

STEM Investment Council

April 29, 2020

1:00pm – 4:00pm

Members:

STEFAN BIRD, *Chair*
MARCELINO ALVAREZ
HERB FRICKE
RITA HANSEN
MARV NELSON
LISA POWELL
NIKKI SALENGER
PAUL STEWART

Meeting Link: <https://meet.lync.com/stateoforegon-oregon/sydney.g.king/WTFZV5B?sl=1>

If you need access to a call-in only option, please email Sydney.G.King@oregon.gov.

Members of the public must submit written public comment to Sydney.G.King@oregon.gov 24 hours prior to the meeting.

AGENDA

Advisory Members:

YOLANDA COLEMAN
MELISSA DUBOIS
PRESTON EAGLEHEART
ANDY GRZESKOWIAK
JESSICA HOWARD
KATRINA HULL
ANDREW LATTANNER
NAGI NAGANATHAN
SUSAN SHUGERMAN
CARA SNOW
LELA THIEME
TONG ZHANG

Technical Advisors:

KAREN HUMELBAUGH
*Director, Office of
Workforce Investments*
KURT TACKMAN
*Deputy-Director, Office of
Workforce Investments*

STEM Staff:

JULIA STEINBERGER
Director
SYDNEY KING
Board Administrator

1:00 pm	1.0	Welcome and Introductions	
1:00 pm	1.1	Member introductions	Stefan Bird
1:05 pm	1.2	Review agenda	Stefan Bird
1:10 pm	2.0	Public Comment	
		<i>Each Individual/Group will have a time limit of three minutes</i>	
1:10 pm	2.1	Invited public comment	Public
1:15 pm	2.2	Other public comment	Public
1:25 pm	3.0	Consent Agenda	
1:25 pm	3.1	CONSENT ITEM: Approve January 2020, November 2019 STEM Investment Council meeting minutes	Stefan Bird
1:30 pm	4.0	Director's Update	
1:30 pm	4.1	Miscellaneous Updates	Julia Steinberger
1:45 pm	5.0	Oregon Department of Education Update	
1:45 pm	5.1	Miscellaneous Updates	Alexa Pearson, Deb Bailey, Tom Thompson
2:00 pm	6.0	STEM Hub Updates	
2:00 pm	6.1	How STEM Hubs are responding to COVID-19	Melissa Dubois
2:10 pm	6.2	Hub Network OCF Grant	Heidi Larwick
2:40 pm		Break	

STEM Investment Council

April 29th 2020 AGENDA (continued)

2:50 pm 7.0 Legislative and Budget Recommendations				
Members:	2:50 pm	7.1	Overview of STEM Hub-provided information and draft legislative/budget recommendations	Julia Steinberger
STEFAN BIRD, <i>Chair</i>				
MARCELINO ALVAREZ	3:05 pm	7.2	Discussion of Hub-provided information and draft recommendations	All
HERB FRICKE				
RITA HANSEN				
MARV NELSON				
LISA POWELL				
NIKKI SALENGER				
PAUL STEWART				

3:05 pm 8.0 STEM Education Plan Survey				
	3:05 pm	8.1	Presentation of survey results	Julia Steinberger
	3:15 pm	8.2	Discussion of survey results and decision on priority goals, outcomes, and strategies	All

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3:50 pm 9.0 Wrap-up				
	3:50 pm	9.1	Other comments, questions, or concerns?	Stefan Bird
	3:55 pm	9.2	Next steps	Stefan Bird

Technical Advisors:

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Director

SYDNEY KING
Board Administrator



STEM Investment Council

DRAFT

November 21, 2019

9:00am – 12:00pm

PCC CLIMB Center for Advancement

1626 SE Water Avenue

Portland, OR 97214

To listen, call: 888-808-6929 Access Code 2135630

Members:

JIM PIRO, Chair
CELESTE EDMAN
HERB FRICKE
RITA HANSEN
ERIC MESLOW
PAUL STEWART

Ex-Officio Members:

MELISSA DUBOIS
TODD NELL

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Board Administrator

MEETING MINUTES

Members Present: Jim Piro (chair), Herb Fricke, Rita Hansen (phone), Eric Meslow

Members Excused: Melissa Dubois, Todd Nell

Ex-Officio, Technical Advisors and Staff Present: Melissa Dubois, Todd Nell, Julia Steinberger, Sydney King

1.0 Welcome & Meeting Overview

1.1 Chair Piro made introductions, and made an announcement that Chair Piro and Councilmember Meslow have both reached the end of their term, and this will be their last meeting as council members.

2.0 Consent Agenda

2.1 Technical difficulties, I did not catch who motioned, seconded and moved to approve

3.0 Public Comment

Each Individual/Group will have a time limit of three minutes

2.2 Invited Public Comment: None

2.3 Jerian Abel spoke to the need for an articulated communication plan. STEM Hubs are typically comprised of data-minded people, so the ability to collect and compare long term data is critical to their work. She passed around an official thank you from Wasco County to the STEM Investment Council for all of their work and support with the STEM Hubs.

STEM Investment Council

November 21st 2019 MINUTES (continued)

Members:

JIM PIRO, Chair
CELESTE EDMAN
HERB FRICKE
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Ex-Officio Members:

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TODD NELL

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Board Administrator

4.0 STEM Hub Update

4.1 Mark Angle-Hobson and Karla Clark presented to the Council about their work with the Southern Oregon STEAM Hub. They discussed the overarching goals of their Hub:

- All students attend regularly.
- Students will have a voice in their education.
- Educators continuously learning, highly skilled educators as well as administrative staff.
- Access to engaging learning materials.
- All graduates career and/or college ready, access to STEAM from pre-K through employment.

5.0 Project Impact Briefing

5.1 Jerian Abel and Landen Zernickov briefed the Council on Project Impact grants and funding. The main components of Project Impact are:

- Coordinating organizations,
- A common agenda,
- Open communication,
- Shared data and;
- Mutually reinforcing activities.

There are improvements beginning to show, such as attendance and engagement improving.

The Hubs work individually, but come together as a network to share ideas and see what areas overlap, what to improve, what is working, etc.

Chair Piro suggested inviting legislators to actual Hubs to physically see what they do. It is thought to create a bigger impact and connect STEM with Hubs and potentially allot funding to them.

