STEM – Communications and Advocacy Subcommittee

MEMBERS: Eric Meslow (Chair), Aubrey Clark, Dwayne Johnson, Jim Piro,

August 21, 2015
1:00pm - 3:00pm
2 World Trade Center
Mezzanine Rooms 3&4
121 SW Salmon St., Portland

JIM PIRO, Chair

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AGENDA

1. **Review of legislative session**
2. **Communication & Advocacy Goals of the Strategic Plan**
3. **Strategy and Work Plan development**
4. **Public Comment**

   Members of the public wanting to give public testimony must sign in.
   There will only be one speaker from each group.
   Each individual speaker or group spokesman will have three (3) minutes.

All meetings of the STEM Investment Council are open to the public and will conform to Oregon public meetings laws. The upcoming meeting schedule and materials from past meetings are posted online. A request for an interpreter for the hearing impaired or for accommodations for people with disabilities should be made to Seth Allen at 503-378-8213 or by email at Seth.Allen@state.or.us. Requests for accommodation should be made at least 48 hours in advance.

DRAFT STEM Strategic Plan

Our Vision

To build an inclusive, sustainable, innovation-based economy by reimagining and transforming how we educate and empower individuals and communities. Oregonians of all races, economic status, and locations will develop the fundamental STEM-enabled innovation skills and mindsets necessary to: #

- Fully contribute to an increasingly complex and technologically rich global society.#
- Address high-demand workforce and industry needs.#
- Improve the prosperity of all individuals and communities across the State.#
- Become creative, life-long learners who can adapt to changing social and economic conditions.#

Our Beliefs#

1. **All people have creative potential.** Our students should not just be consumers of knowledge, they need to be creators of it in a way that unleashes their creative genius, interests, and talents.
2. **Each student deserves an opportunity at prosperity.** There continues to be persistent inequities in race, ethnicity, gender, and educational background in high-wage, high demand professions. Many students in poverty and from rural areas are being left behind. No one's talents should be left behind.
3. **Diversity is our strength.** Differences of gender, ability, race, ethnicity, and culture provide critical and diverse perspectives and voices to address today's complex challenges. Innovation emerges where different ideas and cultures interconnect.
4. **Engaged learners succeed.** How we teach our students is as important as what we teach them. We must create meaningful learning experiences that empower all students to embrace their curiosity, take ownership of, and joy in their learning, and become lifelong learners.
5. **Education is a collective responsibility.** Effective STEM learning takes place both in and outside of classrooms. Everyone in our community is a potential educator and we need to build solutions that develop partnerships with all of the human capital in our communities.
6. **Innovation is the cornerstone of prosperity.** STEM is not just about filling jobs but creating jobs to address challenges and opportunities. Building an innovation-based economy is essential for long-term prosperity resulting in competitive advantage in a global marketplace.
7. **Learning takes courage, persistence, and humility.** Pushing the boundaries of one's understanding requires us to embrace ambiguity and to take intellectual risks. What we do with what we don't know is as important as what we do know. We should prioritize questions over answers.

8. **STEM skills are essential skills.** Advancements in science, technology, engineering, and mathematics are transforming every industrial and service sector, from agriculture to energy, medicine to manufacturing, forestry to nanotechnology.
9. **All learning is cross disciplinary.** It is the interconnectedness of ideas that enable people to integrate new learning with their prior experiences. STEM by its nature synthesizes analytical and creative thinking. It is a powerful tool that sits at the crossroads of the sciences, arts and humanities.
10. **The best way to learn STEM, is to DO it.** Education is not about retaining facts or disconnected bits of information. Utilizing purpose-driven learning challenges students to pursue deeper questions and to solve problems that are relevant and meaningful.

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Goals

1. **Inspire and empower our students** to develop the knowledge, skills, and mindsets necessary to thrive in a rapidly-changing, technologically rich, global society.
2. **Ensure equitable opportunities and access** for each and every student to become a part of an inclusive innovation economy.
3. **Continuously improve** the effectiveness, access to resources, and the number of formal and informal STEM educators.
4. **Create sustainable and supportive conditions** to achieve STEM outcomes aligned to Oregon's economic, education, and community goals.

