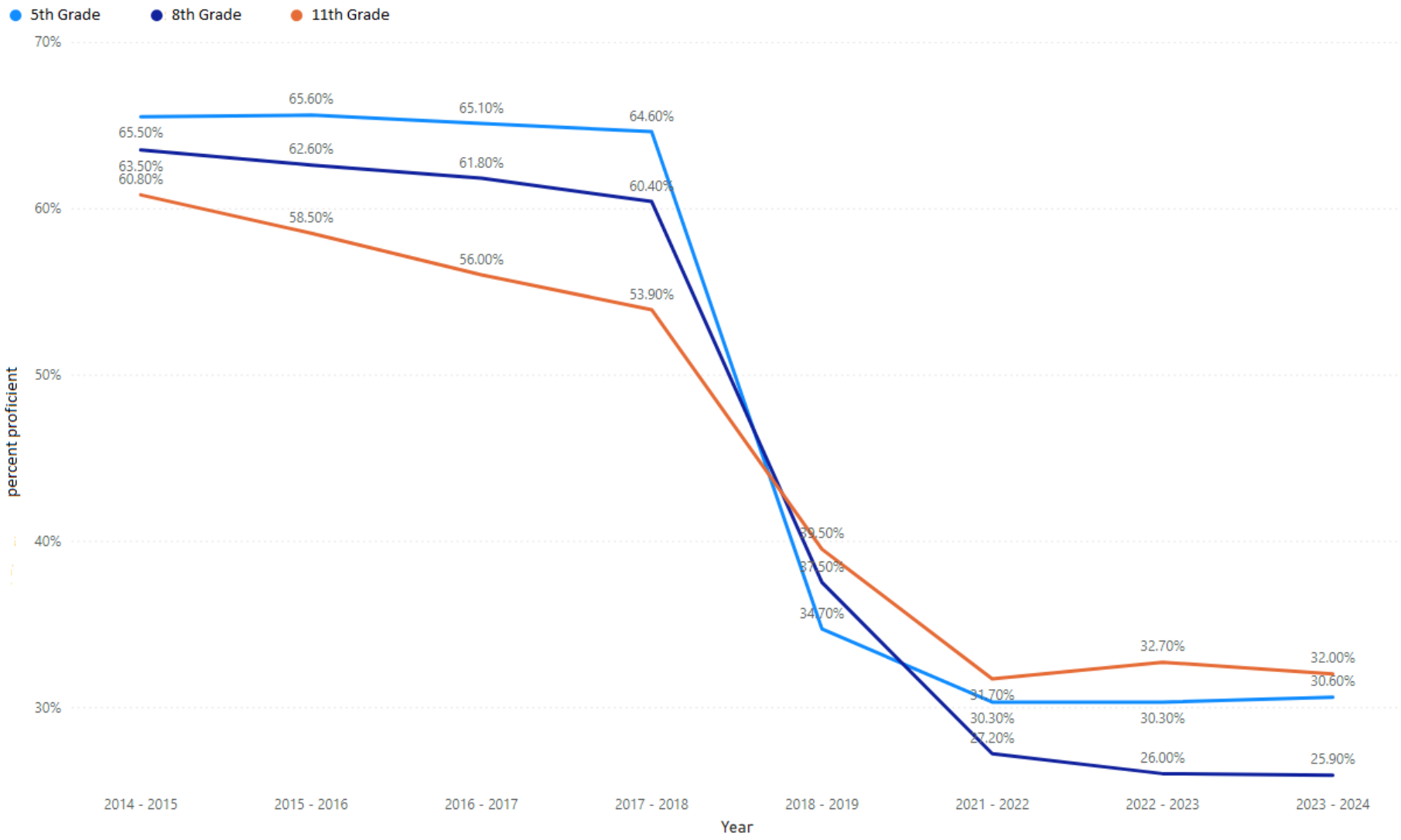
Current State Achievement Data in Math and Science

The following graphs show the percentage of Oregon students performing proficient or above on statewide 4th and 8th-grade mathematics assessments and 5th-grade, 8th-grade, and 11th-grade science assessments. Oregon administers statewide science assessments in 5th grade, 8th grade, and 10th grade. Also, starting in 2018, Oregon's statewide science assessment began measuring student performance based on the Oregon Science Standards which are based on the Next Generation Science Standards adopted by the State Board in 2014. This accounts for the significant decline in science assessment scores in the 2018-19 school year as the assessment reflects the more rigorous content standards. Oregon is also still working to recover from the impacts of COVID-19 in the classroom and this is most undoubtedly affecting these assessment scores as well.

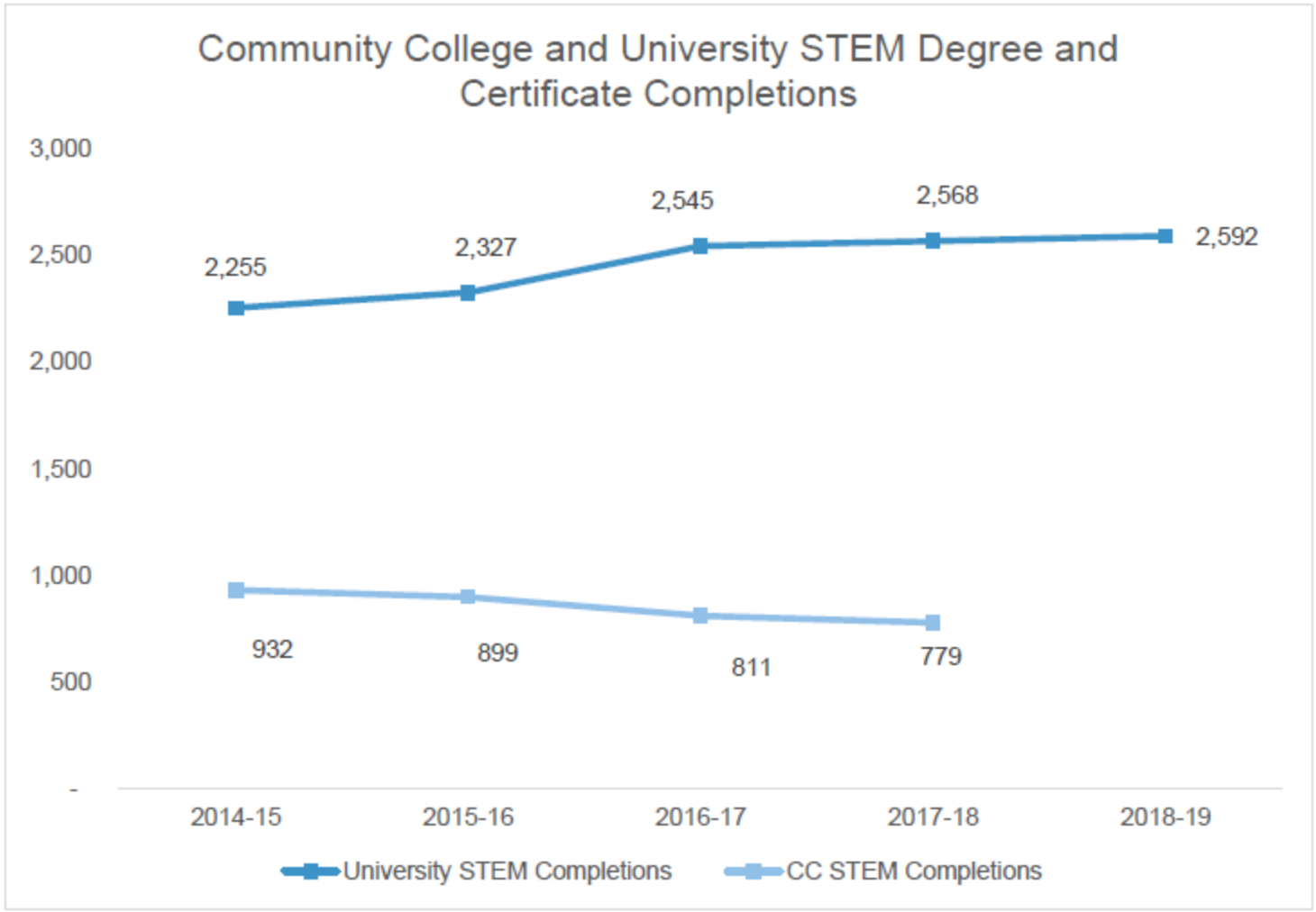
Graph 3 shows the number of students completing a postsecondary STEM degree and credentials in 2019. Table 4 shows the number of students currently (2024) pursuing postsecondary STEM degrees and credentials. The methods used to collect the current data were different from 2019 data so we caution comparing data directly.



Graph 1: Math Assessment Score



Graph 2: Science Assessment Scores



Graph 3 Community College and University STEM Degree and Certificate Completions (2019)

Post-secondary Type	Total Number of Students	Percentage of Students	Number of Students
Community Colleges	184,914	17	31,433
Public Universities	120,255	37	44,489

Table 4 Community College and University STEM Degree and Certificate Enrollment (2024)[3]

[3] Higher Education Coordinating Commission : Public University Data Dashboard : Strategy, Research & Data : State of Oregon

The Oregon 2021-2025 STEM Education Plan[4]

In 2021 the STEM Investment Council wrote the Oregon 2021-2025 STEM Education Plan, which identifies goals and indicators of success for STEM education in Oregon. Oregon's Regional STEM Hubs align their work to the goals outlined in the STEM Education Plan. The STEM Education Plan outlines alternative indicators of student success, such as a student and educator's STEM identity, and increased enrollments in STEM/CTE accelerated learning and elective courses. The research literature has shown that when early, relevant, and explorative connections are made for students with STEM/STEAM experiences, students are more likely to develop STEM identity, interests, attitudes, motivation, and confidence. This ultimately increases the likelihood that they will enter a STEM career[5,6,7].

The STEM Education Plan established four major goals for Oregon's students, centered around equity and empowerment of all students. The STEM Investment Council identified priority strategies, linked this research, and named the state entities that should lead the work. These four STEM Education Goals and the associated Priority Strategies provide the roadmap to improve STEM education in Oregon while engaging partners, to increase access and achievement for the students and State of Oregon. The Regional STEM Hubs have aligned their STEM Innovation Grant projects funded by HB 3072 to the four goals of the STEM Education Plan:

Goal 1: Inspire and empower our students to develop the knowledge, skills, and mindsets necessary to thrive in a rapidly changing, technologically rich, global society.

Priority Strategies:

- Incorporate applied learning, project-based learning, and other engaging practices across K-12 curricula.
- Increase time on science in elementary school.

Goal 2: Ensure equitable opportunities and access for every student to become a part of an inclusive innovation economy.

Priority Strategies:

- Adopt culturally relevant, place-based contexts as the basis for STEM lesson plans, units, and courses.
- Provide financial aid for postsecondary students from underserved/underrepresented communities

[4] Oregon STEM Investment Council (2021). 2021-2025 STEM Education Plan. Oregon Higher Education Coordinating Commission. https://www.oregon.gov/highered/institutions-programs/workforce/Documents/STEM/2021-2025%20Oregon%20STEM%20Education%20Plan.pdf

[5] Singer, A., Montgomery, G. & Schmoll, S. (2020) How to foster the formation of STEM identity: studying diversity in an authentic learning environment. International Journal of STEM Education 7:57. https://doi.org/10.1186/s40594-020-00254-z

[6] LaForce M, Noble E, Blackwell C. Problem-Based Learning (PBL) and Student Interest in STEM Careers: The Roles of Motivation and Ability Beliefs. Education Sciences. 2017; 7(4):92. https://doi.org/10.3390/educsci70400925

[7] Oyserman, D., & Destin, M. (2010). Identity-based motivation: Implications for intervention. The Counseling Psychologist, 38(7):1001-1043. https://journals.sagepub.com/doi/10.1177/0011000010374775

pursuing STEM postsecondary education and training pathways.
- Reform math and science course content, sequencing, and/or tracking.
- Increase access to out-of-school STEM experiences.