6.0 Department of Education (DOE) Update

6.1 Alexa Pearson, Deb Bailey and Tom Thompson presented the Department of Education update. The work that STEM Hubs do prepares students for the workforce. It is shown that the soft skills that employers want are exactly the skills that STEM encourages and develops. Deb Bailey reported that she attended 2 work sessions that measure STEM skills. This is a national meeting that goes over technical assistance. Oregon is lucky in that they have state support, many states do not have this luxury. Deb can share the Tulsa example complimentary to STEM Hub.

STEM Investment Council

November 21st 2019 MINUTES (continued)

Members:

JIM PIRO, Chair
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Ex-Officio Members:

MELISSA DUBOIS
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7.0 Director Update

7.1 Director Julia Steinberger reported that Celeste Edman is no longer serving on the Council. As mentioned earlier, Chair Jim Piro and Councilmember Eric Meslow are also reaching the end of their term. STEM Investment Council is seeking recruitments to join. There have been some industries identified as places of interest for representation on the Council:

- Software agency,
- Biomedical field,
- Oregon MESA,
- OHSU,
- OIT, etc.

Representation is asked to represent their industry, not self-interest. The Council is set to have 9 members. Representation should be diverse and accurately represent the state. Being that STEM Council is moving to 4 meetings a year, it is a good idea to rotate locations around the state.

7.2 Director Steinberger reported on Innovation grants, and that there was some concern that 3 proposals had similar requests. It was suggested that the Hub pick one to focus on, that would bring the ask within budget, as well as allow for capacity.

Travel is a big cost, and it was suggested that in order to make this cost sustainable, to have the students do some fundraising in order to go on trips. For example, the Spring conference. This conference was advocated for by Director Steinberger as an essential opportunity for state-wide convening. This is especially important for rural communities. The students that attend are seen as leaders within their class.

8.0 2019 Legislative Report

8.1 The 2019 legislative report is due December 31st, 2019. It needs to be verbally presented to the HECC. Chair Piro and Councilmember Meslow both offered to present the report. The conclusion is currently left blank so the Council could decide which direction they want to go, and what to end on. All input is welcome.

ACTION ITEM: Council members will be sent the report to review and send back with comments by Monday, 11/25.

8.2 The 2020 legislative concept schedule for HECC was discussed. The Council was asked to put together a wish list for things to include in the 2021 legislative ask. The major points discussed were:

- Funding for the STEM Investment Council Director position,
- Funding for STEM Hubs,

STEM Investment Council

November 21st 2019 MINUTES (continued)

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- Student Success Act dollars applied to STEM in some way.

9.0 2020 Work Plan Development

9.1 Director Steinberger went over the 2020 meeting schedule and expectations of work.

- First meeting needs to focus on asks from the Governor.
- Develop a legislative strategy
- Develop a policy strategy
- Revise STEM plan, and narrow down to actionable items.
- Develop monitoring practices.
- Enrich communications.
- Begin looking at 2021-2023 grants and what they look like.

10.0 Adjourn

Chair Piro adjourned the meeting at 11:57am.

STEM Investment Council

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STEM Staff:

JULIA STEINBERGER
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SYDNEY KING
Board Administrator

DRAFT

January 27, 2020
12:15 pm – 4:30 pm
Lloyd Learning Center
2201 Lloyd Center
Portland, OR 97232

To listen, call: 888-808-6929 Access Code 2135630

MEETING MINUTES

Members Present: Stefan Bird (Chair), Marcelino Alvarez, Herb Fricke, Rita Hansen (phone), Lisa Powell, Nikki Salenger, Paul Stewart (phone)

Members Excused:

Ex-Officio, Technical Advisors and Staff Present: Yolanda Coleman, Melissa Dubois, Preston Eagleheart, Andy Grzeskowiak, Jessica Howard, Katrina Hull, Karen Humelbaugh (phone), Sydney King, Andrew Lattanner, Dr. Nagi Naganathan, Jim Piro, Susan Shugerman, Julia Steinberger, Lela Thieme, Tong Zhang

1.0 Arrival & Lunch

2.0 Welcome & Introductions

2.1 Chair Bird brought the meeting to order at 12:31pm. Members went around the table and introduced themselves.

3.0 New Member Orientation

3.1 Director Steinberger, accompanied by Jim Piro, the previous Chair, presented the new member orientation.

- The purpose of the Council is to develop and oversee Oregon's STEM Education Plan, submit an annual report to HECC, ODE and the legislature, and to make recommendations regarding the Innovation Grants, as well as the Regional Hub Network.
- The Council is responsible for Innovation Grants, providing support to the Hubs, and promote programs that work well.
- The STEM Director position is only partially funded.

STEM Investment Council

January 27th, 2020 MINUTES (continued)

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STEFAN BIRD, *Chair*
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- Director Steinberger presented the STEM Education Plan, as well as the vision and mission of the STEM Investment Council. All of these items are a part of the larger 2020 Work Plan to revise and clarify the roles and goals of the Council.

4.0 Consent Agenda

- 4.1 Marcelino Alvarez proposed a motion to approve the new, non-voting members, Nikki Salenger seconded, motion passed.
- 4.2 Rita Hansen proposed a motion to approve the November 2019 minutes, Herb Fricke seconded, motion passed, minutes approved.

5.0 Public Comment

- 5.1 Public Comment: None.

6.0 STEM Hub Updates

- 6.1 Landen Zernikcow presented on behalf of the East Metro STEM Hub.
- East Metro is diverse and economically challenged.
 - Landen went over East Metro STEAM Partnership (EMSP), and their initiatives. One of their partnerships is through Mt. Hood Community College.
 - She highlighted the work that has been done on the <https://eastmetrosteam.org/> webpage.
 - Q&A Session
- 6.2 Kristen Harrison and Jerian Abel presented on the Portland Metro STEM Partnership.
- They went over how Hubs are really a connector and convener for students.
 - A benefit of being in the Portland area is that they have access to a lot of educators, and opportunities with quite a few partners.
 - Working on developing a new education system where curriculum is more streamlined and builds upon itself.
 - <https://www.pdxstem.org/>
 - Q&A Session

7.0 Oregon Department of Education (ODE) Update

- 7.1 ODE reported out their efforts to connect different areas of education and partnerships to enhance the work of STEM.
- Internal group was pulled together at ODE
 - People enjoyed collaborating rather than competitive grants.
 - Structure was reworked to accurately measure and gauge continuous improvement on goals and process for site visits.

