



IDAHO STEM

ACTION CENTER

STRATEGIC PLAN

FISCAL YEARS 2020 - 2023

JUNE 2019

Idaho STEM Action Center (STEM AC)

FY20 - FY23 Strategic Plan

Introduction, History and Future:

Idaho is facing a crisis: Idaho citizens are not entering the STEM (Science, Technology, Engineering, and Mathematics) pipeline at a rate that will meet the current and future workforce needs of Idaho employers, sustain Idaho's economic development, and advance future prosperity. According to data published by the Idaho Department of Labor, Idaho is lacking a significant number of individuals needed to fill projected positions ranging from construction and service jobs to those in medical and technology sectors. Many of these projected positions involve STEM-related skills and knowledge. STEM AC has defined STEM to be an integration of multiple STEM disciplines, mirroring the real-life practices of STEM professionals. STEM AC also defines STEM broadly, encompassing the 184 occupations listed by the Idaho Department of Labor that require STEM skills, including the traditional STEM and Career Technical Education (CTE) disciplines, as well as health care, economics, psychology, and accounting.

STEM AC's enacting legislation ([Idaho Code 67-823](#)) focuses on five broad areas: a) student learning and achievement (targeting underrepresented populations); b) student access to STEM, including equity issues; c) teacher professional development and opportunities; d) college and career STEM pathways; and e) industry and workforce needs. Fulfilling legislative intent is accomplished by offering grant and professional development opportunities to educators, communities, and students, and measuring outcomes from those activities. Many STEM AC projects require evidence of project-based learning (PBL). PBL has been shown to connect classroom learning to real-world experiences by providing students with opportunities to engage with professionals to pose solutions to real-world issues.

Another major role for STEM AC is to actively engage Idaho businesses and industries. This is accomplished through sponsorships of student competitions, integration of collaborative industry-educator projects funded via grants, professional development guided by industry input, the creation of an online mentorship platform, and through various workforce development initiatives such as public-private partnerships. Additionally, the STEM AC Foundation has been created to engage more effectively with a broader network of businesses.

STEM AC has also been involved in partnering with other state agencies and businesses to bring forth new STEM legislation. In 2016, the Computer Science Initiative was passed

([Idaho Code 33-1633](#)). This legislation directs STEM AC to focus on critical training and educational needs to help populate Idaho's growing need for a tech-savvy workforce.

In 2017, STEM AC worked collaboratively with the Office of the State Board of Education (OSBE) to pass legislation which will allow Idaho schools to apply for STEM School Designation ([Idaho Code 33-4701](#)). This designation will be formally recognized by OSBE and the Governor's office. The first designated schools will be identified in FY19.

In 2018, STEM AC worked collaboratively with various educational and industry groups to pass legislation ([Idaho Code 33-1634](#)) that would require all Idaho high schools to offer at least one computer science course by 2020. In addition, all Idaho schools can now offer a STEM diploma for students who have taken STEM course work that is significantly more advanced than state graduation requirements ([Idaho Code 33-523](#)). By partnering with educational groups and industry, STEM AC diligently continues to ensure that Idaho employers will have access to the workforce they need—a workforce that possesses the skills necessary for successful transition from school to employment. Moreover, STEM AC serves as a representative on the Workforce Development Council. This partnership ensures that there is significant collaboration without duplication.

Because of these coordinated statewide efforts, Idaho will become a STEM business destination. Idaho will have a citizenry that not only recognizes the importance of STEM, but also possesses a workforce with the necessary STEM skills that employers are demanding. A highly-skilled STEM workforce will lead to increased investment and business opportunities throughout Idaho. Educators will have the necessary STEM skills and tools to engage students. Students will possess the 21st century skills that employers require: critical thinking, problem-solving, collaboration, and innovation. The result of this multi-tiered approach will be an increase in the number of businesses throughout the state, and the number of STEM jobs available for Idahoans, which will serve to bolster Idaho's economy and lead to long-term economic prosperity for the state and its citizens.

Mission Statement:

The mission of STEM AC is: ***Engineering innovative opportunities for educators, students, communities, and industry to build a competitive Idaho workforce and economy through STEM and computer science education.***

Vision Statement:

STEM AC envisions: ***A diverse, equitable, thriving ecosystem for a prosperous, STEM-literate Idaho.***

GOAL #1: Advance equitable access to high-quality STEM+CS opportunities for educators, students, and communities

Objective 1A: Identify, create, and/or fund STEM+CS opportunities for Idaho educators and students.

Performance Measure 1: Number of student engagements with STEM AC opportunities

-Baseline: During FY17, STEM AC measured over 204,000 student engagements. During FY18, 406,239 student engagements occurred. During FY19, 442,318 student engagements were recorded.

-Benchmark: With the STEM AC cash appropriation decreasing by 25% in FY20, it is anticipated that the number of student engagements will decrease accordingly.