Goal 3: Continuously improve the effectiveness, support, and number of formal and informal P-20 STEM educators.

Priority Strategies:
- Provide STEM-based professional development sessions and communities of practice.
- Provide high-quality STEM professional development to school and district administrators.

Goal 4: Develop a sustainable funding and policy environment for STEM and CTE that provides reliable, seamless, and sufficient support across biennia.

Priority Strategies:
- Conduct fundraising outreach to businesses and philanthropy.
- Collaborate with CTE, workforce, early learning, and educator network leaders, and others to propose, fund, and implement local and regional initiatives.

Regional STEM Hub Backbone and Innovation Grants

ODE supports the Regional STEM Hub Network and serves as the administrative agency for STEM Hub Network Grants and STEM Innovation Grants. In the 2023-2025 biennium, funding for STEM education from ORS 327.372 & 326.500 has supported the operations ("backbone") of the Regional STEM Hub Network which supports 1 ½ FTE and other base operation costs. This funding also has sustained the STEM Innovation Grants program. This year, 13 STEM Innovation Grants were awarded from ORS 327.372 & 326.500 to Regional STEM Hubs.

ORS 327.372 & 326.500 has several purposes:[8]

- To engage stakeholders around common outcomes related to increasing student proficiency, interest, and attainment in STEM education and CTE;
- To address opportunity gaps for underserved and underrepresented students;
- To engage local communities to elevate the importance of STEM in individual, community, local, and state prosperity;
- To promote best practices in education, provide career-connected learning opportunities for students, and expand STEM and CTE experiences both in and out of school;
- To share STEM education expertise and insights among and between communities;
- To foster greater coherence across institutions and pathways to ease student transitions and diminish academic isolation; and
- To increase interactions between STEM professionals, students, and educators.

[8] oregonlegislature.gov/bills_laws/ors/ors327.html

Regional STEM Hub Backbone Funding

The first pillar of the programs established by ORS 327.372 & 326.500 provides for the Regional STEM Hub Network. This grant funds the operations of each Regional STEM Hub. Backbone funding ensures STEM Hub sustainability and operational capacity, enabling them to provide ongoing coordination and collaboration across regional partners, schools, and industries.

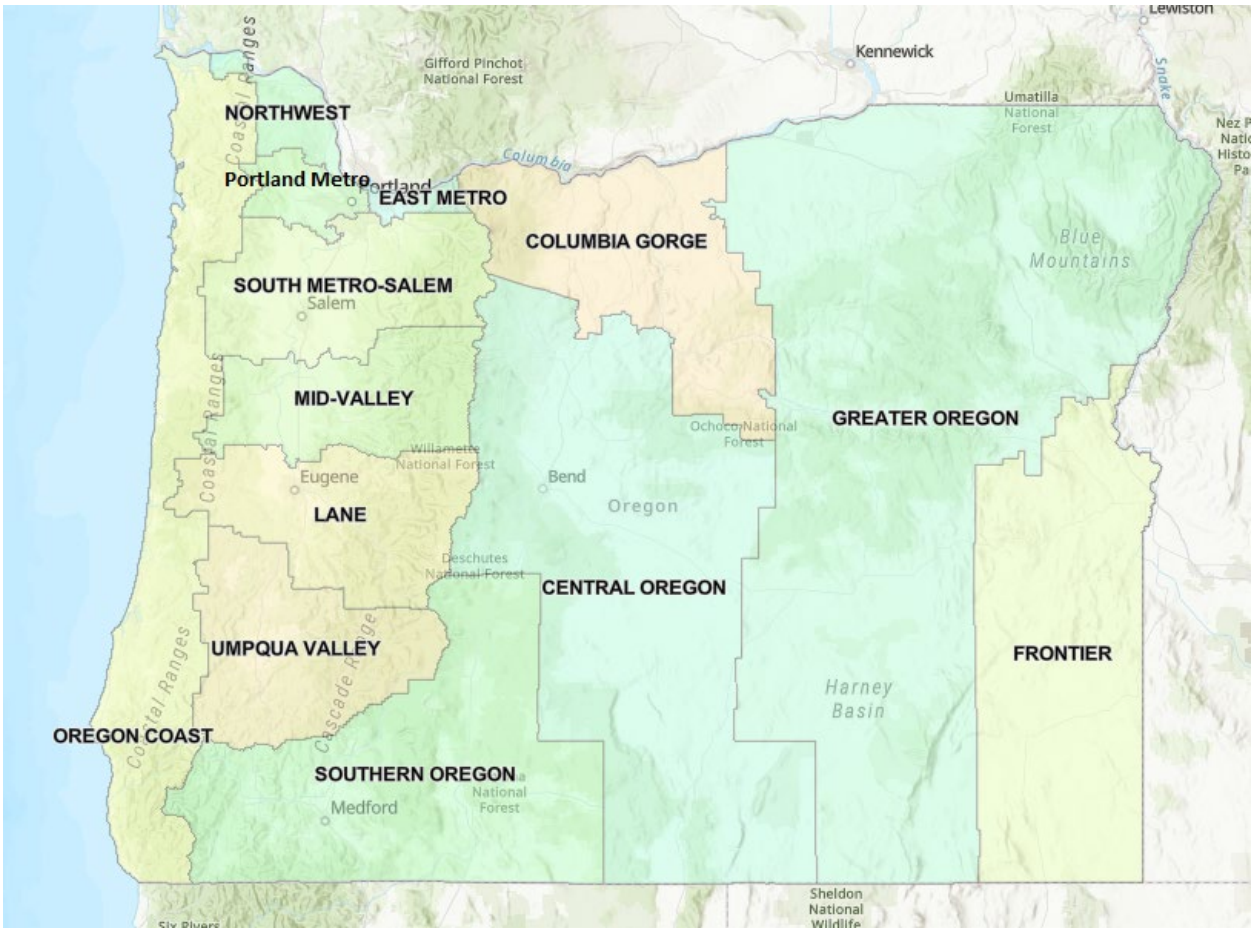


Figure 1. 2022 Map of the Oregon Regional STEM Hubs.

During the 2023-2025 biennium, the State of Oregon invested approximately $12.1 million in the Regional STEM Hubs to support backbone operations and innovative programming. However, due to procurement delays, grant agreements were not fully executed until July 2024, which delayed spending during the first year of the biennium. Despite this delay, the investment has enabled Regional STEM Hubs to build sustainability and expand their programs by leveraging additional funds and resources from partners. In the first year of the biennium, Hubs secured approximately $8,568,120 in in-kind and financial support, surpassing the state's $12.1 million investment.

While this report focuses on the expenditures of ORS 327.372 & 326.500, it is important to note that Regional STEM Hubs also administer and support various other state and federal initiatives, including the Well-Rounded Access Program (WRAP) Grants, the Governor's Computer Science Initiative Grants, and the Math Project (Mathways) Grant in secondary education.

STEM Innovation Grants

STEM Innovation Grants are designed to expand the implementation of effective programs related to STEM education. In the 2023-25 biennium, $5,569,559 was allocated to the STEM Hubs Innovation effort. For the 2023-25 biennium, the STEM Investment Council recommended two criteria for awarding grants:

- Projects must impact a significant number of students from historically underserved and underrepresented communities.
- The awards must involve collaboration across two or more Regional STEM Hubs to promote regional and cross-regional partnerships.

In the 2023-2025 biennium, Regional STEM Hub STEM Innovation Grant proposals resulted in four areas of work for the STEM Innovation projects, detailed in the following project descriptions.

Core STEM

Central to the concept of increasing access to STEM/STEAM learning opportunities at scale, one of the charges of the network, core STEM includes connections to core subjects and standards and articulating alignments between best practices in engaging STEM learning and Oregon's adopted content standards. Executing this work demands acknowledgment of several challenges and explores a statewide Innovation "Project" to improve and expand on strategies to do so.

Challenges observed across the network:

- Access to curriculum that encompasses evolving standards in Math and Science (e.g. introduction of Data Reasoning domain into Math standards not addressed in available curriculum in the adoption process)
- Middle and high school students often experience content learning as separate courses, which prevents deep connections across content
- Restrictive schedules in elementary classrooms that limit inclusion of Science and STEM learning opportunities
- Limited experience and confidence in STEM practices by Elementary educators, both in and out of school
- Limited experience and confidence in the implementation of STEM learning by Elementary administrators and directors of community-based programs
- Need for ongoing support to build deep knowledge, coaching on the use of high-impact instructional strategies, community building, and/or leadership development that goes beyond "one-off" Professional Development (PD) to meet specific needs of Elementary teachers
- Underdeveloped leadership opportunities for educators to promote sustainable engagement that promotes advocacy of STEM and development of more inclusive learning environments
- Too few educators with deep expertise in Next Generation Science Standards (NGSS), Math Common Core, and integration strategies can serve as coaches and advocates

Description of Core STEM Project:

As a collective, the STEM Hub Network is committed to exploring and expanding upon several valuable strategies to address the needs associated with Core STEM, through both multi-hub and regionally specific activities. These strategies include:

Professional development aligned to Oregon's academic standards, provided through in-person, virtual, and hybrid options that meet the explicit needs of the in-class and community educator populations being served (i.e. smaller "bite-sized" experiences; ongoing supports and Professional Learning Communities (PLCs); coaching and modeling the necessity for adaptive, responsive, culturally responsive, and equitable learning environments).

K-12 STEM program delivery, directly and indirectly through partnerships with regional content providers as a means of supplementing existing resources.

Leadership skill development opportunities and training for educators with emphasis on integration.

Resource development and dissemination to support existing STEM integration efforts with an emphasis on deeper, sustained learning experiences for both educators and students (e.g. STEM classroom kits, lending libraries, depository of activities, and accompanying curricula and trainings).

Pathways to STEM/Career Connected Learning

Children's opportunities to see STEM role models and participate in highly relevant and engaging STEM learning are limited due to a lack of instructional time in these subjects at early ages and a need for further professional learning to increase confidence and fluency for educators with STEM pedagogy. Increased access to STEM role models and engaging, relevant STEM learning experiences can enhance students' ability to see themselves as successful practitioners in STEM fields and other trades that leverage their STEM knowledge and skills. Providing early learning and elementary educators experiences to promote a STEM identity and the confidence to develop and teach STEM lessons empowers educators to help students to realize their potential in these areas.

Description of Pathways to STEM/Career Connected Learning Project:

The primary aim of the Pathways to STEM project is to connect classrooms to the world of work through a continuum of experiences across P-20 that helps learners make informed decisions about their educational and career goals that are culturally appropriate, place-based, learner-relevant, and directly linked to professional and industry-based expectations. Close alignment with ODE's Career Connected Learning (CCL) framework, with considerations for regionally-specific partners and needs, inform strategies for the Pathways to STEM project. Activities include:

Participation in existing and emerging networks to share resources and unify strategies to co-develop efforts in alignment with educational and industry standards. Network members include CTE Regional Coordinators, Career Connected Learning Navigators, school districts, Education Service Districts, industry-represented consortia, and statewide and region-specific employers.

Student experiences are relevant and connected to career pathways directly linked to professional and industry-based priorities. Experiences may encompass one or more aspects of a holistic support approach, including career awareness, exploration, preparation, and training. Examples include internships, K-12 field trips with supporting mini-grants, career exploration

field days, team-based industry challenges, mobile maker lab activities, Oregon Connections, and YouScience platform engagement.

Educator professional development and shared learning, aligned with career pathways, and industry standards, and responsive to relationships and learning built with industry. Examples include teacher externships, equipment and industry-standard training, industry tours, and industry speed networking.

