WYOMING
DEPARTMENT OF EDUCATION

Wyoming Education Trust Fund Grant Annual Report

Prepared by:
Alisa Cook, Personalized Learning Consultant

Authority:
W.S. 21-22-107(g)

Wyoming Education Trust Fund

REPORT TO THE LSO
October 1, 2019

History

The statutory authorization for this program and the application requirements are contained in Wyoming Statutes 21-22-101 through 21-22-107. In 1991, the 51st Wyoming Legislature established a trust to be held in perpetuity titled the Wyoming Education Trust Fund. Interest earned from the corpus of the trust is to be distributed to districts as innovative program grants to fund programs providing innovation in, or improvement to, public education.

The Trust Fund legislation was amended in 1997, 2001, 2005, and 2008. Most of the amendments related to the maintenance of the trust itself. The 1997 amendment pertained to the distribution of funds to the University of Wyoming and community colleges. The 2008 amendments adjusted the funding mechanism to narrow the purpose to provide innovative grants to districts only along with an annual conference on innovative education.

Currently, the Trust balance is $10,000,000. By statute, the Governor is required to recommend an additional $10,000,000 appropriation to the fund until the balance reaches $50,000,000. In the history of the trust, no additional funds have been appropriated.

The law allows for grants to be approved in the following categories: curriculum development, operational initiatives, administrator and staff development improvement programs, acquisition of technology equipment, applied science and technology programs, and technical preparation programs. Priority is given to those programs which supplement, not supplant, existing courses and curriculum and are easily transferred or duplicated by other districts, provide matching funds from non-state sources and demonstrate the ability of the recipient district to continue the programs after Trust Fund monies are exhausted.

2018-19 Award Year

Grants Awarded

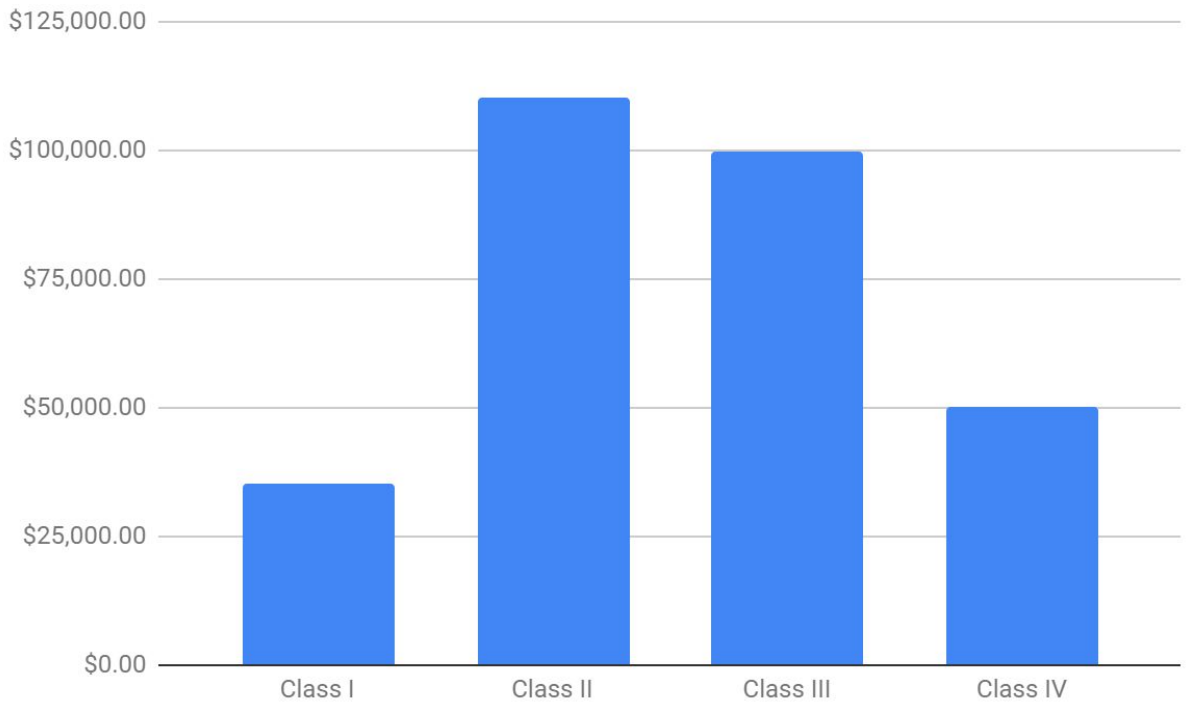
In the 2018-19 grant award year, there were a total of 18 grants applications received from 16 districts, with the grant requests totaling more than $700,000. Due to budget constraints and the financial climate of the state during this time, there was only $300,000 available to award for the fiscal year. Out of the 18 grant applications that were received, seven grants were selected for funding by the Wyoming Education Trust Fund Grant Reader Review

Committee. The top four scoring grant applications in each classification (I-IV), were ultimately chosen to receive an award for that classification, as well as three additional top scoring grant applications were selected to receive an award. A total of seven grant applications were awarded.