-This benchmark was established per the requirement of [Idaho Code §67-823](#).

Performance Measure 2: Number of educator interactions in STEM AC opportunities

-Baseline: During FY17, STEM AC measured 4,800 educator interactions. During FY18, 12,633 educator interactions occurred. During FY19, 35,768 educator interactions occurred throughout all STEM AC opportunities.

-Benchmark: With the STEM AC cash appropriation decreasing by 25% in FY20, it is anticipated that the number of educator interactions will decrease accordingly.

-This benchmark was established per the requirement of [Idaho Code §67-823](#).

Objective 1B: Identify, create, and/or fund the delivery of high-quality STEM and CS professional development (PD).

Performance Measure 1: Number of educators receiving STEM+CS professional development from STEM AC opportunities

-Baseline: In FY17, a total of 19 opportunities directly impacting over 4,800 educators were established. In FY18, STEM AC incorporated a new, statewide professional development model and more than

tripled our offerings. As a result, STEM AC engaged in 12,633 educator interactions from 78 opportunities. In FY19, 103 opportunities were offered, resulting in 35,768 educator engagements. This significant increase is a result of sponsoring multiple large statewide STEM-focused educational trainings with large attendance numbers.

-Benchmark: With the STEM AC cash appropriation decreasing by 25% in FY20, it is anticipated that the number of STEM AC PD opportunities will decrease accordingly.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 1C: Develop new, and expand existing, high-quality STEM AC grant programs for educators and the community at large.

Performance Measure 1: Total number of grant opportunities offered

-Baseline: In FY17, 12 grant opportunities were made available to Idaho educators, students, and communities. In FY18, 35 STEM AC opportunities included grants. In FY19, STEM AC redefined “grants” to include only opportunities that did not contain an educator training portion. In addition, best practice indicates that resources are more effectively utilized when training is provided; therefore, the number of opportunities that focused on only grants was reduced while the number of educator trainings was increased. This shift will ensure that educators have the training needed to effectively utilize the resources in their educational settings. This change resulted in 10 grant opportunities.

-New Benchmark: With the STEM AC cash appropriation decreasing in FY20, it is anticipated that the number of grant opportunities will decrease.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 2: Percentage of competitive grant opportunities awarded

-Baseline: In FY18, 67.7% of competitive grant opportunities received funding. In FY19, this was 66.7%.

-Benchmark: STEM AC opportunities continue to be competitive which means only the highest-quality applicants are selected. Applications undergo thorough review by external Idaho grant reviewers to ensure fairness and reliability. However, with the STEM AC cash appropriation decreasing in FY20, it is anticipated that the competitiveness of STEM AC opportunities will lead to an overall decrease in the number of applicants who receive funding.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 1D: Increase access and participation in STEM/CS opportunities for students, educators, and communities that represent traditionally underrepresented populations in STEM/CS by working with partner organizations.

Performance Measure 1: Total number of opportunities offered that support traditionally underrepresented populations in STEM

-Baseline: In FY19, all STEM AC opportunities focused on increasing the number of STEM opportunities for traditionally underrepresented populations in STEM.

-Benchmark: STEM AC's enabling legislation focuses on under-represented populations, and all opportunities now provide additional weighting within the scoring rubric for educators who serve populations that are traditionally underrepresented in STEM.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 1E: Collaborate with and leverage other state-level STEM partner organizations.

Performance Measure 1: Serve as the lead entity for the [STEM School Designation Legislation](#) (Idaho Code [33-4733](#))

-Baseline: In FY18, an Idaho committee including STEM AC, educators, administrators, SDE, and OSBE met for three days to determine a process for selecting and designating Idaho STEM schools. In FY19, four Idaho STEM Schools went through the rigorous application process and were designated.

-Benchmark: In FY20, STEM AC will create and host an event to recognize those schools that were successfully designated as Idaho

STEM Schools. STEM AC will also explore ways to support emerging STEM schools on their pathway to designation.

-This benchmark was established per the requirement of Idaho Code §33-4733.

Performance Measure 2: Serve as the lead professional development entity for the CS for All Legislation (Idaho Code [33-1634](#)) working in conjunction with IDLA, OSBE, SDE, CTE, and WDC

-Baseline: In FY18, STEM AC served as the lead entity for CS professional development pursuant to the Computer Science Initiative, Idaho Code §33-1633.

-Benchmark: In FY19, STEM AC provided 26 professional development opportunities CS. With the STEM AC CS cash appropriation decreasing by 50% in FY20, it is anticipated that only half as many CS professional development opportunities will be offered.

-This benchmark was established per the requirements of Idaho Codes §33-1634 and §33-1633.