Intentional industry partnerships that center investment of time and/or funds that support underserved populations through programming and seek diverse representation of their workforce in activities.

Resource development and dissemination to support existing "Pathway" efforts, with emphasis on deeper connections to STEM and/or CTE career opportunities (e.g. early learning classroom kits, lending libraries, depository of activities with accompanied curricula and training, and resource sharing across the hub network).

Career-connected learning and equity are at the foundation of all these activities. This is highlighted in the regional CTE STEM Team vision statement: *CTE and STEM connects students to careers through: streamlined, equitable, and meaningful education; integral community and industry partnerships; and career-connected learning opportunities tied to real-world, hands-on, culturally responsive learning.*

Early STEM

STEM provides opportunities for developing strong neural pathways for critical thinking and problem-solving; cultivating thinking dispositions such as curiosity, skepticism, and analysis; and developing strong learning mindsets such as resilience and confidence when encountering new information or challenges. Early STEM experiences develop foundations for future STEM success. Despite this understanding, disparate access to STEM learning begins young, before youth are in school. Navigating restrictive schedules, curriculum adoptions, and the complexities of providing age-appropriate activities, time spent engaging in meaningful STEAM learning experiences is often removed or drastically reduced during the school day.[9]

Description of Early STEM Project:

This project provides early educators and childcare providers with tools, resources, and strategies to ensure the youngest learners have equitable access to quality STEM learning experiences. The project leverages partnerships with Early Learning providers, school districts, and community organizations ensuring young learners are prepared for future learning.

Strategies employed across the state to strengthen work in Early STEAM include:

Professional Development is designed for early educators and childcare providers through in-person, virtual, and hybrid options that meet the explicit needs of Early Learning and underserved populations. Professional development will focus on helping teachers and childcare providers feel empowered in the STEM arena so they are comfortable creating powerful

[9] Wan, Z. H., Jiang, Y., & Zhan, Y. (2020). STEM Education in Early Childhood: A Review of Empirical Studies. Early Education and Development, 32(7), 940–962. https://doi.org/10.1080/10409289.2020.1814986

learning experiences for their children. STEM as interdisciplinary and place-based will also be emphasized.

Intentional partnerships with the Department of Early Learning and Care and the Early Learning Hubs center on investing in and empowering communities that directly serve Early learners of underserved populations. Special efforts will be made to support school districts, organizations, and groups with the least access to resources and high-quality programming and those most historically or currently underserved.

PK-5 STEM program delivery, directly and indirectly through various partnerships to supplement existing resources and intentionally co-developed programming and activities that emphasize contributions by community members, caregivers/families, and students in all programming stages. Supporting the educators and childcare providers may include planning and hosting STEAM family nights and other events; creating activities, units, and/or curricula with community partners; and identifying solutions to persistent challenges.

Resource development and dissemination to support existing Early STEM efforts, with emphasis on equitable access to quality STEM learning experiences for both educators and students (e.g. STEM classroom kits, lending libraries, depository of activities, and accompanying curricula and trainings).

Community STEM

STEM learning should not stop when the school day ends. Oregon youth deserve access to high-quality STEM education before and after school, during school breaks, and at home. The out-of-school environment often allows for a more student-centered and culturally and community-based learning environment than the traditional classroom.

Community STEM presents a wealth of opportunities and a collective call to action. A key opportunity is to uplift communities by empowering youth with access to culturally relevant STEM learning experiences. These programs focus on underserved populations, fostering equitable opportunities to support the development of STEM identities. By expanding access to out-of-school STEM/STEAM programs, hubs enable young people to explore their passions and potential in fields critical to their future success.

Despite cost and availability challenges, STEM Hubs can create inclusive, community-based STEM programs through partnerships with educational institutions, nonprofits, and industry leaders. This collaborative approach ensures that underserved youth can actively participate in STEM, bringing diverse perspectives and ideas that drive innovation and problem-solving. By addressing systemic barriers, we pave the way for a more equitable STEM landscape where all youth can contribute to and benefit from the opportunities it offers.

Description of Community STEM Project:

As a collective, the STEM Hub Network is committed to exploring and expanding upon many valuable strategies to address Community STEM needs, through multi-hub and regionally specific activities. Primary strategies include:

Professional development aligned with culturally-responsive pedagogy and inclusive STEM instructional practices, provided through in-person, virtual, and hybrid options that meet the explicit needs of the community educator populations being served. Specific efforts are made to support organizations focused on expanding access for marginalized youth to place-based and culturally relevant STEM learning opportunities.

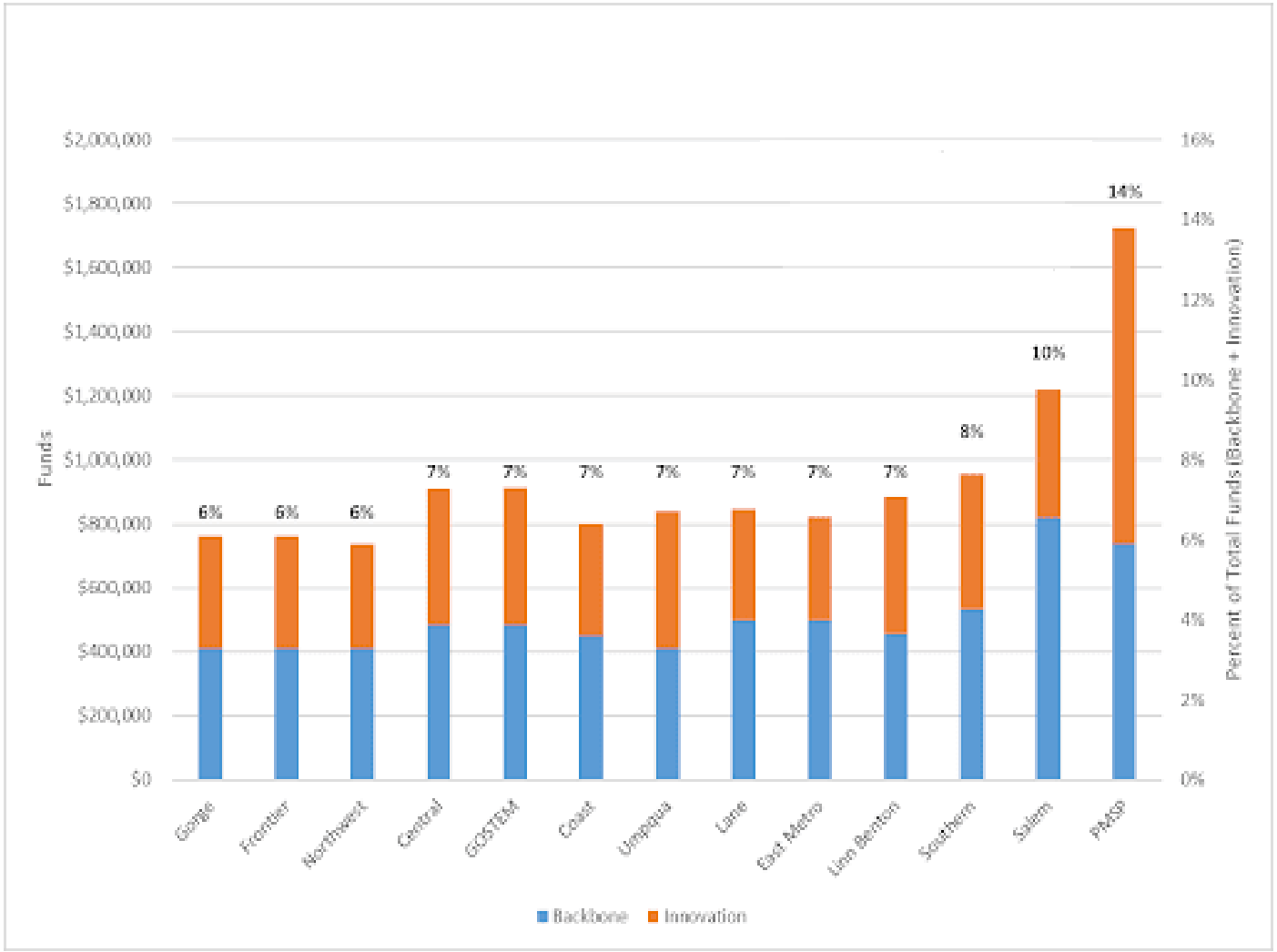
Intentional partnerships centered on investing in and empowering communities that directly serve underserved populations**.** Special efforts are made to support organizations and groups with the least amount of access to resources and high-quality programming and those most historically or currently underserved.

Creation and maintenance of networks to share resources, unify strategies, co-develop efforts, and align funding. Collaboration possibilities include libraries, 4-H clubs, art centers, outdoor schools, school summer programs, out-of-school clubs, community events, and computer science events.

PK-12 STEM program delivery, directly and indirectly through innovative pilot programming that centers community engagement of STEM identity development for underrepresented groups (i.e., BIPOC youth, youth navigating poverty, and students with disabilities). Programming includes non-competitive science fairs, mobile maker labs, STEM & Arts community events, etc.

Distribution of Funds

The Innovation funding encourages creative solutions to local and statewide challenges, fostering the development and scaling of new initiatives that enhance STEM and CTE pathways for students across Oregon. Together, these funds aim to strengthen the infrastructure and impact of STEM education throughout the state. The following graph and table summarize how the funding was distributed between Backbone and Innovation funding and how it was allocated across the Network.



Graph 4: Amount and Percentage of Total Funds by STEM Hub (2023-2025 Backbone + Innovation Allocations)

STEM Hub	Total Backbone Allocation (%)	Total Innovation Allocation (%)	Students in Region	Number of Districts	All Students (%)	Total Funding (%)
Columbia Gorge	6	6	10,426	10	2	6
Frontier	6	6	5,095	11	1	6
Northwest	6	6	15,073	13	3	6
Central	7	8	32,859	14	6	7
Greater Oregon	7	8	29,134	42	5	7
Coast	7	6	26,322	20	5	7
Umpqua Valley	6	8	12,760	13	2	7
Lane	8	6	41,922	15	8	7
East Metro	8	6	38,710	6	7	7
Mid-Valley	7	8	30,892	11	6	7
Southern	8	8	48,126	13	9	8
South Metro-Salem	12	7	145,428	32	27	10
Portland	11	18	111,804	5	20	14

Table 5: Summary of Backbone and Innovation Grant Allocations and Number of Students Served

Area of Work	% of Total Innovation Grant Allocation	Budget Across All Proposals
Core STEM	31%	$1,434,802
Pathways to STEM	28%	$1,302,384
Community STEM	22%	$1,040,117
Early Learning	19%	$881,403

Table 6: Summary of Innovation Grant Allocations

Impacts of Funded Activities

In previous years, the Hubs have submitted common metrics (see Table 7 below). This table reflects the number of educators who participated in STEM professional development with Regional STEM Hubs and the number of students who participated in Regional STEM Hub programs over the last three years. Due to the timing of this report, data represent just the first year of each biennium.

Regional STEM Hub Impact Data Category	2019-2020	2021-2022	2022-2023
Number of educators who participated in Hub professional development or programs	5,056	6,375	7,447
Number of educator hours spent in STEM Hub professional development and programs	44,448	36,681	35,664
Average number of professional development hours per educator	9	6	5
Number of industry volunteers who participated in STEM Hub activities	2,240	1,673	2,270
Number of industry volunteer hours	14,526	17,475	8,514
Number of students who participated in STEM Hub-directed programs	43,040	69,035	96,160
Number of student hours in STEM Hub-directed programs	190,683	291,264	370,994
Number of teachers who use equipment loaning programs	927	941	673

Table 7: Regional STEM Hub Impact Data

As you can see in Table 7 the reach of the STEM Hubs has fluctuated from year to year. STEM Hubs have seen a decrease in the number of industry volunteer hours but an increase in the actual number of volunteers. This may signify the ability of industry members to allow long-term commitment to STEM Hub efforts. STEM Hubs have also seen a decrease in the number of hours educators spent in STEM Hub professional development and programs yet an increase in the number of educators participating. This seems to indicate they are reaching more educators for less time possibly due to a lack of substitute teachers in the state available for long-term teacher commitment. However, there is a large increase in the number of students participating in STEM Hub-directed programs and the number of student hours in STEM Hub-directed programs. This seems to signify the Hubs are working to provide more direct student programming over the last three years.

