Utah State Board of Education
Utah K-12 Computer Science Initiative

"To give every student access to robust computer science education …" - Utah Governor Gary Herbert

Full 4-year Grant Application FY 2021

Link to Frequently Asked Questions (FAQ) Document, Legislation, and Code:
http://bit.ly/K12UtahCSFAQs

Interim Feedback Dates:
LEAs who submit their applications by the following dates/time will receive feedback from the USBE review team prior to the final due date.
Friday, April 10, 2020 by 5:00 PM
Monday, April 20, 2020 by 5:00 PM

Application Final Due Date: Friday, May 1, 2020 at 5:00 PM

Completed application document links must be submitted using the following link:

Submit K-12 Computer Science Full 4-Year Plan

All Local Education Agencies (LEA) are highly encouraged to submit a draft prior to the final due date.

NOTE: *To be considered, the Utah State Board of Education (USBE) must receive your electronic copy by the date specified above. All digital submissions will be confirmed with a receipt email from USBE within 24 hours. It is the responsibility of the LEA to follow up with USBE to confirm the receipt of the application by the articulated due date. The narrative sections of the proposal must be no smaller than 11-point and maintain the section titles as presented.*

Technical Assistance Opportunities:
All LEAs are encouraged to send at least one representative to attend a technical assistance workshop with a copy of your rough draft plan. USBE Computer Science specialists will be onsite to walk you through the plan, address questions, and provide resources to support your development process.

Northern Utah
Friday, February 21, 2020 - 9am - 1pm
Building Across from Davis District Office
130 N Main St., Farmington, UT 84025

Southern Utah
Thursday, March 5, 2020 - 9am - 1 pm
Iron County School District Office
2077 W Royal Hunter Dr.
Cedar City, UT 84720

Please direct all questions to:

Joel Marquez
K-12 Computer Science Specialist
Utah State Board of Education
Phone: (801) 538-7843
joel.marquez@schools.utah.gov

Ashley Higgs
CTE K-8 Educational Specialist
Utah State Board of Education
Phone: (801) 538-7594
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Kristina Yamada
IT CTE Specialist
Utah State Board of Education
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Sarah Young
Director of Strategic Initiatives
Utah State Board of Education
Phone: (801) 538-7528
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Copies of this application and rubric and support materials are on the Utah State Board of Education website at: https://www.schools.utah.gov/cte?mid=3363&tid=5

Introduction & Background

PURPOSE: To give every student access to robust computer science education by the conclusion of the four year CS plan.

H.B. 227 (Knotwell) established the Computer Science for Utah Grant Program in 2019 for purposes of implementing the Utah Computer Science Master Plan. The grants are for the express purpose of "improving computer science outcomes and course offerings, demonstrated by the creation and implementation of a local agency computer science plan and the effective implementation of approved courses and the provision of effective training opportunities for licensed teachers." H.B. 227 (63N-12-506)

Details of the CS Utah Grant Program state eligible local education agencies can apply for the grant, submit it to the State Board of Education for review and recommendation to the Talent Ready Board for approval based upon the following criteria:

Local Education Agencies (LEA) shall submit a written 4-year "computer science plan that addresses the recommendations in the Utah CS Master Plan that identifies targets for improved computer science offerings, student learning and licensed teacher training; describes a professional development program and other opportunities for high-quality professional learning for licensed teachers or individuals training to become teachers. Includes a detailed budget, communication, and reporting structure for implementing the computer science plan."