STEM Investment Council

January 27th, 2020 MINUTES (continued)

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- Efforts are being made to ensure tests reflect equity standards.
- Q&A Session.

8.0 Legislative Policy

8.1 Director Steinberger went over the legislative concept for HECC and STEM, and what timelines and the scope of work involved.

- There are 3 main areas of focus, Director & STEM activities, Hub funding, and Innovation Grants.
- Need to figure out how much funding needed to fund coverage.

8.2 Director Steinberger asked the Council what information they need in order to move forward on proposed policy.

- Student Success Act and EAC funding plays into funding, not all funding must come from the state.
- Need to understand current impact of funding.

9.0 2020 Work Plan Development

9.1 Director Steinberger laid out several areas that need work in the upcoming meetings of 2020.

- Standing agenda, requested to add “Revisit work plan”, and “HECC Update”.
- Discussions around information needed to revise STEM Education Plan ensued.

10.0 Adjourn

10.1 Chair Bird adjourned the meeting at 4:28pm.



Docket Item: **5.0 ODE Update**

Docket Summary:

Alexa Pearson, Director of Standards and Instructional Support for the Oregon Department of Education, along with her staff, Deb Bailey and Tom Thompson, will give a short presentation regarding ODE's response to the COVID-19 pandemic. They will then address the STEM Innovation Grants and present their findings regarding the state of the grants as they stand right now and what changes may need to be made.

Docket Materials:

STEM Investment Council – ODE Update PowerPoint

Staff Recommendation:

None. This is an informational item only.



OREGON
DEPARTMENT OF
EDUCATION

Oregon achieves . . . together!

STEM Investment Council ODE Update

April 29, 2020

ODE Update - COVID-19

- [Distance Learning for All](#) - Care, Connection, Continuity of Learning
 - [K-12 Guidance for districts](#)
 - Care, Connection, Continuity of Learning
 - Family and Educator Resources
 - STEM-specific resources included ([PK](#), [K-2](#), [3-5](#), [6-8](#), [9-12](#))
 - [Oregon Open Learning Website](#)



STEM Investment Grant Update

- **STEM Investment Grants**

- Virtual meetings with each grant recipient April-May
 - What has been accomplished?
 - How have things had to change?
 - What deliverables may have to be adjusted?
- Current findings so far
 - Work has started with each grant
 - Moving to online/virtual through summer - trying to maintain original intent of each investment.
 - Reconnecting with partners or establishing new partnerships

Docket Item: **6.1 STEM Hub Update**

Docket Summary:

Oregon's 13 regional STEM Hubs are pivoting quickly to serve the needs of our regional stakeholders as both education and industry practices shift in unprecedented ways. The STEM Hub network acknowledges that though the current learning environment is challenging on many levels, it may also be an unprecedented opportunity to engender and reinforce beliefs among student, families, and educators that learning happens everywhere, that STEM phenomena are everywhere, and as such, STEM projects and themes provide both a rich and engaging context for culturally-relevant problem-based learning that honors their home context and simultaneously supports reading, writing, and applying mathematics.

Among many other efforts, STEM Hubs are:

- Redirecting funds, altering timelines, and adjusting deliverables of existing Hub projects and innovation grants to meet educator needs related to current distance learning and Fall Re-Entry.
- Organizing and promoting STEM Week Oregon, May 9-17th, <http://stemoregon.org/stem-week-oregon-2020/>
- Increasing Oregon Connections usage among educators, families, and industry volunteers.

Docket Materials:

PowerPoint Presentation.

Staff Recommendation:

None. This is an informational item only.



COVID Pivots

- **Moving projects online**
 - Chief Science Office Spring Summit
- **Online/Distance Learning Resources for Admins/Teachers**
 - Collaboration with Oregon Science Leaders to provide Online Facilitation PD, Teacher-support Network (SMSP). 30 of 36 counties participating
 - Columbia Gorge STEM and ESD led creation/curation of parent online resources, available within one week of school closure
 - PMSP HS Science for All sequence- student resources and educator PD online
 - Coast Hub revamped website to “Let’s Keep Learning” with online events calendar, career-connected and marine resources; outdoor, community science, family engagement highlights (e.g. STEM Family Dinner conversations)
 - GOSTEM science units serving as current classroom curricula WITH kits/materials
 - Career Connected Learning/Virtual Tours- expanding Oregon Connections reach, free to teachers, parents, students through May
- **Offline resources- STEM Kits, STEM Activities**
 - Translating STEM Activity Cards to Spanish (Gorge, Lane, Central, NW) to distribute or materials through Migrant Ed Teams (NW) or nutrition distribution mechanism (GOSTEM, others)
 - STE(A)M Week kits- Lane distributing 1000 NO-tech kits supplied/organized by partners (Lane Arts Council tie-dye, Falling Sky Brewing bread-making, etc.), PMSP K-8 kits
- **Wrap around supports**
 - EMSP partners redirecting funds for in-person events to deliver pizza and Zoom programming to families.
- **Supporting digital divide strategies**
- **Community Supports**
 - COVID Skunkworks (Southern Hub, CTE, partners)- 3D printers from STEAM Lending Library for mask/PPE-prototyping. Students proficient in SolidWorks designing prototypes
 - On-demand STEM PD for Community Essential Worker Childcare sites



STEM WEEK OREGON
MAY 9-17, 2020

Inspire the Future

Make-It Monday

Take Apart Tuesday

What Are You Wondering Wednesday?

Think About It Thursday

Field Trip Friday

Sounds and Shadows Saturday

Soaring Sunday

- Daily Statewide Challenge
- Daily Additional Activities
- Daily Oregon Connections Career Explorations by Oregon industry professionals

<http://stemoregon.org/stem-week-oregon-2020/>



Powered by



Oregon Connections (powered by Nepris) has made some updates in response to school closures to ensure that every student has access to virtual learning opportunities. Oregon Connections is currently a FREE resource for career exploration and exposure to subject expertise. For the month of April, Oregon Connections (powered by Nepris) is giving teachers, parents, and students FREE access to **LIVE Industry Chats**, career exploration tools, and the extensive **Video Library**. What does this mean for you — a business leader, an industry professional, a teacher, a parent, a student, a community member? Read on!