ODE has collaborated with the STEM Hub Network to advance the Hubs' adoption of more comprehensive data collection metrics, aligning them with the statute and the STEM Education Plan. Due to delays in developing an appropriate data collection tool, Hubs only began collecting these metrics in July 2024 and therefore they are not available for this year's report. The specific metrics can be reviewed in the lists below. Data from these metrics will be available for inclusion in the 2025 legislative report.

Student Related Data

Total number of students exposed to STEM programming, disaggregated by:

- Race/Ethnicity
- Gender

- Region
- Grade Band

Total hours of direct student programming disaggregated by:

- Type
- Grade Band
- Region
- Focus

Educator Related Data

Total Number of teachers accessing professional development, disaggregated by:

- Type
- Grade Band
- Region
- Focus
- Years teaching
- Years participating in STEM Hub Activities

Career and Technical Education (CTE) Investments

House Bill 3072 (2015) established funding for key CTE investments: the CTE Revitalization Grants, Student Leadership Grants, and funds for developing Secondary Career Pathways. Each program is outlined in this report.

CTE Revitalization Grants Program

The Oregon Legislature established a competitive grant program entitled the CTE Revitalization Grant which strengthens the alignment of Career and Technical Education, workforce development, and economic development through ORS 327.372 & 326.500. The CTE Revitalization Grant program is designed to support student engagement and success, completion leading to career and college preparation, and boost local and regional economic development.

For the 2023-2025 biennium, 31 CTE Programs – reaching more than 36,000 students – received funding through CTE Revitalization Grant funds in the total of $7,628,849; this is the total appropriation. For context, there were a total of 68 applications requesting $16,067,541. The 2023-2025 CTE Revitalization Grant Project Abstracts provide more detailed information about the projects.

CTE Revitalization Grant funds serve diverse communities around the state, with programs focused on advanced manufacturing, engineering, health sciences, agricultural science, residential construction, robotics, digital media, broadcasting, firefighting, and hospitality/tourism. CTE Revitalization Grant programs benefit students as well as their communities. Two examples of impact projects highlight the links between these vital education programs and their local talent needs.

Elgin SD Ultrasound

CTE Programs of Study lead to living-wage careers in in-demand fields that typically require learners to develop a solid technical foundation and an understanding of the education and training needed to advance. The Elgin Revit Project does all these things. The area of Precision Agriculture leverages new technologies to increase profitability and streamline processes. The Elgin and Imbler school districts collaborated on a successful grant around two emerging Precision Agriculture areas: animal ultrasound and precision irrigation/chemigation.

Certified ultrasound technicians harness technology to help ensure the quality and health of animals in a non-invasive manner. There are fewer than 5 certified ultrasound technicians in Oregon, and most full-time technicians can earn $30,000-$67,000 based on business booked (this exceeds the Oregon Employment Department [OED] median hourly wage conversion from $17.51/hour). In Union, Baker, and Wallowa Counties, the beef industry accounts for $80 million in gross annual sales, so creating learning opportunities in this emerging area has the promise of addressing regional needs and providing learners with work-based learning experiences and a "deep dive" into a new field that has a huge impact on farms, ranches, businesses, families, and the learners who will become earners in the local economy.

Willamette ESD Dental Assisting Program

Willamette Career Academy (WCA) is directly addressing Oregon's statewide dental assistant shortage through its new dental assisting program, funded partly by a 2023-2025 CTE Revitalization Grant.

During the 2024-25 school year, 30 high school students from Marion and Polk counties will gain hands-on experience with courses in dental anatomy, infection control, and patient interactions in their first year, progressing to fieldwork in actual dental offices during year two. WCA plans to expand the dental program to 60 students for the 2025-2026 school year.

According to Joe Morelock, superintendent of the Willamette Education Service District, local dental practices are already expressing interest in hiring graduates to help offset the shortage, which was fueled in part by the COVID pandemic; according to the Oregon Health Authority, dental offices in the state lost 56% of their staff during the pandemic's first year. (Read more about the Willamette Career Academy dental assisting program).

Secondary Career Pathways

The Secondary Career Pathway Funding, established by the Oregon Legislature through ORS 327.372 & 326.500 is intended to incentivize quality CTE Programs of Study that lead to high-wage and high-demand occupations. CTE Programs across the state are eligible if they are an approved CTE Program offering at least 3 credits[10]. The funds are distributed by a formula based on the following criteria: 1) the number of students who complete three credits in the CTE program, 2) the number of students who earn an approved Industry Recognized Credential, and 3) the number of historically underrepresented

[10] When this legislation was enacted CTE Programs of Study were only required to offer 2 credits. Starting in June 2024 all approved CTE Programs of Study must offer 3 full credits in High Schools. This means that now all CTE programs will be eligible.

students earning credits in the program. The grant provides a funding floor of $2,000 and caps awards at $45,000 per CTE Program of Study. $8,429,460 will be awarded in the 2023-2025 biennium.

Over 700 CTE Programs of Study benefit annually from the more than 8 million dollars dedicated to Secondary Career Pathways. CTE teachers have leveraged these funds to supplement their CTE Programs of Study and create engaging opportunities for students to pursue knowledge and skills that lead to high-wage careers. These funds support teacher professional development in current industry standards, provide equipment and technology that allows students industry-level experiences in the classroom, and fund student participation in leadership opportunities and membership in Career and Technical Student Organizations. Included below are three examples of the hundreds of examples from CTE educators on the impact these funds have on their programs:

Aloha High School, Beaverton School District- Computer Programming:

“This is my third year in the AHS CTE Info Tech program. I am happy to say that in these growing years, and with the help of Career pathway investment, we have doubled our course offerings. I anticipate that we will have at least 8- 10 completers in 2024. We had 0 when I took over the program.”

BASE (Health Science School), Beaverton School District- Health Sciences:

“Due to Career pathway funding, our program increased participation in HOSA, improved work-based learning experiences for students including directly connecting with the health sciences community in Beaverton, as well as expanded IRCs opportunities for students.”

Jewell High School, Jewell School District- Industrial & Engineering Systems:

“I have learned that having just a working knowledge of CAD and CNC is not enough for students to transition to a career pipeline. Students will be able to develop real-world, useful skills that are transferable to many different fields, based on the professional development I have attended thanks to career pathways. I have been able to modernize the equipment and technology used by students as well as connect with industry partners to provide work-based simulation in my program.”

Student Leadership

Student leadership opportunities are one of the components of a high-quality CTE Program of Study. All CTE Programs of Study must provide student leadership opportunities, although, for some career areas, there is no formal Career and Technical Student Organization with which to affiliate. Oregon currently has eight State Board-recognized Career and Technical Student Organizations. The Career and Technical Student Organizations prepare students for careers in healthcare, technology, agriculture, education, business, and marketing. Each Technical Student Organization prepares its members through leadership, competition, hands-on experience, scholarship opportunities, and industry exposure to develop the skills needed to secure high-wage and high-demand jobs.

Oregon received $789,645 for student leadership from the Legislature for the 2023-2025 biennium. ODE passes those funds through to the Oregon Career and Technical Education Student Leadership Foundation, a non-profit organization set up to manage student leadership funds, as all funds go to the Career and Technical Student Organizations. In 2023-2024, the Career and Technical Student Organizations used $388,281.84 of those funds, leaving $401,363.16 for the second year of the biennium. Each year, $32,500 is distributed to the chartered Career and Technical Student Organizations

for statewide administration, with FFA choosing to opt out. A total of $57,500 is allocated each year for joint activities shared by the organization, such as joint student training, and the remainder of funds ($85,000) each year is set to be distributed to individual chapters of the Career and Technical Student Organizations through a "Chapter Grant" process. In the 2023-2024 school year, 7,112 students were impacted by these funds.

Conclusion

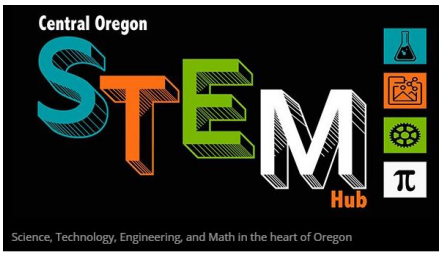
As directed by ORS 327.372 & 326.500, grant funds support and sustain Oregon's Regional STEM Hub Network. In turn, the Regional STEM Hubs fund projects that align with STEM/STEAM education needs in each district and region. We believe the "projects" section of this report demonstrates how the STEM Innovation Grant funds have expanded both in-school and out-of-school STEM/STEAM programs throughout the state ultimately aimed at engaging P-20 students in experiential STEM/STEAM learning. These grants are also tied to Career Connected Learning and bring relevance to the STEM/STEAM activities supported by the grants. All STEM Innovation Grants are also closely aligned with the goals of the 2021-2025 Oregon STEM Education Plan, which centers on equity and aims to empower Oregon's youth in today's world, in part through strong teacher professional development and collaboration between CTE and STEM educators and industry partners.

Likewise, CTE funding authorized by ORS 327.372 & 326.500 has resulted in a robust set of grant programs. Career Connected Learning has become a high priority in classrooms and is filtering down to the elementary level. CTE pathways in schools have been created, expanded, and supported by state funds that allow students opportunities to experience integrated and relevant learning activities, as well as choose and experience career pathways in CTE fields. The integrated nature of STEM and CTE helps students develop essential skills, such as creativity, critical thinking, innovation, problem-solving, and a host of literacies.

The funds authorized by ORS 327.372 & 326.500 continue to build equitable access to STEM and CTE careers for Oregon's students. Impact data demonstrate teacher and student engagement in Hub-directed activities has increased during the current biennium. This report highlights that during the first half of the 2023-25 biennium, key state investments in the Regional STEM Hubs and CTE Grant Programs resulted in expanded STEM and CTE opportunities for students and educators. In this biennium, the funding and the combined efforts of the Legislature, ODE, the STEM Investment Council, and the Regional STEM Hub Network have increased opportunities for educators and students to access STEM and CTE programs.

Appendix A: One-Pagers from STEM Hubs

OREGON DEPARTMENT OF EDUCATION



Organization

Backbone Organization: High Desert ESD
Counties in Region: Deschutes, Jefferson, Crook, & Lake
Sq. Miles in Region: 15,191
STEM Hub Director: Tracy Willson-Scott
Email: Tracy.willson-scott@hdesd.org
Website: centraloregonstem.org

By the Numbers

School Districts: 14
Students: 33,773
Educators participated in Professional Development: 2,242
Educator Hours in Hub PD: 11,075
Students participated in STEM Hub Programs: 14,922
Student hours in STEM Hub Supported Programs: 50,162

Central Oregon STEM Hub

The Central Oregon STEM Hub partners with over 100 industry, community, and higher education organizations to connect education with careers, focusing on students who typically lack access to such opportunities. These efforts inspire students to envision their futures while equipping educators with valuable industry connections.

Strong collaborations with Central Oregon Community College (COCC) and Oregon State University-Cascades (OSU-Cascades) enable a variety of impactful events for students. Middle schoolers from Lake County team up with OSU-Cascades computer science students for a **Make-A-Thon day**, while Bend-La Pine students work with local engineers to design **Rube Goldberg machines**, applying engineering principles in creative ways.