ACTION STEPS: Create a 4-year LEA computer science plan following the template outlined below, including:
- Effective implementation of approved computer science courses (as outlined in the Data and Reporting section of the plan template) for students
- Providing effective computer science professional learning opportunities creating effective CS teachers
- Produce a clear picture of the evolving and growing implementation of computer science from integrated fundamentals to articulated high school course work
- Develop a communication plan for advancing computer science in your community, including parents and students
- Set specific data targets associated with measuring success of your plan

LEAs with full Computer Science 4-years plans will[1]:

Establish a Computer Science Program Leader within the LEA and create working groups in partnership with teacher leaders across departments to help implement the computer science plan

Commit to providing one computer course offering approved by the Talent Ready Board in every middle and high school within the local education agency (as outlined in the Data and Reporting section of the plan template)

Commit to integrate computer science education into the curriculum of every elementary school within the LEA

Promote all new CS courses to the LEA administration for K-12, coherent with the LEA plan. *(Free marketing materials are available at: https://code.org/promote)*

Hold a district-wide Hour of Code™ event each year. Computer Science Education week is the second full week of December, but LEAs can calendar in accordance with their schedules for each school year

Establish course codes for middle school and high school computer science classes in alignment with your projected CS offerings at your LEA by Fall 2021

Include computer science course offerings that count for science graduation credit *(AP Computer Science, Computer Science Principles, and/or Computer Programming II)* on materials related to school counseling and planning for all students

Allow Computer Science PD to satisfy district hourly requirements for annual professional development

Provide on-going follow up on key implementation details and dates, such as professional development workshops and marketing/orientation events for teachers and principals

Support use of LEA facilities for professional development of teachers (if needed) at no cost to partner organizations identified in the plan

Allow the Utah State Board of Education, Talent Ready Utah, and its evaluators to assess the program, including aspects of teacher professional development and student outcomes

Include computer science plan, communication tools, training, and data outcomes as required in this plan on your LEA website for easy stakeholder access

Sustain the computer science program after the term of the award

Establish or connect with a community of practice within the geographic area, and share best practices with other Utah LEA leaders

Meet any other requirements established by the state board in consultation with the Talent Ready Board and submit a written report annually to the state board and the Talent Ready Board

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[1] Adapted from "District Partnership Plan" from Code.org, accessed 1/12/2020 https://code.org/files/DistrictPartnershipPlan.pdf

K-12 Computer Science 4-Year Grant Program Pre-Approval Requirements

Before submitting an application to the advisory committee for approval by the Board, an LEA shall:

1. Visit [Utah Computer Science Education Master Plan](#), and read the full document.

2. All LEAs are encouraged to send at least one representative to attend a technical assistance workshop with a copy of your rough draft plan. USBE Computer Science specialists will be onsite to walk you through the plan requirements, address questions, and provide resources to support your development process.

   Northern Utah
   Friday, February 21, 2020 - 9am - 1pm
   Building Across from Davis District Office
   130 N Main St., Farmington, UT 84025

   Southern Utah
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In cooperation with your LEA leadership team and a representative group of all LEA stakeholders including school administrators, teacher leaders, educators, paraeducators, school board members, and parents:

3. Complete the full 4-year grant application by May 1, 2020 and submit to USBE **Submit K-12 Computer Science Full 4-Year Plan**

K-12 Computer Science Grant Program Post-Approval Requirements

An approved and participating LEA, shall engage in all of the following program required events to maintain funding for future fiscal years:

- **Utah K-12 Computer Science Summit** (Annually, Summer)
  This event happens once a year starting in the summer of 2021. The event focuses on sharing best practices, workshops around current research, and review of evaluation requirements. This event also requires each K-12 Computer Science Awardee to create a poster using the template from USBE.

- **Computer Science Site Visits** (Annually, Fall/Winter)
  USBE CS Team staff will complete site visits in the fall to provide technical assistance toward LEA implementation of their plan. Site visit locations and dates will be coordinated with the LEA CS team leader. The visit needs to involve a combination of administrators and CS teacher leaders. This team may also consist of school board members, community partners, and others.

- **Annual Reporting Requirements**
  Please note the following future reporting requirements that will be included in the Utah K-12 Computer Science Grant Annual Accountability and Data Report will be due by June 1st of each year of the award starting in 2021. These are not items that require response for the plan submission, but are important for LEA data collection over the implementation of the award.

Information: Future Reporting Requirements
1. Current fiscal year CS engagement tables as presented in the Data and Analysis section of the plan.
2. Progress toward achieving goals and measures in the approved LEA K-12 computer science plan.
3. Documentation of use of funds to expand computer science.
4. Other information requested by the Superintendent. LEAs will be notified of those requests in advance of the report.