- **Business Leader**
- **Industry Professional**
- **Teacher**
- **Parent**
- **Student**
- **Community Member**

<http://stemoregon.org/oregon-connections-in-the-time-of-covid-19/>



Docket Item: **6.2 Hub Network OCF Grant**

Docket Summary:

Heidi Larwick, the Director of Connected Lane County, will give a presentation on the STEM Hub Network OCF Grant. With OCF's Ignite Funds and Oregon Solutions TA, STEM Hubs are collaboratively developing a formal statewide network, a nonprofit organization, to increase capacity to grow the advocacy, communication, and fund-raising efforts. The nonprofit would operate using an infrastructure separate from any one hub, but committed to securing resources that advance each hub's regional STEM needs and the larger mission of serving all Oregon communities. In alignment with the STEM Investment Council, the hope is that the network will provide strategic leadership and a statewide plan.

Docket Materials:

None.

Staff Recommendation:

None. This is an informational item only.



Docket Item: 7.0 Legislative & Budget Recommendations

Docket Summary:

The STEM Investment Council drafted a letter to share its recommendations regarding the Higher Education Coordinating Commission's and Oregon Department of Education's budget for the 2021-2023 biennium to Executive Director Cannon, and Director Gill. Under ORS 326.500, the STEM Investment Council is charged with making recommendations to the Superintendent of Public Instruction and Executive Director of the Higher Education Coordinating Commission regarding investments in STEM Education.

Docket Materials:

Draft Letter from STEM Investment Council

Staff Recommendation:

None. This is an informational item only.



STEM Investment Council

April XX, 2020

Members:

- STEFAN BIRD
Chair
- BETH ALCOULOU MRE
- MARCELINO ALVAREZ
- HERB FRICKE
- RITA HANSEN
- MARV NELSON
- LISA POWELL
- NIKKI SALENGER
- PAUL STEWART

Ben Cannon
Executive Director
Higher Education Coordinating Commission
255 Capitol Street NE
Salem, OR 97310

Colt Gill
Director
Oregon Department of Education
255 Capitol Street NE
Salem, OR 97310

Dear Executive Director Cannon and Director Gill,

The STEM Investment Council writes to share its recommendations regarding the Higher Education Coordinating Commission’s and Oregon Department of Education’s budget for the 2021-2023 biennium. Under ORS 326.500, the STEM Investment Council is charged with making recommendations to the Superintendent of Public Instruction and Executive Director of the Higher Education Coordinating Commission regarding investments in STEM Education.

As communities across Oregon grapple with the effects of the COVID-19 pandemic, the crisis has only highlighted the critical need for community-based, collaborative organizations, like STEM Hubs, and the type of engaging, hands-on, project-based learning that is at the core of STEM education. With schools closed and districts, educators, parents, and students adapting to statewide distance learning, STEM Hubs are stepping up. Hubs are developing and sharing at-home STEM learning activities, organizing virtual field trips and learning opportunities with local employers, and providing online professional development for educators. They are working with their regional partners to increase access for families to high quality learning materials by making these materials available at food distribution sites. They are redeploying the 3D printers from their maker spaces to produce personal protective equipment. This type of community-based, nimble response is nothing new for STEM Hubs. It is what they do day in and day out, year round.

Further, the expected lasting economic impact of COVID-19 means that now, more than ever, young Oregonians need STEM education. The skills and mindsets developed through STEM – problem solving, critical thinking, adaptability, innovation, design thinking, etc. – are exactly those skills that will help our young people thrive in an uncertain economy, and restart Oregon’s economic engines.

Recognizing the need for strong investment in STEM education as outlined above, while acknowledging the state’s budget constraints due to COVID-19, the STEM Investment Council recommends modest increases in state support for STEM education. Specifically, the council recommends the following:

- **Fund the Regional STEM Hub Network, comprising 13 individual STEM Hubs, at \$7,000,000 (\$4,840,000 in 2019-21)**

This funding level would:

- a) Provide the backbone operational funding necessary for each Hub to operate on a true collective impact model, and
- b) Allow each Hub to sustain its core activities – the programs and initiatives that are well-established and proven, and for which the Hub is known.

Advisory Members:

- YOLANDA COLEMAN
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- **Fund STEM Innovation Grants at \$5,500,000 (\$4,600,000 in 2019-21)**
This funding level would:
 - a) Allow Hubs to scale-up their programs and initiatives that have demonstrated impact, but are only being done on the margins due to resource constraints, and
 - a) Fund new and innovative projects and initiatives.

- **Fund the STEM Investment Council at \$500,000 (not funded in 2019-21)**
This funding level would:
 - a) Fund a 1.0 STEM Investment Council Director Position, and
 - b) Fund council activities, such as communications, meetings and convenings, data collection and analysis, etc.

In closing, the council would like to remind you of the Equitable Vision for STEM Education in Oregon set forth by Oregon's STEM Education Plan:

“Reimagine and transform how we educate learners in order to enhance their life prospects, empower their communities, and build an inclusive, sustainable, innovation-based economy. Oregonians of all races, economic status, and regions will develop the fundamental STEM-enabled skills and mindsets necessary to:

- *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*
- *Fully contribute to an increasingly complex and technologically rich global society*
- *Address high-demand, competitive workforce and industry needs”*

We believe that the investments recommended above are necessary to realizing this vision.

Sincerely,

STEM Investment Council

Docket Item: **7.1 Program & Budget Information**

Docket Summary:

The STEM Hubs from across Oregon were surveyed regarding their program and requests for funding. Many Hubs are calling for more support for their programs specifically in professional development, encouraging STE(A)M leadership (both in teachers and students), and career connected learning. Each county differs in their needs, and in the survey, their needs are highlighted, and not just in the areas listed previously.

Hubs were asked to narrow the amount of activities they would focus on and how much it would cost. They were also asked about activities on the margin that are on the fence of success (or not), and how much they would need to make these activities a success. The third question asked about new programs, what they entail and how much those would cost. Lastly, the survey posed the question of the backbone funding needed to support their program.

Docket Materials:

Programming & Budget Information

Staff Recommendation:

None. This is an informational item only.