Warm Springs students explore OSU's **Outdoor Products program**, creating leather bags from recycled materials while learning from current students. COCC's manufacturing program hosts a dedicated day in Redmond, followed by tours of local manufacturing plants, where students see real-world applications of their studies.

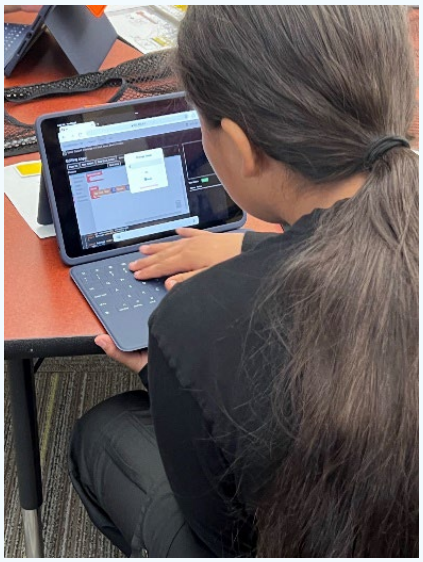
These collaborative efforts provide hands-on experiences, foster meaningful connections, and help students envision thriving futures. By aligning education with workforce needs, the Central Oregon STEM Hub is shaping the next generation of professionals while strengthening ties between education and industry, building a brighter, more inclusive future for all.

Computer Science

To build on the success of the previous year's Coder in Residence program, the Central Oregon STEM Hub added a dedicated team member for six months to focus on Computer Science. This educator collaborated with the STEM Hub team to bring hands-on computer science activities to schools, classrooms, libraries, and community spaces across Deschutes, Jefferson, Crook, and Lake Counties.

Teachers participated alongside their students, gaining skills and confidence to replicate these activities in future years or explore new ones independently. In its second year, the program emphasized reaching more diverse student populations by engaging with schools and programs outside traditional settings.

The team also partnered with libraries in Deschutes, Crook, Jefferson, and Lake Counties to introduce robotics to early learners through special Storytime activities for families. The Central Oregon STEM Hub plans to continue these programs and expand partnerships, further enriching computer science education and accessibility in the region.



Career Connected Learning

The Central Oregon Skilled Trades Fair is a four-hour event immersing high school students, teachers, and counselors in hands-on activities showcasing diverse skilled trades careers. A collaboration between the Central Oregon STEM Hub and the High Desert Career Technical Education program, it has become a vital initiative for developing the region's workforce.

Since its 2016 inception, envisioned by partners including Better Together, Central Oregon Community College, East Cascades Workforce Investment Board, and Redmond Economic Development, the Fair has grown significantly. It now engages over 1,300 students from 11 counties with participation from 99+ industry and community organizations.

By providing real-world career exploration activities, the Fair encourages students to explore career opportunities and make informed decisions about their futures. Graduating seniors can apply for the Central Oregon Skilled Trades Scholarship, funded through industry sponsorships and donations.

This annual event is shaping Central Oregon's future by fostering a skilled workforce and promoting regional economic growth.

OREGON DEPARTMENT OF EDUCATION

Columbia Gorge STEM HUB
Science, Technology, Engineering, & Mathematics

Organization

Backbone Organization: Columbia Gorge ESD
Counties in Region: Gilliam, Hood River, Sherman, Wasco, & Wheeler
Sq. Miles in Region: 6,698
STEM Hub Director: Julie Cucuel
Email: jcucuel@gesd.k12.or.us
Website: gorgeSTEM.org

By the Numbers

School Districts: 10
Students: 10,997
Educators participated in Professional Development: 122
Educator Hours in Hub PD: 1,274
Students participated in STEM Hub Programs: 7,936
Student hours in STEM Hub Supported Programs: 47,166

Columbia Gorge STEM Fair & School STEM Events

Each year, the Columbia Gorge STEM Hub hosts the widely attended Gorge STEM Fair, a community event made possible through partnerships with local organizations, educational groups, and industry leaders. Each sponsor provides engaging, hands-on STEM experiences for children and their families, introducing them to the region's high-demand, high-wage career opportunities.

In summer 2024, the Fair was held on the Columbia Gorge Community College campus, giving students of all ages the chance to explore the college's state-of-the-art Career and Technical Education (CTE) labs. Historically, the Fair has attracted younger students, but we are eager to develop strategies to engage learners of all ages by continuing to host the event on the community college campus.

In addition to the Fair, we also collaborate with schools, districts, and community organizations to bring STEM learning directly to students and their families through our STEM Night Program. This initiative provides financial and logistical support to deliver hands-on, interactive activities at school sites, ensuring meaningful STEM experiences are accessible to communities throughout the region.

Computer Science

At Columbia Gorge STEM Hub, we are dedicated to preparing students for the rapidly evolving fields of computer science and artificial intelligence, paving the way for success in a digitally focused workforce. As technology continues to shape future careers, we prioritize equipping both educators and students with the essential knowledge and skills needed to excel in STEM disciplines.

To support educators, we provide professional development opportunities in computer science and Artificial Intelligence. These opportunities enable teachers to integrate these concepts into their practices and curricula, ensuring students are better prepared to meet the demands of the modern workforce.

We also collaborate with regional industry leaders to secure funding for after-school robotics programs in elementary and middle schools. These competitive robotics teams offer students hands-on experience in problem-solving, programming, and teamwork, cultivating valuable skills that align with the growing needs of STEM-related careers.

Career Connected Learning

The Columbia Gorge STEM Hub continues to advance career connected learning through impactful initiatives. Recently, the Hub hosted a dynamic three-day Advanced Manufacturing Educator Externship, featuring six industry site visits and an in-depth exploration of Columbia Gorge Community College's Manufacturing program. This initiative successfully bridged academia and industry while fostering student engagement.

In addition, the Hub strengthens connections between students and local businesses through events like the College and Career Expo and a pilot internship program between Dufur School and Cardinal Glass. These efforts enhance partnerships and give students valuable insights into potential career paths.

We remain committed to integrating industry expertise into education by facilitating classroom visits, organizing industry site tours, and involving professionals in our regional Collaboratory committee.

OREGON DEPARTMENT OF EDUCATION

EMSP East Metro STEAM Partnership

Organization

Backbone Organization: Multnomah ESD
Counties in Region: Eastern Region of Multnomah
Sq. Miles in Region: approx. 325
TEM Hub Director: Jarvez Hall
Email: jhall@mesd.k12.or.us
Website: eastmetrosteam.org
Podcast: eastmetrosteam.podbean.com

By the Numbers

School Districts: 6
Students: 39,014
Educators participated in Professional Development: 82
Educator Hours in Hub PD: 1,396
Students participated in STEM Hub Programs: 3,120
Student hours in STEM Hub Supported Programs: 19,050

East Metro STEAM Partnership's Joy and Justice Math

Joy and Justice Math East is a professional development opportunity designed for elementary and middle school educators, centering equity, inclusivity, and student voice in mathematics. Far too many students, particularly learners of color, do not see themselves as capable mathematicians, which can lead to disengagement and missed opportunities. This initiative aims to change that narrative by fostering a positive, inclusive, and empowering approach to math education.

To address this challenge, we offer two virtual summer institutes: one tailored for elementary educators and the other for middle school educators. Each institute provides 24 hours of structured, supported learning that equips participants with the tools and confidence to transform their math instruction.

The institutes focus on examining research-based, inclusive, and culturally responsive teaching practices in mathematics. Educators learn to recognize and address barriers to equity while incorporating student experiences and voices into their lessons. Through hands-on learning, collaborative discussions, and expert facilitation, participants gain the skills, knowledge, and dispositions needed to design or adapt integrated STEM lessons that center on equity and empower all students to succeed.
By the end of the institutes, educators leave with concrete strategies to create a more equitable and joyful math experience, where every student, regardless of background, can see themselves as capable, confident learners and problem-solvers.

Computer Science

In partnership with Intel and others, EMSP launched *East Metro Esports*, a program designed to leverage esports and gaming to spark student interest in computer science.

We support the establishment of esports teams in schools and afterschool programs across East Multnomah County. These teams provide students with equitable opportunities in gaming while engaging them in computer science concepts. To ensure success, we offer professional development for educators and coaches, including the opportunity to earn a Level 1 Esports Coaching Certification.

EMSP hosts the East Metro Esports Championships and Expo at the end of each school year, an exciting community event. This year, it will occur on **May 10, 2025**, at Mt. Hood Community College. The event features gameplay championships with professional shout casters (commentators) and an engaging Expo where students of all ages can explore the Intel Lounge, try new games, and visit interactive stations like the PC Build area, College Fair, and Industry Panel. Exhibits will showcase partner organizations such as the Gresham-Barlow Tomorrow Bus, Blazers B5 Gaming, Black Economic Collective, Building Blocks 2 Success, DayOne Tech, and more.

Career Connected Learning

EMSP is harnessing *Student Voice* as a powerful opportunity to teach students the technical aspects of storytelling and content creation. While many students are consumers of digital content, understanding content creation is essential to becoming responsible and informed consumers.

In 2025, EMSP will participate in *The Edit*, an initiative by NBCU Academy and Adobe designed to cultivate creativity and inspire the next generation of talent in film and television. Middle and high school students will develop critical media and digital literacy skills by producing 90-second video news reports on physical, mental, or financial well-being. Students will use Adobe Express alongside a comprehensive set of ready-made tutorials and guides to support their learning.

EMSP will host a local showcase for participants from East Multnomah County, celebrating student creativity and achievement. Students will be encouraged to submit their work to the national competition hosted by Adobe and NBCU Academy.

Organization

Backbone Organization: Malheur ESD
Counties in Region: Malheur
Sq. Miles in Region: 9,930
STEM Hub Director: Nickie Shira
Email: Nickie.shira@malesd.org
Website: Frontierstem.com

By the Numbers

School Districts: 11
Students: 5,472
Educators participated in Professional Development: 292
Educator Hours in Hub PD: 701
Students participated in STEM Hub Programs: 3611
Student hours in STEM Hub Supported Programs: 12,893

Destination Dream Job: Career Exploration Days

The Frontier STEM Hub, in partnership with OSU Extension (Malheur County), Treasure Valley Community College, local school districts, and the Eastern Oregon CTE Consortium, hosted a week-long summer career camp for incoming ninth graders. Using YouScience data, students explored careers aligned with their aptitudes and interests through hands-on experiences in computer science, manufacturing, healthcare, agriculture, and more while connecting with local professionals and education pathways.

The event highlighted Oregon's Employability Skills, focusing on adaptability, communication, digital literacy, and an entrepreneurial mindset. These skills were integrated into activities, offering students a well-rounded view of career readiness. Families were encouraged to discuss these essential skills at home, linking them to future success. The week provided a valuable step toward preparing students for their educational and professional journeys.

Computer Science

With support from the **Governor's Education Emergency Relief Grant**, Frontier advanced computer science education in Malheur County. A key achievement was partnering with Eastern Oregon University to offer dual credit computer science courses, allowing high school students to earn college credits and explore advanced academic and career pathways. To build foundational skills, **Exploring Computer Science** courses were introduced in multiple schools, engaging students in critical thinking, problem-solving, and digital literacy.

Frontier also expanded extracurricular opportunities by doubling FIRST LEGO League robotics teams, providing schools and coaches with resources to introduce teamwork, programming, and engineering concepts through hands-on competitions. Frontier also established afterschool Makerspaces equipped with 3D printers, laser engravers, and vinyl cutters, enabling students to design, experiment, and apply real-world STEM concepts.

Through these initiatives, Frontier is equipping Malheur County students with the knowledge, skills, and opportunities needed to explore STEM fields, pursue high-demand careers, and drive innovation in their communities.