Grant scores were compiled and results showed that awarding the top seven grants would result in a total award amount of $295,728.00. As there was $300,000.00 available to award in the grant year 2018-2019, all top seven grant proposals were awarded.

***Total Funds Requested**: $738,022.94*
***Total Funds Awarded**: $295,728*

Trust Fund Grant Awarded by Class



2018-19 Project Overviews and Outcomes

Class I

Fremont County School District #24- "Shoshoni Code Wranglers"
Amount awarded: $35,350

Description

Fremont County School District #24 was awarded the Trust Fund Grant to create and implement a Kindergarten through 6th grade Computer Science instructional program with a focus on professional development to be called "Shoshoni Code Wranglers." The goal was for the Shoshoni Code Wranglers to bring Computer Science content and performance

standards to life through the utilization and learning of hydroponics, robotic gardening automation, coding and data collection and help teachers integrate cross-curricular content infused with computer science fundamentals. The overall district goal of this program was to promote meaningful instruction and targeted outcomes for both teachers and students.

Evaluation

Fremont County School District #24 utilized the Trust Fund grant to provide 20 hours of computer science instruction to each of their elementary classroom teachers. Due to the Shoshoni Code Wrangler program the Shoshoni Elementary is now well equipped to teach computer science utilizing microprocessor and microcontroller technology. Students as young as first graders were taught how to utilize buttons, sensors, and computer code to turn on and off LED lights. Shoshoni Elementary was able to incorporate computer science into the core curriculum, although the biggest gains came about as the district was able to provide a pull out, computer science, infused STEM class. Students in grades kindergarten through sixth grade were taught keyboarding, programming, and fundamental computer literacy skills. A huge success for the Shoshoni Code Wranglers program is the annual STEM showcase held during Computer Science Education Week. This event gives Shoshoni K-12 students an opportunity to showcase STEM projects and skills. It has been instrumental in bringing computer science awareness and engagement to students, staff, and community. Students showcased programing skills, robotics, graphic arts, computational thinking, augmented and virtual reality, 3D printing, laser engraving, and a blow up planetarium and sixth grade students created and presented their own planetarium show at the event. A project website (codewranglers.fremont24.com) has been established for the Shoshoni Code Wranglers program.

Class II

Lincoln County School District #1 - "Full STEM Ahead"
Amount awarded: $50,000

Description

Lincoln County School District #1 received the Trust Fund Grant in order to establish a stationary STEM Lab classroom and an Analytical Science Lab as well as create two new courses to be offered in Fall 2018 for Computer Science and Robotics. The target population

for this program was students in grades 9-12 at Kemmerer Junior Senior High School. The labs were created to accommodate 28 students at a time and have "Adobe Creative Cloud for Teams" installed which supported computer science integration with other areas and encouraged collaboration and enhanced student engagement.

Evaluation

Over this grant period, Lincoln County School District #1 provided students with an opportunity to learn about and develop STEM skills through completion of the engineering design process as they built robots and then used computer programming to autonomously control their robots. Throughout the school year students engaged in hands-on and content related data collection and analysis. Through collaboration with science staff, they were able to improve the use of the Vernier Probeware and data collection software as well as strengthen the strategies used to develop science reasoning skills. The Coding class provided students the ability to program a given task and see the result by running their program. Lincoln #1 used CodeHS for the coding class and the first 13 lessons were a favorite among students. This unit had students programming a dog to perform different tasks. This program provided instant feedback to students and they were able to make adjustments as necessary. The established STEM lab at the high school allowed for teachers to utilize the Adobe Creative Cloud for teams program. This supported the integration of computer science technology across the curriculum as teachers gradually began to utilize it for core subjects and technology courses.

Platte County School District #1 - "CTaCS-Computational Thinking and Computer Science"