- **K-12 Computer Science Budget Resubmission**
  Each year, after the conclusion of the award cycle, each LEA will resubmit a budget sheet for the new fiscal year to USBE for the available award value requested based on redistributed excess funding. USBE is committed to distributing all available full-plan funding to the field each year.

Program Timeline
FY2021 Grant Application Period

Date	Action
February 2020	USBE release of full 4-year grant application template.
Friday, February 21, 2020 Thursday, March 5, 2020	USBE Technical Assistance for LEA Computer Science Leadership Leaders and Teams (see application overview for full details)
	Rolling application window: **Friday, April 10, 2020 by 5:00 PM Monday, April 20, 2020 by 5:00 PM Friday, May 1, 2020 by 5:00 PM**
May 15, 2020	Full plans reviewed and given preliminary recommendations by the Computer Science Advisory Committee.
June 4, 2020	Utah State Board of Education considers award recommendations for full 4-year plans from the CS Advisory Committee.
June 2020	Talent Ready Utah Board considers award recommendations for full 4-year plans from USBE for final approval.
July 31, 2020	Award Letters Issued to LEAs through Utah Grants Management System
June 1, 2021	Year One Reporting Requirements due to USBE
June 30, 2021	Conclusion of FY2021 full 4-year plans award - Year One

TEAM: LEA Computer Science Leadership

Outline your Computer Science planning team with contact information provided for each member.

Recommended Length: **1 Page** **(Note: All things in highlighted BRIGHT BLUE are NEW additions to our grant application since receiving feedback from the committee)**

LEA Name			
Title	**Name**	**Email**	**Phone**
LEA Computer Science Lead	Linda Brown	Linda.Brown@washk12.org	435-730-1473
Superintendent/Director	Larry Bergeson	larry.bergeson@washk12.org	(435) 673-3553 #5101
CTE Director	Dave Gardner	dave.gardner@washk12.org	435-673-3553 x5205
Curriculum Director	Brad Ferguson	brad.ferguson@washk12.org	435-634-7025 x 4200
Technology Director	Lawrence Esplin	lawrence.esplin@washk12.org	(435) 767-1852
Asst. Superintendent, Secondary Education	Richard Holmes	richard.holmes@washk12.org	435-673-3553 x5158
Executive Director - Secondary Schools	Cheri Stevenson	cheri.stevenson@washk12.org	435-673-3553
Executive Director - Elementary Education, Effectiveness	Nate Esplin	Nathan.Esplin@washk12.org	435-673-3553 x5211
Executive Director - Elementary Education, Title 1 Compliance	Amy Mitchell	amy.mitchell@washk12.org	435-673-3553 x5171
School Leaders...			
CTE Computer Science	Linda Brown	Linda.Brown@washk12.org	435-730-14

Coordinator			73
Computer Science (5-12) Specialist	Helene Morse	Helene Morse	626-201-01 48
Business Administrator	Brent Bills	brent.bills@washk12.org	435-673-35 53 x 5103
Additional Leaders...			
CTE Academic Support Coordinator	Janna Neville	janna.neville@washk12.org	435-229-00 20
High School CS Teacher Leader	Anthony Vick	anthony.vick@washk12.org	435-229-57 61
Middle School CS Teacher Leader	Heath Edner	heath.edner@washk12.org	435-773-84 97
Elementary School CS Teacher Leader	Sherri Lords	sherri.lords@washk12.org	435-215-89 71
Intermediate School CS Teacher Lead	Cheri Maxwell	Cheri.Maxwell@washk12.org	435-773-21 76
School Board Member	LaRene Cox	larene.cox@washk12.org	435-668-19 87
Digital Learning Coordinator	Tony Campbell	tony.campbell@washk12.org	(435) 986-5185

VISION: Abstract for K-12 Computer Science Plan

Each LEA must provide an overview of the LEA's K-12 Computer Science Plan (up to 500 words), including:

- An alignment to the vision and guiding principles for computer science for all students in the Utah Computer Science Education Master Plan.
- Articulation of the long-term goal that will be achieved through implementation of the plan.
- An overview of the implementation steps that will be taken to achieve the long-term goal.