Career Connected Learning

In the summer of 2024, **Frontier STEM** led the **4th Malheur Works Internship cohort**, offering **23 young adults** over **360 hours** of paid work experience and professional development. Designed in partnership with youth, industry leaders, educators, and community partners, the program bridges the gap between classroom learning and the professional world. This **nine-week program** provided graduated seniors with opportunities to develop **employability skills** through hands-on work, targeted training, and mentorship. By blending real-world experience with professional development workshops, Malheur Works equipped participants with the tools, confidence, and knowledge needed to transition successfully into their chosen careers. This year's cohort demonstrated strong outcomes:

- **91%** gained impactful skills and valued the workshops.
- **100%** reported improved work performance.
- **83%** clarified or adjusted their long-term career goals, refining their career pathways.
- **74%** said paid positions made their participation possible, emphasizing the program's role in fostering equitable opportunities.

Malheur Works continues to provide rural youth with critical skills, mentorship, and exposure to professional environments, ensuring they are well-prepared to pursue high-demand careers and contribute meaningfully to their communities.

Organization

Backbone Organization: Eastern Oregon University
Counties in Region: Baker, Grant, Harney, Morrow, Umatilla, Union, & Wallowa
Sq. Miles in Region: 28,312
STEM Hub Director: David Melville
Email: dmelville@eou.edu
Website: go-stem.org

By the Numbers

School Districts: 42
Students: 29,906
Educators participated in Professional Development: 538
Educator Hours in Hub PD: 3,382
Students participated in STEM Hub Programs: 14,860
Student hours in STEM Hub Supported Programs 63,943

Greater Oregon STEM Hub – The Qapqápnim Wéele/Grande Ronde Community Science Project

The **Qapqápnim Wéele / Grande Ronde Community Science Project** engages youth in monitoring the Grande Ronde watershed, blending Indigenous knowledge with Western science to explore how the watershed is changing over time. In 2024, the project involved 1,112 youth from Union, Malheur, and Multnomah Counties, the Confederated Tribes of the Umatilla, Confederated Tribes of the Colville Reservation, the Nez Perce Tribe, and Eastern Oregon University. Participants ranged from kindergarten through college, with most in grades 5–12.

Students investigated 16 watershed sites alongside partners such as the Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Wallowa Homeland, Union County Soil and Water Conservation District, Oregon Department of Fish and Wildlife, and the U.S. Forest Service. Together, community scientists contributed 68,331 hours to watershed research.

Collected data is shared via the open-source IDAH20 Master Water Stewards database, with 2024 findings set to be uploaded in winter 2025. In addition to data, participants record observations and pose questions like: *How did the creek surround the football field? Why doesn't the creek freeze completely? How does water flow the way it does?*

This project fosters curiosity, scientific exploration, and community engagement. We're excited to continue working with these youth to explore their insightful questions and deepen our collective understanding of the watershed.

Easter Oregon WORKS Internship Program

In 2024, the EO WORKS Internship Program, hosted by the Eastern Oregon Workforce Board and GOSTEM, drew strong interest in Union and Umatilla Counties. A total of 104 individuals created accounts, and 26 participants were placed in internships across 16 host sites. Participants engaged in diverse projects, such as marketing, wildlife tagging, 3D modeling, optometry, and teaching, gaining valuable hands-on experience in high-demand STEM fields.

“I would definitely recommend this experience to all my friends. It’s a fantastic way to get real-world job experience and earn money over the summer. There are a variety of workforce partners sponsoring internships in different industries to fit your interests,” said one intern.

In 2025, EO WORKS is excited to expand to four counties—Union, Umatilla, Baker, and Grant. Through collaborations with local businesses, community organizations, and educational institutions, the program ensures that participants receive the support needed to succeed.

EO WORKS prioritizes equitable access to workforce opportunities, building confidence and fostering connections that guide participants toward future careers. By providing meaningful experiences in diverse industries, the program equips interns with the skills and inspiration to thrive in their chosen fields.

Career Connected Learning

In the summer of 2024, educators from across the region participated in an innovative externship program focused on natural resources. Organized by GOSTEM, the Eastern Oregon Workforce Board, High Desert Partnership, InterMountain Education Service District, and Treasure Valley Community College, the program connected classroom teaching with real-world applications in forestry, fire management, water conservation, and wildlife preservation.

Participants visited sites including the Vale District Bureau of Land Management, Malheur National Wildlife Refuge, Wallowa Whitman National Forest, and the Oregon Department of Fish & Wildlife. They gained hands-on experience in fire suppression, timber-related careers, fisheries data collection, water quality assessments, and tracking migratory bird movements.

These experiences not only deepened educators’ understanding of natural resource careers but also equipped them to inspire students by integrating real-world applications into their teaching. By bridging education and industry, the program fosters curiosity, promotes understanding, and encourages respect for natural resources—laying the groundwork for a sustainable future.

OREGON DEPARTMENT OF EDUCATION

LANE STEM

Organization

Backbone Organization: Lane ESD
Counties in Region: Lane
Sq. Miles in Region: 4,722
STEM Hub Director: Gabriel Gellon
Email: ggellon@lesd.k12.or.us
Website: lesd.k12.or.us/stem

By the Numbers

School Districts: 15
Students: 41,979
Educators participated in Professional Development: 308
Educator Hours in Hub PD: 4,118
Students participated in STEM Hub Programs: 1,836
Student hours in STEM Hub Supported Programs: 7,466

Lane STEM Promotes Math & Science Fundamentals

Detracking Math

Mathematical thinking is a vital life skill, yet not all students are given the opportunity to fully develop it—often due to teaching methods and curricula that track students into predetermined academic pathways. For years, Lane STEM has actively participated in the Oregon Math Project, which seeks to create tools and strategies that empower teachers and schools to deliver equitable education, transforming opportunities for all students rather than just a select few.

As part of this effort, we have been developing, testing, and training educators on a new pre-calculus curriculum aimed at promoting equity in math education. This initiative brought together high school and higher education teachers from across Oregon during a Summer Institute, fostering collaboration and shared expertise. The curriculum is now being piloted, marking a significant step toward dismantling inequitable tracking practices in mathematics education.

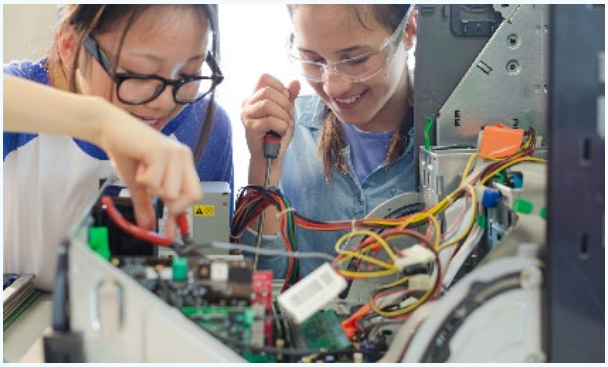
Expanding Science Education

Significant progress has been made in high school science education, thanks to the contributions of partner Hubs such as Portland Metro STEM Partnerships (PMSP), which developed the highly acclaimed *Patterns* curriculum. This curriculum is being enthusiastically adopted by schools across Lane County. However, much of a student's academic identity and ability to think scientifically is shaped during the elementary years. To address this, we are exploring innovative ways to engage elementary teachers, enabling them to integrate science content with other core subjects such as math, reading, and writing. In collaboration with teachers from nearly all districts in our region, we have been providing support and training to enhance their capacity to deliver interdisciplinary science education. At the elementary level, we work closely with districts, partnering with Teachers on Special Assignment (TOSAs) and specialists in neighboring regions to align efforts and promote excellence in foundational STEM education.

Computer Science

We convened a Lane County summit for Computer Science (CS), which catalyzed forming a dedicated CS Steering Committee. This committee has been tasked with developing a strategic plan grounded in the collective impact model and aligned with the *Oregon CS Implementation Plan* recently introduced by the Oregon Department of Education (ODE). One of our primary objectives is to build the county's capacity to support a future high school CS graduation requirement. This goal relies on fostering strong partnerships with school districts and collaboration with the University of Oregon and Oregon State University to ensure the necessary infrastructure and expertise are in place.

At the elementary level, we support innovative approaches to early CS education. For example, a rural district, with assistance from the Hub, has pioneered an experimental program to introduce coding concepts to young learners. Building on this success, we are now collaborating with a second district to replicate and evaluate the scalability of this model. This work aims to provide equitable access to foundational computer science skills, fostering confidence and curiosity in technology from an early age.



Career Connected with Robotics and the Rightful Presence of STEM

Unified Robotics is an inclusive program modeled after the *Special Olympics*, where teams of high school athletes with intellectual disabilities partner with their peers to tackle robotics challenges. Using LEGO robotics kits, participants design, build, and compete in a spirited and supportive tournament environment. This initiative goes beyond technical skill-building; it provides athletes with opportunities to practice essential life skills such as communication, teamwork, and problem-solving while forming meaningful new relationships with their peers.

The program is primarily led by teachers and supported by the Special Education Department in collaboration with Lane STEM. By creating a space for all students to actively engage in STEM, Unified Robotics champions the principle of "rightful presence," ensuring that every learner has the opportunity to participate fully, thrive, and be celebrated in STEM learning environments.

OREGON DEPARTMENT OF EDUCATION

Mid-Valley STEM-CTE HUB

Organization

Backbone Organization: Linn-Benton Community College
Counties in Region: Linn & Benton
Sq. Miles in Region: 2,971
STEM Hub Director: Sarah Whiteside
Email: whitess@linnbenton.edu
Website: midvalleystem.org
Podcast: midvalleystemctehub.podbean.com

Annual Report

By the Numbers

School Districts: 11
Students: 29,503
Educators participated in Professional Development: 2,323
Educator Hours in Hub PD: 8,724
Students participated in STEM Hub Programs: 6,631
Student hours in STEM Hub Supported Programs: 10,847

Amplifying Diverse Voices: Closing the Gap

The *Closing the Gap* podcast amplifies diverse voices in STEAM and skilled trades, helping listeners see themselves in spaces where representation matters. Despite women earning half of all science and engineering degrees, only 16.5 percent of engineering jobs and 35 percent of STEM positions were held by women in 2022.

In its fourth season, *Closing the Gap* spotlighted the inspiring journeys of women and gender minorities in STEM. From a welding student to a biology Ph.D. candidate and a retired engineer, 12 guest speakers shared stories that broke barriers and built connections.
Expanding its impact, *Closing the Gap* partnered with The MILL to create a state-of-the-art podcasting studio. Accessible to students and the community, this space empowers diverse storytellers to share their voices with free or low-cost publishing options, fueling a wave of inspiring narratives.

These collaborative efforts provide hands-on experiences, foster meaningful connections, and help students envision thriving futures. By aligning education with workforce needs, the Central Oregon STEM Hub is shaping the next generation of professionals while strengthening ties between education and industry, building a brighter, more inclusive future for all.

Computer Science

Nestled on the Linn-Benton Community College campus in Albany, Oregon, The Maker and Innovation Learning Lab (The MILL) thrives as a Hub of creativity and inclusivity. Offering cutting-edge tools like 3D printers, CNC routers, laser cutters, and podcasting studios. The MILL provides students with hands-on learning experiences that foster innovation and collaboration.

In 2023-24 alone, its interactive space hosted over 70 events, from coding robots to crafting skateboards, resulting in 1,500+ hours of STEAM learning and professional development for 80+ educators. Local industry leaders have also contributed over 100 volunteer hours to support its mission.

A cornerstone of The MILL's impact is its outreach to underrepresented and rural students. Partnerships with the regional ESDs have introduced visually impaired students to design and CNC programming. Events for the Latine High School Leadership Conference and AVID programs have engaged diverse groups in electronics and 2D design.

Looking ahead, The MILL will continue to focus on equitable STEAM integration as a launchpad for the next generation of innovators. Learn more at midvalleystem.org/MILL.