Amount awarded: $24,440

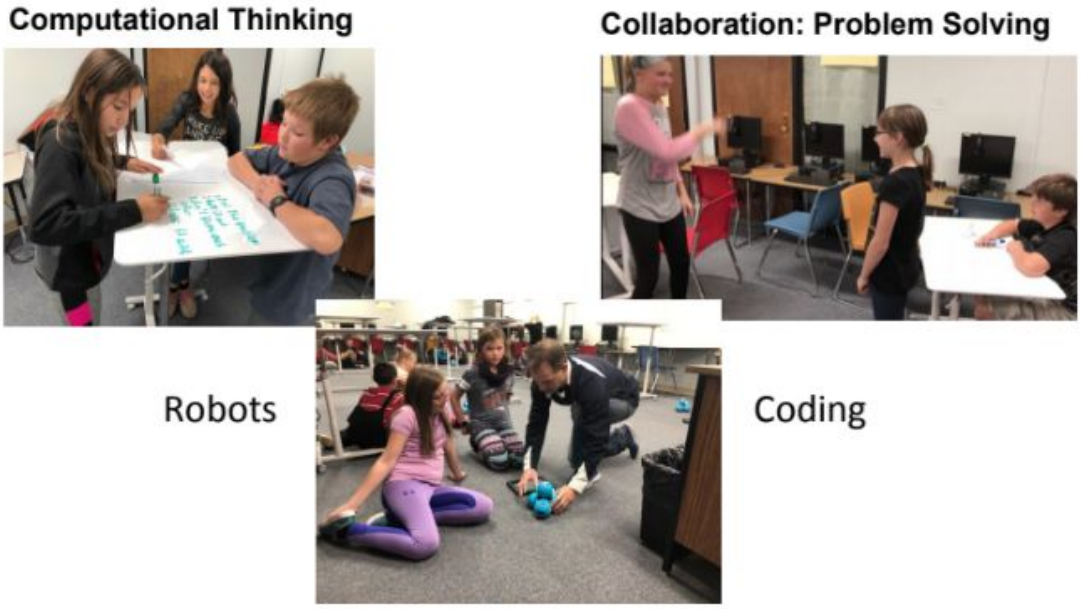
Description

Platte County School District #1 was awarded the Wyoming Education Trust Fund Grant in 2018 to integrate Computational Thinking and Computer Science (CTaCS) into grades 3-8 beginning in the Fall of 2018. The district chose to follow the Code.org curriculum and made changes and adjustments as needed to fit the specific needs of their district. One teacher with extensive computer science experience taught all classes in grades 3-8 and will develop a full curriculum over the next two-three years. Students in grades 3-5 received computer science as a specials class and students in 6-8 were offered computer science as an elective course. With this program, each grade level used the knowledge gained in prior years with an

increased focus on the use of real-life programs and languages, application development, and potential CS careers.

Evaluation

Platte County School District #1 main focus of this grant period was for district staff to develop student "grit" for creatively solving problems. They focused on grades 3-8 to provide a solid foundation in the broad field of computer science. They worked to provide a path to high school CS offerings and post secondary course completion/certifications, to provide student instruction to explore the language of computer science, and to develop algorithmic thinking skills to increase problem-solving skills.



Sublette County School District #9 - "SCSD #9 Cyber Academy"

Amount awarded: $35,998

Description

Sublette County School District #9 was chosen as a recipient of the Trust Fund Grant in 2018 to create a "Cyber Academy" in the district. The target population for the grant was for students in grades 5-8, with a focus on increasing availability to computer science opportunities to students of underrepresented groups including low SES and female

students.. The program aimed to expose students to three integrated threads within the context of computer science to support and enrich their education through involvement in this after school program. The goal was to increase the likelihood that program participants will continue to take courses or electives in computer science throughout their education as a result of their participation in this program.

Evaluation

The Cyber Academy provided students with a well-rounded experience in computer science education. Students participated in an after school program that was made available for students in grades 5-8. The goal was to improve the students' knowledge of computer science concepts. The majority of students arrived to the program with little or no prior knowledge of coding and programming. The class consisted of three treads: Computer Science, Coding, and Cyber Science. Students increased their understanding and knowledge in all treads. Students' projects evolved over time into more complex structures and robotics. Female enrollment increased by 300% by the final month of Cyber Academy. Students expressed a desire to continue the class and it is the intent of Sublette County #1 to continue the program for upper elementary and middle school students during the 2019-20 school year.




Class III

Fremont County School District #1 - "Fremont1@Coder"
Amount awarded: $49,940

Description

Fremont County School District #1 was awarded the Wyoming Education Trust Fund for Innovative Education in order to expand opportunities in Computer Science to preschool through eighth grade students in the district by creating a modern K-8 computer science and computational thinking curriculum to be implemented district-wide and developing resources kits for community preschools to teach introductory computer science and STEM skills. The target populations for this program was: after school program participants, tech club participants, and all K-8th grade students. The goal for this program was to reach at least 75% of Fremont #1 students in either computer science and coding or computational thinking during the 2018-2019 school year.

Evaluation

Over the period of the grant, groups of teachers and media directors worked on a K-12 curriculum. Writers continue to build on the materials in the units to expand the common knowledge used and additional lessons for integration into other curricular areas they teach. During this time, teachers learned how to write STEM lesson plans integrating their current classroom units with technology integration with the STEM Framework. With the created modules the Tech Club at Gannett Peak Elementary was started to have second and third graders complete coding and computation thinking activities. In addition, teachers developed detailed lesson plans adaptable by any classroom teacher. Each kit contains a detailed lesson plan and all of the materials and consumables needed to complete the activities. Materials were assembled into mobile bins and offered for checkout for K-8 teachers. Kits for pre-schools were also created and over 60 students across five different community preschools were able to utilize them.