Recommended Length: **1 Page**

REQUIRED: The abstract will be used in the Utah State Board of Education Computer Science community to introduce your project to the public and to other grantees. If you are targeting different levels with your funding (elementary, middle, and high) be sure to describe each. Include the purpose, what will be different as a result of the grant, why the grant is important to your district, information about the target population, the vision for computer science, etc.

Washington County School District is one of the largest districts in the State with 27 elementary schools, 6 intermediate schools, 6 middle schools, and 10 high schools. We have had a very limited amount of CS implementation with difficulty finding teachers to facilitate adding more classes. We decided to take a different approach when hiring teachers for the CS K-12 Initiative. We didn't necessarily look for teachers who were already endorsed and experienced, but instead for teachers who were passionate about wanting to learn to teach CS. The great news--we just hired 5 new full-time CS teachers who will teach in our high schools and middle schools (some splitting between high school and middle school as they work to build the pipeline for full-time CS teachers at middle schools and high schools in future years.

To create the excitement about CS, we facilitated our first-ever CS Celebration for teachers and administrators! It was a CS fair, with over 40 booths--each showcasing CS integration into each grade band and all disciplines. We had nearly 500 people attend! Shortly afterward, we sent out a CS survey to all district teachers and administrators to poll them about what types of CS were already in their schools and their willingness to embrace more. The CS Celebration was so successful, we have decided to make it an annual tradition in our school district! We hope to expand the event, opening it up to district teachers of all disciplines during the afternoon on an early-out PLC day and then leaving it up for the evening where we will invite families in our school district to attend as a "Family CS Celebration". This will allow students and parents to participate in the same CS activities their teachers saw earlier in the day as well as expanded "break-out" sessions down the hallways for parents and students to attend on digital literacy topics, on-line safety, cybersecurity tips, etc. We plan to team-up with our district's digital literacy team to facilitate the break-out sessions. We plan to send out the CS survey annually to assess changes in data pulled from it.

With only 3 secondary teachers currently teaching CS this school year, we reviewed our teachers' endorsements to consider the possibility of adding more CS. We have 149 CTE teachers teaching in grades 7th-12th. There are 12 teachers with CS Level 2 endorsements (only 2 of those are willing to teach CS, others citing lack of interest or too much time passing since endorsement). We have 1 teacher with a CS Level 1 endorsement, and 4 with ECS endorsement. In the I.T. realm, we have 6 with Web Dev endorsements, 3 Intro to I.T., 2 Computer Repair, and 4 Multimedia.

Washk12 has created a teacher-lead CS Advisory Team consisting of the following members:

1. CS Coordinator (year-round certified teacher, funded from CTE monies)
2. CS Specialist (teacher on special assignment, funded from Perkins V monies)
3. Elementary CS Teacher Lead 1
4. Elementary CS Teacher Lead 2
5. Intermediate CS Teacher Lead
6. Middle School CS Teacher Lead
7. HIgh School CS Teacher Lead

Washk12 Computer Science Education goals and vision:

Our vision is to help all understand that computer science develops life-long problem solving skills and critical thinking strategies that can be applied to any personal, environmental, community, career, or social challenge. These critical skills will improve sustainability and global development in all aspects of human existence. **Our mission** is to ensure that every student in every grade level has the opportunity to learn the principles of Computer Science.

Our district participated in a CS for All "SCRIPT Workshop" training in which we worked as an LEA team to craft our vision, mission, 3-month, 6-month, and long-term goals. This was invaluable in providing us with support and direction as well as team-based training. The process allowed us to develop a four-year strategic CS plan that was a unified effort with exceptional buy-in from attendees who are part of all grade bands and administrations.