Career Connected Learning

Building on the success of its 2022-23 Educator Externship, Mid-Valley STEM CTE Hub continued fostering connections between educators and industry leaders in 2024, preparing students for the workforce.

This year's program brought together 30 educators from Linn and Benton counties with nearly a dozen local employers. Participants toured facilities, engaged with industry leaders, and discussed strategies to equip students with the skills needed for career success.

An educator shared, "Without this opportunity, I wouldn't have known about these career options for my students."

2024's industry tour lineup included: Knife River Training Center, Central Electrical Training Center, Institute for Applied Ecology, Baldwin General Contracting, Softstar Shoes, Hewlett-Packard, Alyrica, Entek, Calapooia Brewing, and NW Natural.

Organization

Backbone Organization: Northwest Regional ESD
Counties in Region: Clatsop, Columbia, Tillamook, & Rural Washington
Sq. Miles in Region: 2,906
STEM Hub Director: Chris Hesselbein
Email: chesselbein@nwresd.k12.or.us
Website: nwresd.org/departments/instructionalservices/STEM-Hub

By the Numbers

School Districts: 15
Students: 11,092
Educators participated in Professional Development: 82
Educator Hours in Hub PD: 1,187
Students participated in STEM Hub Programs: 2,255
Student hours in STEM Hub Supported Programs: 17,553

Northwest STEM Hub – Place-Based Collaborative

This year, we launched a regional collaborative to support rural educators in integrating Place-Based Education into their classrooms and school sites. Twenty-three educators from eight school districts are participating in a year-long cohort with monthly professional development sessions focused on Tribal History/Shared History, nature journaling, and outdoor STEM experiences, collectively impacting 830 students.

Our work is rooted in the *Nine Essential Understandings of Native Americans in Oregon*, emphasizing learning opportunities tied to local heritage, cultures, and landscapes. This initiative highlights STEM identity and employability skills while incorporating social-emotional learning within project-based learning activities.

To enhance engagement, each participant receives an outdoor teacher kit, student kits, book resources, and a mini-grant to equip their school site with tools and materials for outdoor STEM learning. This program fosters meaningful educational experiences, connecting students and educators to their communities and environments.

Computer Science

The GEER grant enabled the Hub to launch computer science education throughout the Northwest region. We created the Elementary Rural Robotics Cohort (ERRC), providing age-appropriate robotics kits and on-site professional development for K-5 teachers. The ERRC impacted 26 educators from 11 districts and approximately 1,100 students.

We also hosted **Code Dance Create**, a week-long summer camp where students explored block coding, controlled programmable lights, and danced to hip-hop and African drumming beats. They designed video games and digital stories while engaging in maker space activities like wearable technology.

Our rural competitive robotics teams serve as a key channel for developing local STEM talent. To support them, we formed the NW Oregon Robotics Coalition, offering professional development for coaches and financial support. Teams applied for grants, receiving a total of $19,000 to cover equipment and travel expenses for competitions while developing their communication and grant-writing skills.

Career Connected Learning

The Northwest STEM Hub serves a rural three-county region with over 17,200 K-14 students, 24% of whom are students of color. All three counties have high poverty rates, ranging from 40.4% in Columbia County to 54.2% in Tillamook County. Many students in these communities lack career exploration opportunities. To address this, we partner with organizations like Associated General Contractors to offer teacher externships in construction and collaborate with STEM Like a Girl to host events for girls and their families to explore STEM career paths.

Our STEM Family Days engage communities at local libraries, featuring hands-on activities led by industry and community volunteers to promote STEM awareness and career exploration. The Take Flight program provides teachers with resources about drones in the workplace, supplying rural classrooms with programmable drone kits, a career-connected curriculum from CAST, and connecting teachers with industry and higher education partners.

With the Oregon Manufacturing and Innovation Center (OMIC) in Columbia County, our STEM Hub helps students explore high-wage, high-demand careers in advanced manufacturing. Through our partnership with OMIC, we offer paid internships for high school students, host career awareness events, and support regional manufacturing CTE program development.

Organization

Backbone Organization: Oregon State University
Counties in Region: Clatsop, Coos, Curry, Lincoln, Tillamook, & coastal portions of Douglas & Lane
Sq. Miles in Region: 7,207
STEM Hub Director: Kama Almasi
Email: kama.almasi@oregonstate.edu
Website: oregoncoaststem.oregonstate.edu

By the Numbers

School Districts: 21
Students: 21,304
Educators participated in Professional Development: 242
Educator Hours in Hub PD: 1,603
Students participated in STEM Hub Programs: 3,898
Student hours in STEM Hub Supported Programs 8,210

Marine Technology at the Oregon Coast STEM Hub

The Oregon Coast STEM Hub (OCSH) offers various marine technology programs for students, including uncrewed mini sailboats. In September 2024, the **RSV Yaquina Neversink** set sail on its maiden voyage across the Pacific Ocean to Hawaii and beyond. Partnering with Lincoln County Schools, OCSH guided high school students in assembling, painting, and equipping the 5-foot vessel with data-recording sensors. Tasks included sanding the fiberglass hull, applying epoxy and antifouling paint, assembling the keel and sail, and wiring solar-powered sensors.

One student shared, “At the end of every day, I’d remind myself I’m building an unmanned research boat that will transmit data for years.” The students decorated the sail with biomes and the word “Hello” in over 10 languages. The boat’s sensors track air and water temperature, wind speed, pitch, and location, uploading data to a public website for tracking. This year, eight school groups from coastal regions will build and launch similar boats.

OCSH also collaborates with Oregon Sea Grant to host the annual **Oregon MATE ROV Competition** for grades 4–14. Students design underwater vehicles to complete tasks set by NOAA, NASA, and others, with advanced winners competing internationally. Additionally, OCSH’s **Oregon Coast Renewable Energy Challenge** invites students in grades 3–12 to create solar boats, wave generators, and wind turbines, fostering engineering innovation and sustainable energy solutions.

Computer Science

In 2024, OCSH advanced access to computer science (CS) for teachers and students as part of Oregon's CS Initiative. Efforts include sponsoring a CS Professional Learning Community, supporting educator professional development, and expanding CS opportunities for elementary students by training local CS Teacher Facilitators.

A standout achievement was our partnership with **Rainbow Dance Theatre's Code Can Dance** program. This innovative blend of arts and coding reached 13 schools and community groups from Astoria to Brookings, including a weeklong summer camp. Students learned to code light-changing vests and hats for choreographed dance performances, blending technology and creativity in an engaging and transformative experience.

OCSH also integrated CS into marine science activities. Eighth-grade students from three school districts participated in **GEMS (Growing Engineers and Marine Scientists)** days at the Hatfield Marine Science Center during spring and fall. Students explored marine careers and designed underwater ROVs to retrieve items magnetically from the ocean floor, troubleshooting and problem-solving against the clock.

These initiatives not only expanded students' and teachers' CS skills but also demonstrated the practical applications of coding in marine science and the arts.

Career Connected Learning in the Blue Economy

OCSH emphasizes career-connected learning in the Blue Economy—jobs tied to coastal and ocean industries. Annual student experiences include Marine Science Day, the Growing Engineers and Marine Scientists (GEMS) 8th-grade program, and marine technology competitions in Renewable Energy and ROV engineering. Career connections and place-based learning are central to OCSH's educator professional development, even in math-focused programs.

In the summer of 2024, OCSH sponsored 20 paid internships for high school students with coastal partners, including OSU's Geospatial Ecology of Marine Megafauna, the Charleston Marine Life Center, South Slough National Estuarine Research Reserve, and more. Interns explored careers in marine biology, forest ecology, and aquarium science while working with mentors in their fields. Projects ranged from supporting field research, preparing marine animal diets, and analyzing drone and wildlife footage.

One intern reflected, "I've learned not only about the work but also the people and passions that drive these jobs. The work I've done helps others and deepens my understanding of the unique life here on the coast." Interns contributed 16–40 hours weekly, with some continuing through the school year, providing essential support to their organizations. OCSH plans to expand its high school internship program in 2025.

OREGON DEPARTMENT OF EDUCATION

PORTLAND METRO STEM PARTNERSHIP

Organization

Backbone Organization: Portland State University
Counties in Region: Multnomah, Washington
Sq. Miles in Region: 1,192
STEM Hub Director: Kristen Harrison
Email: Kristen.Harrison@pdxstem.org
Website: pdxstem.org

By the Numbers

School Districts: 5
Students: 113,466
Educators participated in Professional Development: 531
Educator Hours in Hub PD: 9,700
Students participated in STEM Hub Programs: 5,052
Student hours in STEM Hub Supported Programs: 8,298

Portland Metro STEM Partnership

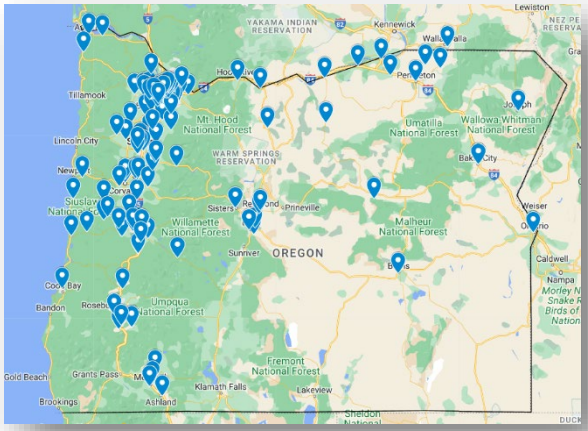
Portland Metro STEM Partnership (PMSP) collaborates with public and private organizations to create an engaging, rigorous, and equitable P-20 STEM educational system that increases access for EVERY student to high-demand, high-wage STEM careers while building shared economic and social prosperity. **The Partnership believes** that the skills developed through experiences in Science, Technology, Engineering, and Math (STEM) – such as curiosity, critical thinking, careful observation, research, analysis, problem-solving, persistence, and adaptation – are exactly what people need to thrive in our increasingly complex, data-driven, evidence-based world, whatever their chosen career or life direction. PMSP's critical function is to **convene and connect organizations, programs, and people** to move towards this vision. PMSP's programs and projects **unite a diverse network of partners** throughout the region, including **five school districts**, **K-12 schools**, **community-based organizations**, **higher education**, and **industry**. PMSP focuses on supporting educators serving marginalized youth so they are better equipped to provide high quality STEM experiences to their students.

High School Science for All

PMSP is proud to support the **High School Science for All initiative**. Begun in 2012, PMSP supports three educator-led Science Councils, one for each content area, and including district representation. The councils were instrumental in developing the curricula and associated resources. These councils continue to support the revisions and updates to the curriculum. The teacher-generated materials are shared freely under an Attribution-NonCommercial-Sharealike Creative Commons License. The Patterns High School Science Sequence is a three-year course pathway and curriculum aligned to the Next Generation Science Standards (NGSS). Each course utilizes common instructional strategies, real world phenomena, and design challenges

to engage students and support their learning. The curriculum is a combination of teacher-generated and curated open-source materials. The science instruction emphasizes the use of mathematical and phenomenological patterns to predict the future and understand the past. Students harness their own experiences to compare and contrast low-evidence predictions (wild guesses) to their data-informed prediction which allows them to live the experience and learn the value of evidence-based reasoning. Additionally, students engage in several engineering projects in each course, where they must use the patterns they discover in their designs to optimize their solutions.

During 2024, Portland Metro STEM Partnership, in partnership with GO STEM, provided professional development to 167 Oregon high school science teachers. The teachers hail from 64 high schools in 37 Oregon school districts. It is estimated that these teachers impact 20,875 students per year. The new Patterns Science website, hsscience4all.org, launched in July of 2023, has had over 10,900 unique visitors.



Leaning into MATH!