Two classes working on coding with "Dash and Dot" robots. Critical thinking through navigating a maze. @MrsPage_GPE

In January, local preschool providers came together in the evening to explore our collection of preschool STEM and computational thinking learning kits. Kits became available for checkout and were in heavy rotation throughout the spring, with information posted on our Tech Services website for providers to find and quickly request. The checkout program will continue for the full 2019-2020 school year. Thanks to @WYOEducation and the Wyo Innovations grant program for providing us this wonderful opportunity! @Fremont1Tech

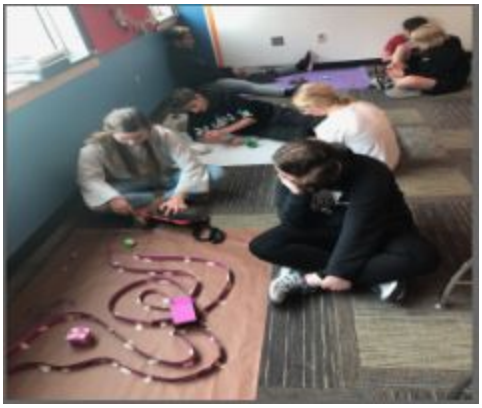
Johnson County School District #1 - "The Middle Space Project "
Amount awarded: $50,000

Description

Johnson County School District #1 was awarded the Wyoming Education Trust Fund Grant to bring more computer science opportunities to students in grades 6-8 in Johnson County through the creation and use of a Makerspace. The target populations for this project was 6-8 grade students at Clear Creek Middle School in Buffalo and the students at the Kaycee School, with the target population potentially expanding to students and staff at additional schools in Johnson and Sheridan County. Through a partnership with Sheridan County School District #3, professional development offered through this program was extended to neighboring staff to prepare them to also create a K-12 Makerspace and integrate computer science in the future.

Evaluation

Johnson County School District #1's ultimate goal for the MIddle Space Makerspace was to create a bridge from the guided, traditional classroom experiences toward independent, authentic learning practices with the use of collaboration, logic, problem-solving and creativity. In order to meet the needs of their student population, they focused on raising awareness of Computer Science with the teacher population. Teachers were provided experiential professional development on the use and integration of tools and supplies purchased through this initiative. Several teachers began to sprinkle in the use of tools such as 3D printing, Sphero robotics, littleBits, etc. Students within these classes were exposed to higher level learning, where they had to not only collaborate with each other, but were presented with problem-solving and application of content in ways not experienced before. Additionally, the need was presented to add classes to the schedule. This space and project allowed us to further act as a bridge because the students who added the course on Making and Coding soon found themselves pushing their own learning into unchartered areas. Students found passion in learning by creating 3D models, they found excitement in discovery with electronics and using video to tell a story. Students applied content area by designing and creating everything from bubble wands to fishing lures. Johnson County #1 considers the Middlespace Makerspace a success. The grant provided time and materials to introduce the computer science standards to teachers and students. The Buffalo middle school decided to continue offering classes through the makerspace room to encourage more computer science opportunities for students.


Robotics and circuitry with littleBits, Ozobots and Sphero:




Class IV

Natrona County School District #1 - "Computer Science at Roosevelt High School"
Amount awarded: $50,000

Description

Natrona County School District #1 was chosen as a recipient of the Wyoming Education Trust Fund Grant to create computer science opportunities for students in the district. For this project, teachers at Midwest and Roosevelt High Schools, in collaboration with a consultant in computer science education, developed and integrated computer science modules that directly connect to content area standards. The purpose of this project was to pilot a program that can indicate the effectiveness of utilizing classroom teachers of core content areas to introduce coding principles to higher risk and more diverse populations in small

school environments, thus increasing the diversity of students exposed to introductory concepts by embedding those skills in content rich format in subject specific areas.

Evaluation

Natrona County School District #1 targeted high risk students at two small high schools and one middle school group of eighth grade advanced science students. In conjunction with a computer science consultant, teachers representing Midwest and Roosevelt High School and Dean Morgan Middle School developed computer science modules. Seventy five students participated and it was indicated that students grew in confidence, gained an understanding of basic programming principles, and had more positive attitudes toward learning to write code. Without this opportunity, teachers do not feel confident they would have been able to implement coding on their own. Three of the four teachers have been involved with multiple professional development opportunities focused on computer science. This process provided an avenue to confidently work with computer science through programming in the classroom. Each teacher is committed to continuing this work in their classrooms and will co-teach with others to grow opportunities for computer science.