We have met our 3-month and 6-month goals which were focussed around buy-in, new CS course scheduling and enrollment, teacher hiring, grant writing, leadership team building, and development of our strategic plan and budget. We continue to work on our long-term goals which are outlined below:

"Materials and Curriculum" long-term goals:

Refresh and keep up with trends and curricula
- Keeping up with implementation support and PD delivery
- District repository of organized links, resources, and content with teacher lessons (on-going and growing)
  - Canvas Cohort for CS adoption secondary teachers
  - Schoology Cohort for CS adoption elementary teachers K-7
- "Lending Library" development

"Leadership" long-term goals:

- Keeping Leadership Team and committees in place and actively meeting
- Continuous updating to the landscape analysis
- Grant documentation
  - Data point collection and analysis (use to set or revise goals and drive continued plans)
  - Quarterly/Yearly Reporting
- More school counselor involvement (educate about various courses for student scheduling)

"Teacher Capacity and Development" long-term goals:

- All middle school and high school teachers endorsed for "Intro to CS" or "Programming and Software Development"

- Train STEM teachers and CS Roaming Paras and other "train the trainer" mentors for CS classroom integration
- Create teacher working PLC groups and provide teachers will resources to integrate CS into classroom lessons
- Ongoing coaching for teachers
- Annual CS survey to teachers to collect buy-in data
- Add more rigorous CS courses to high school level
- Cohort for those pursuing CS endorsements (DSU to work with us in facilitating this cohort)
- Canvas class for CS for teachers to get PD, assistance, tutorials, calendars, ideas, and lesson plans
- Schoology courses (one for intermediate and one for elementary)
- Collaborate with universities. Keeping up with the trends in CS
- Participate in State conferences as both attendees and presenters

"Partners" long-term goals:

- Establish CS Internships
- Ongoing Development and Partner Integration
- CS Advisory Board involvement (LinkedIn platform being used for continuous interaction between CS Advisory Board members and community partners (so we don't have to wait for the next meeting to communicate))
- CS Leadership staff to serve on community technology committees

"Community" long-term goals:

- Expanded CS Celebration to include students and families
- Regional Girls CS Program
- Community Events like Code Camp, LEGO League
- Development of Community Internships
- Coordination with Indian Education Coordinator to further CS efforts with Tribal affiliations
- CS hispanic presentations for hispanic population

Washk12 Computer Science Education timeline:

(School Year 2020-2021 - K-5): The paraprofessionals we have used up until now as "computer lab aides" in grades (K-5) will continue to work in the labs, focusing on teaching keyboarding. For our CS K-5 integration into the classroom, we will start our first year of the grant with training our STEM schools' teachers in CS standards, core guides integration, and LEGO education CS kits and curricula. We have commitments from four of the eight STEM schools to train and then facilitate "CS STEM Pull-outs" which involve bringing each classroom of students to the STEM lab for CS opportunities or STEM teachers going into the classrooms to help teachers integrate CS into the standards they are teaching. The additional four STEM schools will follow the same implementation pattern part way into the school year. We hope by starting with only four schools, it will give us time to work out the "kinks" and not face a possible negative reaction from principals and teachers if we take on too much too fast.

We will also hire one "Roaming CS Para" who will cover two schools. (In future years we will add more of these roaming paras (see budget for years 2,3,4) This para will be trained by the CS Specialist and through various PD (described in PD narratives) in CS Standards and Core Guides for various disciplines. The para will travel to two schools (Monday-Thursday) reaching every classroom. They will spend 45 minutes in the classroom with the classroom teaching, integrating CS into the standards that are being taught that week by the teacher. The CS Special will work to help coordinate and plan a schedule that aligns the paras planned lessons with the teachers' weekly content delivery. The plan for "CS Roaming Paras" is to have principals "apply" to have the para come to their school for the year. The following year as more paras are added, additional principals can apply. We believe this will encourage principals to implement integration. Through word of mouth, they can learn via social media, and published data of the excitement and success surrounding the classroom integration. We further believe that this will find principals willing to "repurpose" some of the paras they currently are funding to serve as CS paras in their school. This will strengthen the sustainability of our grant allowing all schools to eventually have the opportunity for this implementation. Fridays (early out days) will be a day when the CS Specialist will train CS Roaming Paras and work through lesson plans so they are prepared for the next week's integrations.