PMSP recognizes that Math courses often unintentionally act as barriers to students' ability to enter STEM pathways in middle and high school, particularly for students from marginalized communities. PMSP has worked to address this through a variety of initiatives that focus on teacher professional development, open-source project-based math units of study, and building interconnection between our partner districts. Launched in 2021, the **Building Joy & Justice in Mathematics Through Inclusive Practices** initiative includes a yearly 24-hour institute and Professional Learning Communities focused on making math instruction relevant, engaging, joyful, and meaningful in grades K-8. Teachers explore using mathematics to identify, quantify and address problems in the community, as well as the value of bringing play and games into math instruction. A major focus of this work is to support identity development of young children as doers and lovers of mathematics during their most formative years in school.

"I found this to be one of the best PD opportunities that I have had. It made me think about issues I hadn't considered. The focus on bringing social justice into the math classroom was especially intriguing."

More recently, PMSP has begun to build out teacher support, district administrative support, and curriculum support at the middle school level, called **Middle School Math in Real Life**. This initiative has included professional development and open source curriculum development focused on an applied approach to learning math with a Career Connected Learning lens.

"I feel like I have a new lens from which to view my math instruction. There were many resources that were presented that I can use to modify [the] current curriculum to meet the needs of my students."

OREGON DEPARTMENT OF EDUCATION

SOUTH METRO-SALEM STEM Partnership

Organization

Backbone Organization: Oregon Institute of Technology
Counties in Region: Marion, Polk, Yamhill, Clackamas, parts of Washington
Sq. Miles in Region: 4,535
STEM Hub Director: Julia Betts
Email: Julia.betts@oit.edu
Website: smsp-stem.oit.edu

By the Numbers

School Districts: 34
Students: 146,867
Educators participated in Professional Development: 874
Educator Hours in Hub PD: 4,210
Students participated in STEM Hub Programs: 14,872
Student hours in STEM Hub Supported Programs 34,461

South Metro-Salem STEM Partnership – building a thriving STEM Community

As the STEM Hub serving the largest proportion of Oregon students—over 27%—we face the significant challenge of understanding the diverse needs of our geographically and demographically complex region. To address these needs effectively, we prioritize identifying and cultivating the right resources and partnerships that can support students, educators, and families across our service area.
Our efforts are strengthened by reinvigorated collaborations with key partners, including two workforce development boards, numerous universities and community colleges, and network-focused organizations like OregonASK, which play a pivotal role in expanding our reach. These partnerships allow us to leverage expertise, align resources, and develop innovative programs that create meaningful opportunities for students.

In addition, we engage in strategic collaborations with fellow STEM Hubs, amplifying the impact of shared initiatives. Projects such as the Oregon Math Project, which focuses on improving math instruction statewide, and targeted efforts like the Out-of-School Educator Collaboratory—a joint initiative with the Portland Metro STEM Partnership and East Metro STEAM Partnership—demonstrate our commitment to collective action. By working together, we aim to build a thriving STEM community that invests in high-quality education, fosters equity, and empowers all learners to explore and succeed in STEM pathways.
Through these partnerships, we continue to address regional needs with innovative solutions while ensuring long-term, sustainable growth in STEM education for Oregon's future workforce.

Computer Science

The South Metro-Salem STEM Partnership (SMSP) continues to strengthen its commitment to providing access to STEM opportunities for students across the region, focusing on initiatives with the greatest impact. Through CS GEER and ESSER III funds, the Hub proudly collaborated with Todos Juntos, a nationally renowned organization to deliver consistent and engaging STEM programming to over 1,500 students in Clackamas County.

PK-12 students participated in robotics clubs, field trips to industries like Intel, week-long summer camps, and Oregon's first **Sphero Global Challenge** held at Baker Prairie Middle School in Canby. This partnership underscores the Hub's dedication to implementing effective, best-practice STEM learning models while addressing the unique needs of rural and underserved students.

State and federal funding play a vital role in sustaining these impactful partnerships, ensuring continued access to high-quality STEM experiences for all learners.

Career Connected Learning

As part of the statewide STEM Hub network and Career-Connected Learning ecosystem, the South Metro-Salem STEM Partnership (SMSP) fosters partnerships to deliver industry-based, learner-relevant experiences.

At the annual **Speed Networking** event at Clackamas Community College, over 54 educators from 20 school districts connected with 39 industry professionals. Attendees explored innovative ways to bring career-focused experiences into classrooms with support from local employers.

Continuing its commitment to healthcare workforce development, SMSP partnered with Canby High School and Willamette Workforce Partnership/United Way of the Mid-Willamette Valley to lead **Youth Health Corps** programs. Students participated in after-school training and completed 75-hour work-based learning experiences at healthcare sites, including Legacy Health.

Students from the region also engaged in hands-on, credit-based summer programs, such as the **Medical Detectives** camp at Oregon Tech in Wilsonville. This two-credit course, held in July 2024 as part of SMSP's IGNITE initiative, offered immersive experiences in medical science and diagnostics.

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Organization

Backbone Organization: Southen Oregon ESD
Counties in Region: Klamath, Josephine, & Jackson
Sq. Miles in Region: 10,580
STEM Hub Director: Karla Clark
Email: Karla_Clark@soesd.k12.or.us
Website: soesd.k12.or.us/steam

By the Numbers

School Districts: 13
Students: 48,126
Educators participated in Professional Development: 1,821
Educator Hours in Hub PD: 1,318
Students participated in STEM Hub Programs: 12,130
Student hours in STEM Hub Supported Programs: 25,000

Southern Oregon STEM

Our STEM Integration team is dedicated to advancing Computer Science education by visiting classrooms and providing direct, hands-on learning experiences. The students are thrilled with these activities! At Conger Elementary in Klamath Falls, K-5 students are enthusiastically engaging in STEM projects.

Kindergarten, first, and third-grade students are exploring pollination concepts using Bee-Bots, while fourth and fifth-graders are working with Ozobots to dive deeper into the same topic. Third graders are now transitioning from Bee Bots to Ozobots, expanding their skills as they take on more complex challenges.

With Ozobots, students are learning both marker-based and online programming techniques. They are using markers and programming cards to create plans and are actively practicing debugging skills. Although debugging can be challenging for younger students, they are showing remarkable progress and enthusiasm as they learn to persevere through difficulties.

This integration of technology with science standards ensures that STEM learning is woven into the curriculum rather than being treated as a stand-alone subject. By incorporating Engineering Design standards, these activities empower students to tackle challenges, build resilience, and foster curiosity about the world around them. These tools have been instrumental in promoting both awareness and exploration, giving students a solid foundation for STEM learning and problem-solving.

Dear Data (Reasoning)

Expanding the Dear Data series, the STEM Integration team hosted a Nature Journaling professional development day this fall at the Butte Falls Natural Resource Center. In January, Data Decoded will focus on elementary math standards for Southern Oregon K-5 educators, with additional sessions for the Central Oregon Coast and the Northwest and Columbia Gorge STEM regions.

These workshops emphasize data reasoning through investigative questions, data interpretation, and diverse representations while integrating background knowledge and ambitious teaching strategies.
Regional Ambitious Math trainings are also underway, with Southern Oregon expanding its focus to K-12 strategies and innovative data collection methods.

Held in unique place-based learning locations like the OHSU Extension Center and the Aquarium on the Coast, sessions include Nature Journaling, science data collection, and blending science with art. Educators will practice developing investigative questions and using structured talk protocols to enhance student learning.

Afternoon activities will introduce an interpretive scientific figures protocol through artwork, combining creativity with data analysis. Industry partners will join to showcase real-world STEM applications, providing educators with insights to connect classroom learning to future career opportunities.

Career Connected Learning

Southern Oregon is committed to developing a skilled workforce for high-wage, high-demand jobs. Through STEM Integration, we improve students' math and science performance while increasing post-secondary enrollment in STEM careers, which exist in every sector.

In 2020, using IGNITE funds from the Oregon Community Foundation, we partnered with Klamath Community College (KCC) to launch a Pre-Apprenticeship program. KCC collaborates with local high schools to support build competitions, hands-on projects, and pre-apprenticeship opportunities. A standout success is Reggie, a high school senior who attended a Build My Future event and connected with KCC instructors. After graduation, Reggie enrolled in KCC's apprenticeship program and secured a job, showcasing the power of Career Connected Learning.

This year, our STEM Hub partnered with Nick Alexander Films to produce videos for Team Oregon Build, highlighting careers in construction trades and crisis, disaster, and relief response across Southern Oregon, Lane County, and the Willamette Valley.

As a convener and connector, our hub takes pride in sharing stories that inspire students, strengthen pathways to rewarding careers, and build a resilient community.
Videos

Organization

Backbone Organization: Umpqua Valley Community College
Counties in Region: Douglas
Sq. Miles in Region: 5,134
STEM Hub Director: Teresa Middleton
Email: teresa.middleton@umpqua.edu
Website: umpquavalleysteam.com

By the Numbers

School Districts: 13
Students: 13,100
Educators participated in Professional Development: 112
Educator Hours in Hub PD: 1,042
Students participated in STEM Hub Programs: 3,380
Student hours in STEM Hub Supported Programs 35,372

Umpqua Valley STEAM Hub

The Umpqua Valley STEAM Hub (UVSH) boasts one of the largest lending libraries in the network. Through partnerships with our ESD, we ensure equipment delivery to schools, enabling expanded access for Pre-K, childcare providers, homeschool groups, youth programs, and professional educators. We also provide professional development for all our equipment, offering multiple training sessions whenever new items are added.

Thanks to our Computer Science grant, we acquired six classroom sets of educational virtual reality (VR) goggles and intentionally promoted them as cross-curricular tools. This strategy has encouraged teachers, including those new to our resources, to embrace the versatility of our Lending Library's STEAM equipment. Since late August, over 400 students have used the VR goggles, with more than 10,000 educational interactions recorded. Teachers have seamlessly integrated the goggles into daily lessons, enriching subject matter and deepening student engagement.

The increased exposure to our lending library's resources has significantly amplified the STEAM Hub's impact on both educators and students.

Computer Science

The UVSH prioritized reaching rural populations with limited computer science (CS) equipment access. In Douglas County, 12 out of 13 school districts are rural, underserved, and resource-limited. Due to the county's large geographic size and families' limited transportation options, we decided to bring CS resources directly to these communities. Most towns have small, locally run libraries, often managed by volunteers. We contacted all libraries, a local teen center, and the YMCA, and offered CS equipment and staff training to expand youth access. Seven libraries, the teen center, and the YMCA eagerly participated.

After meeting with staff at each location, we tailored plans to fit their needs. Most sites hosted a STEAM Day inviting parents and children to explore various equipment. Together with the libraries, we identified tools that would make the biggest impact, and then ordered, delivered, and trained staff to use them.

For example, Canyonville, with a population of 1,668 and a poverty rate of 21.3%, enthusiastically embraced the program. Volunteers and staff learned about the equipment and actively organized programs. The Canyonville Library's newsletter highlights their excitement:

"Thanks to a generous gift from the Umpqua Valley STEAM Hub, we now offer three types of robotic equipment: Bee-Bots, Indi Cars, iRobot Root, and iPads to enhance the experience for children ages three and up. These tools cater to various skills, allowing every child to explore and develop coding and problem-solving skills while having fun. Come learn with us!"

Career Connected Learning

Using the Catalyst Grant, the UVSH, in partnership with our Work Based Learning Coordinator, placed seven high school students from underserved populations in paid internships with industry partners. The students had completed YouScience aptitude tests, allowing us to match them with companies aligned with their skills and interests.

After completing their summer internships, two students were hired at ServiceMaster, one became a barista, another pursued a role as a Physical Therapy Specialist, and a veterinary practice is sponsoring their intern to attend Vet Tech school.