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.**

- Promote the development of new teaching approaches that challenges students to be creative, resourceful, persistent, and collaborative in developing knowledge and skills to solve real-world problems.
- Increase the interactions of students with STEM professionals who can help students develop aspirations and personal identities as life-long learners and inspired innovators utilizing STEM skills.
- Develop new opportunities for students to enhance their critical thinking and problem-solving skills in afterschool or summer programs that are focused on solving complex challenges.
- Increase the availability of early college credits in STEM courses by strengthening local partnerships and articulation agreements between high schools, community colleges and 4-year institutions.
- Increase the development and acceptance of industry-recognized credentials based on demonstrated skills, including traditional and nontraditional certifications (e.g., micro-credentials, digital portfolios, etc.).
- Provide program "start-up" or retooling funds to incentivize post-secondary programs aligned to high-wage, high-demand industry needs.

- Increase student interest, understanding, and success in mathematics through solving real-world problems.
- Improve the quality and relevance of post-secondary mathematics placement processes and align course offerings to relevant degree/certificate program needs.
- Transform P-20 STEM teaching and learning by supporting the spread of effective approaches and connecting research to practice.
- Other:

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

- Improve student advising by strengthening career counseling services and tools, increasing access of students to alumni, professional, and near-peer networks, and increasing student access to up-to-date market data about high-wage, high-demand jobs.
- Increase STEM internships, work-based and service learning opportunities, and undergraduate research opportunities in high-demand fields.
- Increase the number and quality of P-20 support services and pre-college transition/bridge programs for students who are traditionally underserved and underrepresented in STEM.
- Increase the number of STEM role models and access to professional networks for students who are underrepresented in STEM.
- Increase needs-based financial support and access to flexible, micro-loan/funds for first-generation and underrepresented students pursuing high-wage, high-demand credentials.
- Other: #

Goal 3: **Continuously improve the effectiveness, access to resources, and the number of formal and informal STEM educators.**

- Create opportunities for STEM educators to experience STEM in industry and research as part of their professional development.
- Build, strengthen and support statewide partnerships for STEM education through our STEM hubs.
- Provide incentives to teacher preparation programs to develop, evaluate, and disseminate effective STEM pre-service teaching strategies including continued support during the first three years of teaching.
- Increase career transitions of STEM professionals into teaching for CTE, math, and science.
- Provide time and resources for educator-to-educator and educator-industry collaborations around implementation of promising STEM instructional practices and materials.
- Other:

Goal 4: **Create sustainable and supportive conditions to achieve STEM outcomes aligned to Oregon's economic, education, and community goals.**

- Build public awareness and demand for improved STEM outcomes and programs.
- Develop a sustainable funding and policy environment for STEM and CTE.
- Create and support an implementation network of Regional STEM Hubs to increase adoption and spread of effective practices, leverage resources, and provide critical feedback to inform policies and investments.
- Produce promotional materials that connect STEM learning opportunities to high demand industry sectors, and which convey the exciting career and research opportunities that exist amongst Oregon businesses, organizations, and institutions.
- Publicly showcase individuals, classrooms, and organizations that are effective in achieving positive STEM outcomes.
- Create and implement a community engagement campaign to increase STEM interest and access amongst traditionally under-represented populations.
- Other:

Significant Barriers to overcome

- Perceptions of STEM careers and coursework as boring and difficult.#
- Content is disconnected from relevant context and few educators have worked in STEM fields.
- Lack of mathematical reasoning and skills necessary to advance through the system.
- Few opportunities for youth to experience potential career options.
- Isolated pockets of excellence with little exchange of ideas.
- Few role models and positive messages to encourage students of color to enter STEM fields.
- Competing “noise” and initiatives in the system regarding what’s effective.
- Unequal access to quality out-of-school STEM experiences for students in poverty.
- Insufficient time and structures in the system for educators to engage students in deeper, open-ended learning.#
- Other: #