To provide opportunities to rural schools who aren't STEM schools, and schools who do not have roaming CS paras yet, we will be working on the possibility of a "CS Mobile Classroom" (CS Bus). This bus will be "repurposed" to have room inside for technology and CS opportunities. We hope to involve community partners, vendors, and volunteers to fund the retrofit of the bus. Ideally, this bus could travel to remote schools and a trained CS para would facilitate the learning on the bus. Principals who are resistant and have not seen the need to incorporate CS will have the opportunity to have the bus come and see the excitement CS brings with it so that everyone can "get on board" and see what CS has to offer students!

Grant monies will be used to purchase LEGO Education CS kits for grades K-5 which will eventually be housed in all schools. (see justification in equipment budget) The LEGO CS kits will be used in classroom integration by CS Roaming paras and classroom teachers (grades K-5). Each year, we plan to purchase ¼ of the total kits needed. This will be enough kits for the roaming cs paras to use as they travel to schools, taking the kits with them. We feel this will allow us to keep the kits organized and used rather than putting them in all the schools initially with no one in place at the school to account for the kit and its use. By the end of the grant process, enough training and engagement will have happened for schools to take ownership of the kits we purchased for them and use them to further their CS exploration, funding a para at the school level to continue in the process.

(School Year 2020-2021 - 6th-12th): Coding classes will be taught beginning this school year, in 19/21 schools in grades 6th-12th. This represents a 61% increase. The remaining two rural schools will have coding opportunities until enrollment can support a CS course. Schools will be encouraged to supplement coding opportunities with after school clubs, camps, and activities to support and fuel the interest. Curriculum to be used in all grades 6th-12th will be CodeHS (see justification in budget narrative).

We have 12 intermediate school teachers in six schools who have previously taught keyboarding in the 6th grade. We are now moving keyboarding to the elementary schools (K-5) as directed and are training those teachers to be CS Creative Coding teachers.

Grades 6-7 LEGO CS kits will be purchased the first year of the grant with grant funds and teachers trained at the intermediate schools in their use with the "Creative Coding" teacher being the teacher who accounts for the kit.

At the middle school and high school levels, CTE funds have now purchased Sphero Bolt robots for all secondary schools to be used in programming JavaScript activities. CTE will also purchase LEGO Education kits for secondary schools to use in the classroom (programmable with Python). We will encourage interaction between elementary and intermediate school students with middle school and high school students in collaborative CS projects to help build a sustainable pipeline of interest. We feel the upper grade students can be instrumental in encouraging the younger students and we will work to provide these opportunities.

We currently have 6-7 teachers working on CS endorsements. We plan to offer a cohort to give them added support with the required college classes they take and for collaboration in their classroom teaching endeavors. DSU has hired an "Instructor of Professional Practice" who is now assigned to work with our secondary teachers through a "train the trainer" environment. They will facilitate the cohort, team-teach when requested for difficult content, and work with CS Coordinator on CS Canvas repository and Canvas C# course creation. We realize the value of these relationships with higher-ed and our teachers to encourage and support a pipeline of capable students who are college or career bound.

Industry Certification tests will be given in CS courses (as described in our detailed "Scope and Sequence" table) Teachers will also be encouraged to take industry certification tests and incentivized with CTE funds paying for stipends for passed exams.

We plan to work to increase the community impact CS would have on our region by creating industry partnerships which we plan to tie to our successful internship program. This will create many exciting opportunities for WCSD students and community businesses.

Preparations will begin on the development of a "CS Lending Library/Maker Space" which will be in a portable building adjacent to one of our high schools. This building will house our CS Coordinator and Specialist and the DSU Instructor of the Professional Practice. In ½ of the building, the Lending Library will house CS books, games, equipment that schools can "check out" and use at their schools. There will also be space in this building to do PD for CS Roaming Paras and inventory of their LEGO kits.