Summary of STEM Hub Priorities and Funding Needs

Spring, 2020

CORE ACTIVITIES

Question: If you could only pick 1-2 activities/initiatives to continue, what would those be? How much funding would you need?

Central Oregon STEM Hub

1) *Connecting and advocating for STEM education*

We are the community's STEM Connector. Building and maintaining relationships with educators across P-20, industry, and community partners takes quality time. Knowing how and who to connect with whom is a vital function of the STEM Hub. We are already included at the table as the voice for education with our Central Oregon high wage, high demand sectors (technology, advanced manufacturing, construction/trades, health care, and natural resources). We have cross-district workgroups with our public K-12 schools, work with our local higher ed teams, collaborate with out-of-school providers, and partner with other educators (i.e. private school, home-school, alternative education).

2) *Lending Library Network*

We have invested in a network of lending opportunities for all educators in Central Oregon. Our CO STEM Hub Lending Library is a vast assortment of kits, books, and equipment. We have had contributions from individuals (ie. Raspberry Pi Kit was donated by a local STEM advocate); industry (ie. KNex Team Building Kits were donated by Thermo-Fisher); community partners (Bend Science Station created the Under Pressure kit and provided the pd for out-of-school providers); and schools/districts (ie. Gems & Junk was donated by the Redmond School District after a computer science cross-district professional development we co-hosted). The key is to have the funds to maintain the library AND offer professional development related to how to integrate the resources. For example, we offered on-site professional development for an out-of-school provider on how to use the spheros; and a recent professional development for Alternative Learning Options teachers resulted in teachers signing up and borrowing the materials immediately after the learning. While we have an in-house library, we also work with local community partners to share their library resources and/or house CO STEM Hub contributed materials to their collections - example is the Children's Literature and Equity Resource Center (CLERC) at the Central Oregon Community College, where we have already created two Early Learning kits in collaboration with the Early Learning Hub and Early Childhood Education program at COCC - more to be created and added once funds are received from the Early Learning Innovation Grant. Funds are required to maintain and grow the collection, transport the materials to/from sites (we are creative in sending materials with HDESD employees who live in the community and/or coordinating times when we will be in the area), and offer professional development (can range from presenting at a school educator meeting/training to a full-day of hands-on activities). Funding a 10-month (school-year) 0.5 position to fulfill this role would be ideal.

Columbia Gorge STEM Hub

1) *Microgrants for educators - \$20,000/biennium*

This effort is low effort and high reward. It gets engagement and buy-in across the whole region I serve. It has a fairly significant impact because criteria for the grant focuses on sustainability and equity. Addresses a big unmet need of funds for educators to do STEM work in their classrooms; most have no budget provided to them.

2) *Regional leadership*

As was raised through the strategic planning process for the CG Hub, our ability to bring together partners and think regionally is one of the Hub's greatest strengths. No one else is really doing that work on a regional scale, just within their own districts (with a lens mostly K-12, not beyond). There's no specific cost to this, just the need for consistent backbone funding (and that must be enough to maintain a highly-skilled director who can manage those partnerships).

3) *STEM Nights & Annual STEM Fair - \$10,000/biennium*

These are actually some of the lowest cost events to run, practically self-sustaining. They elevate STEM in the community, reach a broad audience, and are good at engaging partners.

Frontier STEM Hub

1) *Promote formal and informal STEM learning - \$340,000/biennium*

School Enrichment, Lending Library, Robotics, Family STEM Events, Camps, Saturday Science, Professional Development

2) *Chief Science Officers - \$30,000/biennium*

Portland Metro STEM Partnership

1) *High School Science - \$600,000/biennium*

The need to support the NGSS-aligned, Patterns Approach to high school science is critical. Data from our district partners indicate that this curriculum and the educator professional development is a key Equity strategy to ensure that all students have access to three years of rigorous, skill-building science. District data also shows that there is a direct positive correlation between teacher participation in professional development and student academic success. The curriculum adoption continues to expand state-wide, with out-of-state inquiries continuing and our first international inquiry happening earlier this year. The majority of the funding supports educator professional development (51%) and educator engagement for iterating the curriculum (15%). The funding level supports 100 educators per year, impacting 100-175 students per educator annually.

2) *STE(A)M School Transformation - \$811,000/biennium*

Students' success should not be dependent on the classroom teacher they encounter. To create systems-level change that results in a lasting impact for all students, whole-school reform is a proven effective model. STE(A)M School Transformation combines this research with the power of STE(A)M education practices that focus on critical thinking, communication, applied math, and other "real-world" skills. By supporting schools to become STE(A)M focused, through a process of leadership development, educator professional development, culture change, and whole-school engagement, we create the conditions that support powerful learning for all students that is not dependent on individual teachers or leaders.

The transformation process utilizes a cohort approach to engage five schools to support and learn from each other. The majority of the funding for direct costs (57%) goes directly to schools, with a base amount of just over \$315K to provide coordination and systems support needed. This funding supports schools only for the first two years of effort. Research has shown that schools often need ongoing support for 3-5 years to completely change culture and transform for lasting impact.

Lane STEM

- 1) *Career Connected Learning in STEM Fields - \$450,000*
Serves 5,110 students and 6000 educator hours
- 2) *Computer Science & Digital Literacy - \$211,000*
Serves 16 school districts to shift practices

NW STEM

- 1) *Oregon Science Project and Rural Learning Collaboratives - \$80,000/biennium*
One of the most critical, productive, and well-facilitated projects I have engaged in and financially supported in my region is the OSP. I started this work in March of 2019 and it has been growing since. This biennium, through additional STEM Innovation funds, we have been able to transition this to a statewide effort with the Rural Learning Collaboratives. My formal and non-formal educators are extremely responsive and supportive of the community and deliverables that have been co-developed with the OSP director.

Funding is for facilitation, travel, stipends, substitutes, FTE for coordination.

- 2) *Chief Science Officers/Youth Voice - \$20,000/biennium*
The participating Hubs and directors are working to develop a sustainability plan to use the best practices of youth voice work throughout the Hubs to have a more effective and impactful model. We are piloting the CSO model in our Hub this biennium with a small amount of students, but would like to expand our youth voice work for next biennium in collaboration with the other hubs.

\$20,000 is for travel, adviser stipends, student projects, FTE for coordination.