Objective 1F: As a technology customer of the Office of Information Technology Services (ITS) in the Governor's Office, we are using the cybersecurity systems and technical expertise in ITS to fulfill requirements related to Executive Order 2017-02. Staff from ITS briefed the NIST Core Framework, CIS Controls 1-5, and their plan for adoption of the NIST Cybersecurity Framework. We participate in DHR and ITS administered cybersecurity training, as awareness is a critical component of an effective cybersecurity program. As briefed by ITS staff, implementation of the CIS Controls 1-5 will be their responsibility for the systems they operate and, as technological tools applied to the computer systems, largely invisible to us as a customer. ITS, working through the multi-agency Incident Response Task Force, has developed an Incident Response Program in support of our agency.

GOAL #2: Align STEM education with workforce needs throughout Idaho.

Objective 2A: Engage industry to support STEM education outcomes.

Performance Measure 1: Amount of industry contributions and personal donations to STEM AC to promote and enhance opportunities for K-career STEM education

-Baseline 1: Systematically track contributions that are received directly (cash and cash equivalence).

-Baseline 2: Track in-kind activities provided directly to STEM AC for projects and programs.

-Benchmarks 1 and 2: In FY16, STEM AC received \$72,000 in cash donations. In FY17, STEM AC received \$205,000 in cash donations. In FY18, STEM AC received \$736,928 in cash donations. In FY18, STEM AC also systematically tracked in-kind donations which totaled \$1,742,217. In FY19, STEM AC raised \$1,340,499.61 in cash and \$4.6M in in-kind activities including industry time, talent, and earned media coverage.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633 to engage industry in various STEM-related activities. STEM AC will continue to consistently track various types of contributions to reach its annual goals of at least \$1M cash raised and at least \$2M in in-kind contributions.

Objective 2B: Support industry-led initiatives that focus on workforce development and industry needs.

-Performance Measure 1: Number of high-quality educational opportunities focusing on workforce development in high-demand fields

Baseline: STEM AC did not support these types of activities in FY16. In FY17, STEM AC supported one workforce development initiative. 32 opportunities were sponsored in FY18. In FY19, 48 opportunities were supported through public-private partnerships.

Benchmark: STEM AC continues to foster relationships with industry to co-sponsor educational opportunities based on industry demand and workforce needs. Even with the STEM AC cash appropriation decreasing in FY20, STEM AC will prioritize these interactions, attempting to maintain the same level of partnership.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 2C: Create opportunities for students and educators to partner with local businesses.

Performance Measure 1: Number of mentors and educators utilizing STEM AC's virtual, project-based mentorship platform

-Baseline: In FY18, STEM AC designed, and beta tested, a mentorship platform with full-scale deployment occurring in FY19. As a result, 100 mentors and 365 educators utilized the portal in FY19.

-Benchmark: STEM AC will continue to evaluate the utilization of this platform and anticipates adding additional mentors in FY20 to double the number to 200. The goal for educator utilization is 500. STEM AC will also work with OSBE, WDC, CTE, and IDLA to determine additional ways to utilize this portal.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 2: STEM AC will facilitate externships for teachers and career counselors

-Baseline: In FY19, a statewide externship program was launched as a pilot program with a matching grant from WDC with the goal of placing 10 educators into 10 business for summer work.

-Benchmark: STEM AC placed 16 externs into 16 organizations during the summer of 2019 with 23 teachers applying for this pilot program. Data will be collected about this pilot program to validate if scaling the program improves students' understanding of Idaho's STEM workforce needs. STEM AC will also focus on sustainability by working with businesses to provide a cost-share.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 2D: Fund and support the CS Initiative including: programs, events, trainings and other promotions throughout the state.

Performance Measure 1: Number of community events related to CS

-Baseline: In FY18, 96 initiatives, programs, events, trainings, and other promotions related to CS were supported throughout the state. In FY19, 99 CS activities were supported.

-Benchmark: With the CS appropriation decreasing by 50% in FY20, STEM AC anticipates significantly fewer CS-related activities.

-This benchmark was established per the requirements of Idaho Code §33-1633.

Performance Measure 2: Number of high-quality professional development opportunities for educators in CS

-Baseline: In FY18, 18 opportunities were supported and in FY19, 26 opportunities were supported.

-Benchmark: With the CS appropriation decreasing by 50% in FY20, STEM AC anticipates fewer CS professional development opportunities.

-This benchmark was established per the requirements of Idaho Code §33-1633.

Performance Measure 3: Number of student competitions and camps in CS

-Baseline: In FY16, CS student competitions and camps were not supported by STEM AC. In FY17, STEM AC supported three competitions and nine camps. In FY18, STEM AC supported three CS competitions and 29 CS camps. In FY19, STEM AC supported four competitions and 11 camps. Less funding was provided for camps in FY19 to increase other CS activities, such as educator PD and public-private partnerships.