(School Year 2021-2022 - K-5): Continue with further implementation of CS integration in K-5 by adding more CS roaming paras to bring our total up to 5 (serving 10 schools) By this time, all STEM schools should be on board spreading our integration this school year to at least 18 schools. The CS Bus will continue to visit schools not involved in the integration process yet. Another ¼ of our LEGO Education kits will be purchased and used. We hope to have in-district LEGO coding competitions and "trials" to determine which school and teams will go to coding camps and activities.

(School Year 2021-2022 - 6th-12th): Continued support for teachers getting endorsements as we continue the cohort. Plans to move Intro to Python 1 to the 8th grade with Intro to Python 2 in the 9th grade. Digital literacy has been required in our district so to accomplish this, we will have students take an IC3 exam (or equivalent) to demonstrate digital literacy competence. With competency, they will be able to register for the CS course Intro to Python 1 as an 8th grader. Schools will be encouraged to supplement coding opportunities with after school clubs, camps, and activities to support and fuel the interest. By this time, we hope to have built up the pipeline of CS courses and interest to now be able to hire middle school CS teachers in every school rather than having the high school teacher split between two schools. Internship opportunities in coding will be emphasised as we believe by this point we will have strong capable coding students.

(School Year 2022-2023 - K-5): Continue with further implementation of CS integration in K-5 by adding more CS roaming paras to bring our total up to 7 (serving 14 schools) plus STEM school integration of 8 schools, bringing out integration this school year to at least 22 schools. Another ¼ of our LEGO Education kits will be purchased and used.

(School Year 2022-2023 - 6th-12th): Support teachers pursuing endorsements as we continue their cohort. Possible plans to add Exploring Computer Science to 9th grade if enrollment can support. Additional plans to add Computer Science Principles courses to 10-12 grade high schools not already teaching the course. As most high school CS teachers in our district should now be endorsed, we plan to add the DSU CE CS1400 course to high schools not already offering it. Web Development is another course we anticipate offering in multiple schools. Schools will be encouraged to supplement coding opportunities with after school clubs, camps, and activities to support and fuel the interest. Internship opportunities in coding will be emphasised as we believe by this point we will have strong capable coding students.

(School Year 2023-2024 - K-5): Continue with the 7 roaming paras (serving 14 schools) plus STEM school integration of 8 schools we have in place. This means we will have 22 elementary schools with full integration. Focus this year on helping "train the trainer" for schools wanting to "repurpose" one of the paras their school is funding for the purpose of CS integration. We anticipate schools will bring the roaming paras into their schools to work permanently as grant funding is discontinued after this year. In the event that a school does not choose to continue to use paras to help the classroom teacher, we believe the teachers will have the confidence and CS pedagogy training to continue CS integration in their lessons.

Additional equipment will be purchased to add to our "Lending Library/Maker Space".

(School Year 2023-2024 - 6th-12th): Where possible, we will add the DSU CE CS1410 course this year to our high school line-up. To maintain enthusiasm, we will incorporate in-district coding competitions with LEGO EV3 robots and spheros in our various programming courses. Schools will be encouraged to supplement coding opportunities with after school clubs, camps, and activities to support and fuel the interest. Internship opportunities in coding will be emphasized as we know we will have developed strong capable coding students.

We hope to have the addition of VR headsets to our "Lending Library" for use in integrating CS into other disciplines.

CURRICULUM AND STANDARDS: Computer Science High-Quality Curriculum

Each LEA must complete the table below to provide an overview of the LEA's K-12 Computer Science Goal, including:

- A plan to develop or adapt K-12 Computer Science resources, lesson plans and computer science courses at each grade level/grade band for implementation and delivery across the K-12 system.
- A commitment to how each student in the LEA will have access to computer science learning as outlined in the Utah Computer Science standards during the school day for each grade at the conclusion of the 4-year plan.
- An alignment to the vision and guiding principles for computer science for all students in the [Utah Computer Science Education Master Plan](.).
- Projected implementation dates for achieving access to all students in each grade level.