Southern Oregon STEM Hub

- 1) *Oregon Science Project for Elementary/K-8 - \$75,000/biennium*
- 2) *Math in Real Life - \$75,000/biennium*

South Metro-Salem STEM Partnership

- 1) *STEM Leadership Families - \$96,000/biennium*
These are facilitated, self-identified groups of teachers who meet regularly to share, consider, and explore specific topic areas of interest in STEM instruction. Facilitators bring in additional expertise to stretch the thinking of the group. (Of note, we are attempting to continue/expand these groups virtually during the current closures, which may inform future efforts.) Costs: stipends for teachers, facilitators.
- 2) *Oregon Connections - \$146,000/biennium*
This hinges largely on districts' and other hubs uncertainty that it is "here to stay".

Umpqua Valley STEAM Hub

- 1) *Umpqua Valley Resource Lending Library - \$100,800/biennium*

The Resource Lending Library serves Early Childhood, K-12 and UCC Educators as well as students completing projects in our K-12 schools and at UCC.

Funding management, curriculum development, transportation/delivery, online check out system, supplies and materials

2) *Professional Development - \$278,000/biennium*

Professional Development is provided using various models. Our signature event is the Summer STEAM Institute held the second/third week of August. In addition, we provide professional development throughout the year for educators and support teacher champions to lead the development of quality STEAM education in the schools and youth serving non-profits. In recent years, we have focused on NGSS PD, ADI PD and Project-based learning PD.

3) *Summer CTE-Career Camps - \$116,000/biennium*

Three day camps for middle and high school students with hands on, minds on activities connected to local industry (manufacturing, the trades, natural resources, technology and design, healthcare). Include pop-up camps in rural communities.

Funding is for coordinator, camp staff, and materials and supplies.

MARGIN ACTIVITIES

Q: What are the 1-2 activities that you are doing on the margins/haven't really figured out yet, but you think are critical to your region/mission. How much funding would it take for you to do these well?

Central Oregon STEM Hub

1) *Data & Evaluation*

Measuring impact is a known need, but we are not doing a good job at this time. We recognize the need to measure our impact on STEM identity, actual enrollment of local students into higher ed STEM programs, and exactly how many underserved/under-represented students we are connecting with. Currently, our data collection and measurement of impact is limited to feedback collected from educators attending our professional development workshops. Funds are required to develop data collection tools - ideally created by an individual with expertise in this field. Perhaps a short-term contract for an expert to create these tools, design an implementation system, and teach the team how to analyze the results.

Columbia Gorge STEM Hub

1) *STEM Symposium - \$60,000/biennium*

This event brings educators from the region together and enables them to choose the PD that suits their need. We've had more participation each year and highly positive feedback. As long as we can sustain it, I think it will get better and better each year. One thing I want to do moving forward is have tracking of the longer-term impact of that event. That will be planned into future Symposium designs.

2) *Chief Science Officers - \$60,000/biennium*

This program has so much potential in terms of developing local leaders and has a multiplier effect – each CSO impacts many other students. However, it's time and cost intensive to develop those leaders, so the payoff has a lag. It's also been hard to get the right students involved – those who will be committed, impactful, and representative of their community. We continue to

improve on all aspects of the program, but it's still not completely "figured out" yet. And, I don't see a way to make it cost much less than it does and still develop diverse leaders (versus just having the same teens involved who "do everything else").

Frontier STEM Hub

- 1) *Professional Development - \$130,000/biennium*

GO STEM

- 1) *Career-Connected Learning - \$75,000/biennium*

We have been working on Career-Connected Learning in our region with Union-Baker-Wallowa. The key activities have been to produce opportunities for local businesses and industries to work in after school clubs and provide specific career activities so that students can see possibilities. A question students ask in these after-school programs is "What is your job like?" That is exactly what we want to hear! As well, this effort identifies the major occupations of the region and then builds connections to CTE and feeder programs from area high schools and academies. We have not ventured into Umatilla, Grant or Harney Counties with the same vigor and believe this an essential work for the future.

- 2) *STEAM Leaders - \$87,000/biennium*

STEAM Leaders empowers each school with knowledgeable and connected teachers that are willing to be a point person and school encourager for STEAM. This requires regional workshops and ongoing encouragement, resources and communication to shape and empower an elementary teacher who may have the interest, but may not be thoroughly informed in STEAM concepts or skills. We are doing this project in the local three county region and are trying to determine how to expand the program to centers that would not normally participate in a La Grande-centered venue. We see that we should be offering this program to Umatilla County in Hermiston, probably and in Harney County or perhaps John Day or some combination of the two. This would require an additional person to conduct workshops on site and to serve as a local connected STEAM expert that can go to schools and support teachers.

Portland Metro STEM Partnership

- 1) *Career Connected Learning - \$244,000/biennium*

It is critical that our students are aware of and be prepared for accessing the high-demand, high-wage careers in our region. Currently, this work is funded through one OCF grant due to end in February of 2021. This grant focused on three main activities: Embedding career-connections into the High School Science curriculum, developing STEM career awareness information specific to our regional high schools, and providing industry externships to educators. This work represents only a drop in the bucket compared to our regional needs.

The majority of the funding supports the development of CCL curricular and videos elements (31%) and extended contract time for educators to participate in externship visits to industry (23%). The project will support 50 teachers per year through externships. The curricular and video resources have the potential to reach approximately 30% of all students in Oregon through the High School Science for All common curriculum.

- 2) *Common Measures Support and Expansion - \$267,383/biennium*

In 2009, work began to establish the Portland Metro STEM Partnership as a regional Collective Impact (CI) initiative, with a focus on identifying key stakeholders, developing strong

partnerships, and establishing a shared common agenda or vision for the work. In 2011, the PMSP was officially established as the backbone entity and work began on the development of a common measurement system, the third pillar of a CI initiative. This resulted in a suite of 11 measures and tools focused on four outcome areas: Student, Teacher, Professional Development, and Leadership. PMSP received funding in 2015-17 to further refine and/or expand the use of five of the tools statewide. However, there was insufficient funding during that biennium, and no additional funding in future biennia, to develop an integrated online Common Measures data system. As such, PMSP (as well as other STEM Hubs) has limited capacity to support educators in accessing student and other data to support real-time changes to instructional practices.