-Benchmark: With the CS appropriation decreasing by 50% in FY20, STEM AC anticipates fewer students will be supported in CS camps and competitions.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

GOAL #3: Increase awareness of the importance of STEM throughout Idaho.

Objective 3A: Promote STEM and CS opportunities throughout the state.

Performance Measure 1: Number of users of STEM AC's online portal for resources and best practices

-Baseline: This portal was created and deployed in December 2018 with an average monthly utilization of 172 users.

-Benchmark: The goal will be to continue to advertise the availability of the portal during STEM AC presentations. STEM AC will also add i-

STEM lesson plans to the portal which will also lead to increased utilization.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 2: Number of outreach opportunities provided or supported through STEM AC funding and/or STEM AC staff

-Baseline 1: In FY16, 45 events were supported. In FY17, 140 events were supported throughout the state. In FY18, 143 events were supported. In FY19, 288 outreach opportunities were supported.

-Benchmark 1: This is the maximum number of events that the STEM AC Team can successfully support and due to the FY20 STEM AC cash reduction, it is anticipated that fewer events will be supported.

-Baseline 2: Track the number of presentations and events attended by STEM AC staff as part of the STEM/CS outreach and awareness effort.

-Benchmark 2: In FY16 and FY17, these activities were not systematically collected, although the STEM AC Team was very active in outreach activities, attending conferences, and presenting throughout the state. In FY18, the STEM AC Team averaged two unique outreach opportunities per week (110 total) related to increasing awareness of STEM/CS, STEM AC, and/or partnership opportunities with STEM AC. In FY19, STEM AC staff averaged five outreach and/or awareness activities per week (200 total) which is likely the maximum number that the STEM AC Team can support. Due to the FY20 STEM AC cash reduction, it is anticipated that fewer opportunities will be supported.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 3: Number of monthly communication efforts using the monthly newsletter, website, and social media such as Facebook and Twitter

-Baseline: In FY19, ten STEM AC newsletters were published, reaching 4,941 subscribers. STEM AC website traffic averaged 17,365 users per

month, and STEM AC social media presence engaged 2,476 individuals monthly.

-Benchmark: STEM AC continues to see increased utilization of the newsletter, website, and all social media platforms. STEM AC will continue to track monthly communication efforts.

-This benchmark was established per the requirements of Idaho Codes §67–823 and §33–1633.

Objective 3B: Communicate the value of STEM + CS, focusing on equity of access.

Performance Measure 1: Number of grants and professional development opportunities which target traditionally underrepresented populations in STEM and/or CS

-Baseline: STEM AC now systematically requires all applicants to address their services to traditionally underrepresented populations in STEM in 100% of STEM AC opportunities.

-Benchmark 1: Because this requirement is now embedded in all opportunities, STEM AC needs to continue systematically collecting aggregate information from all its applicants during final reporting.

-This benchmark was established as directed in Idaho Code §67–823: STEM AC must support grants and professional development for traditionally underrepresented populations in STEM. In FY17, STEM AC researched underrepresented groups for Idaho CS and concluded they include students from low socioeconomic status, students from diverse races/ethnicities, rural students, and female students.

Objective 3C: Collaborate with Idaho’s State Board of Education, the Division of Career-Technical Education, the State Department of Education, the Workforce Development Council, public higher education institutions, industry, and national partners to enhance communications related to STEM education throughout Idaho.

Performance Measure 1: Number of collaborative programs involving STEM AC

-Baseline: This is a new FY19 metric, captured when STEM AC focused on its coordination role and began systematically planning, hosting, and/or attending collaborative meetings to better meet the needs and activities of statewide partners. As a result, 86 collaborative programs

were launched through public-private partnerships, STEM sponsorships, and STEM conferences.

-Benchmark: To ensure continued collaboration and to prevent redundancy, STEM AC will attempt to maintain this level of interaction. However, with the STEM AC cash appropriation decreasing in FY20, it may be difficult.

-This benchmark was established per the requirements of Idaho Codes §67–823 and §33–1633.

External Factors Affecting Goals

1) Infrastructure

- a. Contractors have been hired to help full-time staff fulfill legislative intent for STEM AC programs and projects.
- b. STEM AC will continue to leverage existing resources to prevent duplication.

2) Funding and Economic Conditions

- a. Ongoing funding would allow STEM AC to continue to fulfill the intents of the STEM AC legislation, the CS Initiative, the STEM School Designation legislation, and the CS for All legislation.
- b. Partnering with industry will require industry awareness and confidence in STEM AC, as well as financial confidence in the economy.

3) Statewide Awareness

- a. The STEM AC Team may not be aware of local initiatives and resources in rural and remote areas of Idaho.
- b. When offering STEM AC opportunities, messaging to ensure statewide interest and diversity will be paramount in guaranteeing that educators and communities from diverse backgrounds are represented.