This funding supports three main areas. Approximately 46% supports educator engagement in the development and receipt of professional development to use data obtained from several of our tools. Approximately 26% supports the continued refinement and/or validation of our tools, leading to stronger data and greater buy-in. Finally, approximately 22% would fund the development of a real-time data dashboard prototype to improve access to the data. Directly, this project would benefit 70 educators who serve approximately 25 youth per year. It would also benefit the PMSP Common Measurement system which will benefit many more teachers in the years to come.

Lane STEM

- 1) *Early STEM Learning (pre-2nd grade) - \$150,000 to get started*

NW STEM

- 1) *Non-formal Education - \$30,000/biennium*

We have been providing funding some of our non-formal partner's STEM programs' expansion and accessibility. Partner examples are the St Helens Public Library and the Columbia River Maritime Museum. (Side note: both were offered STEM Beyond Schools opportunities but could not comply with the PD and underserved student representation requirements because they were beyond their capacity.) We are beginning to develop tools and opportunities for sharing after school curriculum and best practices among our regional non-formal educators.

Funding is for increasing accessibility to regional non-formal programs and FTE for coordination.

Southern Oregon STEM Hub

- 1) *Pre-K Parent Engagement - \$75,000/biennium*
- 2) *Connecting Education to Industry digitally/Oregon Connections - \$30,000/biennium*

South Metro-Salem STEM Partnership

- 1) *NGSS/STEM summer professional development - \$152,000/biennium*
Four day summer PD plus school year follow-up. 50 participants/year @ \$800 summer, \$400 school year stipends. Facilitation team: \$5000 lead, \$2000 team x 3 = \$11k staffing. Supplies and materials, food: \$5k.
- 2) *Design Thinking for NGSS implementation - \$90,000/biennium*

Umpqua Valley STEAM Hub

- 1) *Family/Community Engagement in Quality STEAM Education - \$50,000/biennium*
Events including STEAM Extravaganza, Summer STEAM Festival, Douglas County Fair, Pop-up events in rural communities.
- 2) *Youth Voice/Ambassadors for STEAM Education - \$69,000/biennium*

NEW ACTIVITIES

Q: What are the 1-2 activities/initiatives that are critical to your region/mission that you either currently aren't doing or cannot significantly scale up. How much funding would you need to begin these?

Central Oregon STEM Hub

- 1) *Professional Development*
With the recent Innovation grants, we are able to offer professional development for our STEM educators. Funding is critical to scaling up our efforts. If we have a state goal to "continuously improve the effectiveness, support, and number of formal and informal P-20 educators" then we need to continue this work and scale up. Funds are required to not only cover the educator expenses (subs/project pay, mileage, etc) and facilitator expenses, but to also cover the administrative tasks associated with offering professional development. These are variable costs associated with the amount of PD being offered. No professional development equates to no need for funding.

Columbia Gorge STEM Hub

- 1) *STEM Coordinator or TOSA - \$240,000/biennium*
There is so much demand in my region for both more direct services to students and direct support for teachers. I do small pieces of this work, but don't have the capacity with other job requirements to do much. Wasco County has someone in this role at the OSU Extension Office, but no other county does.

Frontier STEM Hub

- 1) *Measuring and Communicating Impact - \$130,000/biennium*
- 2) *Internships/Youth Mentoring - \$140,000/biennium*

Portland Metro STEM Partnership

- 1) *STE(A)M Education for K-5 - \$478,000/biennium*
Oregon continues to rank near the bottom for time on science at the elementary level. While more and more elementary teachers are seeing the value and need for teaching science, the majority acknowledge that they lack the skills, knowledge, and dedicated time in the day to do so effectively. Elementary schools provide the advantage of more easily offering an integrated approach to teaching (e.g., science within social studies, language development within science); however, schools often lack the curricular resources. This is also an equity issue. Without a strategic investment in professional development for educators around high quality science instruction and curricular integration, we will be left with the current system where students of privilege - who have greater access to science museums, families connected to STEM, etc. - will

have a dramatic advantage in middle school and beyond than students of kids of color, from poverty, etc.

The majority of the funding supports the facilitation of and participation in professional development for K-5 educators (71%). One hundred educators who teach an average of 25 students per year.

2) *STE(A)M Administrator Leadership/Learning K-12 - \$325,000/biennium*

School leadership is consistently tied to student academic achievement; however, the lack of dedicated and sustained professional development directly connected to academic learning is often scarce. Our pilot project funding in 2017-19, STEAM Leadership Academy for Elementary Principals, only reinforced the need for targeted and timely cohort-based professional learning for administrators. Administrators in our STE(A)M School Transformation Planning Process consistently ask about PD specific to them and the opportunity to learn from peers.

This model would bring together K-12 administrators across our region in a Professional Learning Community supported by an Action Research Coach. Approximately 45% of the funds support educator participation with an additional \$100,000 available as “mini-grants” to support direct school change efforts. Approximately 18% funds the coaching, reporting, and project oversight. Twenty administrators leading schools of 250-600 students.

NW STEM

1) *Continued Program Development - \$70,000/biennium*

We are a new Hub, so a lot falls into this category. In the past four years, we have tried to grow low and slow, while being community responsive and have built many programs as pilots for testing. With recent events, I think the needs of our community are about to shift. Our career connected learning work has been thriving and growing for the past three years with funding from OCF. I'm concerned about continuing to grow and sustain that work, especially now, with concerns about recession and the financial impact on our small business community. Our career connected learning work has supported the development of regional paid internships and industry exposure for youth, along with professional development aligned with OMIC.

Southern Oregon STEM Hub

1) *After school and Summer camp Programming - \$100,000/biennium*

2) *Project Based Learning Professional Development for Educators - \$150,000/biennium*

South Metro-Salem STEM Partnership

1) *Maker/Invention Education alignment with K-12 environments - \$60,000/biennium*

Bringing in facilitators to guide learning opportunities for administrator/TOSA/specialized teachers. Important because it meets districts where they are in terms of an efficient, personalized local resources that not every district needs to go find for themselves.

Umpqua Valley STEAM Hub

1) *Teacher Externships for STEAM Careers - \$40,000/biennium*

BACKBONE FUNDING

Q: What additional backbone funding do you need to operate a true collective impact model? This should not include staff time, supplies, travel, etc. related to Hub programming. Rather, it should include expenses related to the operation of the Hub, the Hub Network, and the CTE-STEM Network.

Central Oregon STEM Hub

- Currently, only .1 FTE of the Hub Director's position is paid for through state funds because the rest is needed for programming.
- ~\$200,000 total to run a true collective impact model.

Frontier STEM Hub

- \$130,000/biennium for 1.0 FTE Program Coordinator

GO STEM

- \$100,000 - \$176,000/biennium for two additional staff members. For the Hub to be truly effective we need to be more of a presence and service to the two arms of our region. To do this we need another two staff members.

Portland Metro STEM Partnership

- \$1,127,758.38 total for backbone operations

Lane STEM

- Additional staff to assist with communications, advocacy, data collection, and fundraising - \$162,000

NW STEM

- Additional backbone funding is needed to support communications, advocacy, data and evaluation, fundraising.

South Metro-Salem STEM Partnership

- Data/Evaluations lead - \$170,000/biennium
- Communication coordinator, working across all projects - \$135,000/biennium.
- 0.5 FTE Admin Assistant - \$120,000/biennium

Umpqua Valley STEAM Hub

- Funding for a Hub Network Coordinator position.

Docket Item: **8.0 STEM Education Plan Survey**

Docket Summary:

The STEM Education Plan Survey asked several questions of programs, on their goals, outcomes and strategies. This information is vital in creating a plan for STEM Hubs across the state. These strategies focus around incorporating STEM in K12 curriculum, providing counseling, and growing the amount of STEM based professional development.

Docket Materials:

STEM Education Plan Survey Full

STEM Education Plan Survey Summary

Staff Recommendation:

None. This is an informational item only.

STEM EDUCATION PLAN SURVEY 2020

RESULTS SUMMARY

Green highlight = most popular response

Yellow highlight = next most popular response

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.

OUTCOME I: Oregon Students are interested in STEM and develop a STEM identity

Strategies

- Increase time on science in elementary school
- Incorporate applied learning, project-based learning, and other engaging practices into math and science curricula
- Provide community-based resources, such as community STEM events, maker spaces, and take-home STEM kits
- Provide access to out-of-school STEM learning opportunities
- Offer opportunities for P-12 students to interact with STEM professionals
- Offer STEM-based work experiences for high school students

OUTCOME II: Students are prepared to enter a STEM postsecondary training and education pathway or a STEM career

Strategies

- Integrate STEM teaching and learning principles across K-12 curricula
- Develop and implement a statewide plan to provide all students with digital literacy and computer science education
- Increase access to college-level STEM courses and STEM-related CTE courses programs of study in high school

Director's comments:

“Integrate STEM teaching learning principles across K-12 curricula” was the clear first choice. There were a number of “other” responses calling for alignment between STEM and CTE, making “increase access to college-level STEM courses and STEM-related CTE programs of study in high school” the clear second choice.

In addition, there were a number of “other” responses that were strategies listed for Outcome I, making it clear that Outcomes I and II – and the strategies to achieve them – are closely linked.

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

OUTCOME III: Students from underserved/underrepresented communities see futures in STEM

Strategies

- Diversify the STEM teaching workforce
- Adopt culturally relevant, place-based contexts as the basis for STEM lesson plans, units, and courses

- Improve the clarity of and access to up-to-date information and data on STEM education pathways and careers

Directors' comments:

A common "other response" was providing more out-of-school STEM opportunities to students from underserved and underrepresented communities.

OUTCOME IV: Students from underserved/underrepresented communities pursue and succeed in postsecondary STEM education and training, and/or STEM careers.

Strategies

- Reform math and science course content, sequencing, and/or tracking
- Provide financial aid for postsecondary students from underserved/underrepresented communities pursuing STEM postsecondary education and training pathways
- Provide non-financial supports, such as counseling and mentoring, for postsecondary students from underserved/underrepresented communities intending to pursue STEM education and careers
- Expand and strengthen alumni and professional networks for students of color and women
- Require that all STEM funding go to activities that serve a significant number of students from underserved/underrepresented communities.

Goal 3 of the STEM Education Plan is "Continuously improve the effectiveness, support, and number of formal and informal P-20 STEM educators."

OUTCOME V: New educators enter the teaching workforce with a deep understanding of STEM teaching and learning principles, and STEM content knowledge

Strategies

- Increase STEM-focused tracks in educator preparation programs
- Incentivize practicum hours to be earned in STEM classrooms
- Include educator preparation faculty in STEM educator communities of practice
- Develop expedited pathways for STEM professionals to become educators

Director's comments:

A common "other" response was, more generally, to require more time on STEM practices and content in teacher preparation programs.

OUTCOME VI: The P-12 educator workforce has access to regular, STEM professional learning opportunities and resources

Strategies

- Grow the number of STEM-based professional development sessions and communities of practice
- Provide industry-based experiences for STEM educators
- Cultivate a community of STEM teacher leaders
- Create an online repository of STEM instructional resources
- Create STEM lending libraries for educators

OUTCOME VII: School and district leaders adopt STEM teaching and learning principles school- and district-wide

Strategies:

- Increase the number of school and district administrators receiving high-quality STEM professional development
- Develop and implement a school-wide STEM transformation process
- Celebrate and share-out best practices and success stories
- Develop a community of STEM administrator leaders

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

OUTCOME VIII: School-, district-, and state-level decision-makers understand, support, and invest in STEM

Strategies

- Create a public-facing STEM data dashboard for the state
- Develop and implement a STEM communications campaign
- Meet with school, district, and state leaders about STEM and bring them to community STEM events
- Increase business and philanthropic investment in STEM

Director's comments:

Based on the "other" responses, it seems as though (2) and (3) could be combined into a strategy that was more about raising broad awareness of STEM.

OUTCOME IX: STEM-specific initiatives, policy, and funding are aligned and coordinated with related efforts

Strategies

- Collaborate with CTE leaders, early learning hubs, regional educator networks, local workforce development boards, and others to propose, fund, and implement local and regional initiatives
- Advocate for STEM to be a required or incentivized activity under current and future P-20 funding streams
- Strengthen STEM's inclusion in Oregon's federally required Every Student Succeeds Act state plan.