Guidance and resources to review before completing your plan:

1. **HOW IS COMPUTER SCIENCE TAUGHT IN EACH GRADE DURING THE SCHOOL DAY?**
   Keyboarding *is not* computer science. Keyboarding is the activity of typing information into a computer. Computer science is the study of computers and algorithmic processes, including their principles, their hardware and software designs, their [implementation], and their impact on society (Tucker et. al, 2003, p. 6). The Utah State Board of Education has created standards that provide guidance on the core concepts and practices in computer science.

2. **UTAH K-5 COMPUTER SCIENCE STANDARDS**
   The Utah State Board of Education approved the K-5 Computer Science standards in October 2019. The standards were created for each grade level with an example of how that standard could be taught in the grade level, both plugged and unplugged activities. The K-5 Computer Science standards can be found [here](.).

3. **UTAH 6-12 COMPUTER SCIENCE STANDARDS DRAFT**
   The 6-12 Standards are currently under 30-day review. These standards are meant to be integrated into existing courses in all middle schools and high schools and must be available to all students. The 6-12 standards can be accessed [here](.).

4. **UTAH COMPUTER SCIENCE AND INFORMATION TECHNOLOGY PATHWAYS**
   Career Pathways show students a direct connection between doing well in high school and being able to transition smoothly to postsecondary opportunities or getting a good job when they graduate. Students who focus on a Career Pathway acquire the skills necessary for entry into well-paid careers

with high potential for rapid financial growth, increased levels of responsibility, and a high degree of personal satisfaction.

Utah Career Pathways align with and are categorized by the national Career Clusters®. Each Career Pathway culminates in an industry recognized credential of value. Your long term plan should include a solid pathway for your students in a CS or IT field of study.

A list of Career Pathways can be found here.
The Career Pathway charts for SY 20-21 can be found here.

5. **WHICH COMPUTER SCIENCE COURSES COUNT FOR THE <u>DIGITAL STUDIES</u> GRADUATION REQUIREMENT?**
The following computer science courses meet the digital studies graduation requirement:
   ● Computer Programming 1
   ● Computer Science Principles
   ● Exploring Computer Science 1
   ● Web Development 1

6. **WHICH COMPUTER SCIENCE COURSES COUNT FOR A <u>SCIENCE</u> GRADUATION REQUIREMENT?**
The following computer science courses meet the science graduation requirement:
   ● AP Computer Science
   ● Computer Science Principles
   ● Computer Programming II

7. **ARE THERE EXISTING RESOURCES TO SUPPORT OUR COMPUTER SCIENCE CURRICULUM SELECTION?**
Yes, please see the following list of resources. This list is not exhaustive, but highlights curriculum that is available and cataloged for easy access. Each LEA may decide upon their own curriculum, including offerings that are not included on this list.
   A. **UEN Resources - CS4Utah: https://emedia.uen.org/hubs/cs4utah**
   The purpose of the CS4Utah Initiative is to unify efforts across the state in Computer Science education and provide support and strategic direction for those efforts, resulting in a state-wide Computer Science education ecosystem. This hub serves as an online community for teachers who integrate or specialize in CS/IT across all grade levels. The hub includes resources, lesson plans, modules, group discussions, grant support, announcements, and links to additional resources. We welcome your participation in this community and hope you will both find and share resources to improve CS/IT education throughout the state.

   B. **Grade K-5: Free Courses by Code.org and List of 3rd Party Coursework: https://code.org/student/elementary**

   C. **Grades 6-12: Free Courses by Code.org and List of 3rd Party Coursework: https://code.org/student/middle-high**

   D. **3rd Party Resources: https://code.org/educate/curriculum/3rd-party**

Recommended Length: **2 Pages**

By Fall 2023 LEA's scope and sequence for computer science will include:

Grade Level	Course	Frequency	Proposed Curriculum	Implementation Target Date
Example: Kindergarten	*Kindergarten CS will be taught integrated with the Kindergarten Math curriculum.*	*2 lessons/week*	*Utah Core Guides (link) and Code.org Scratch*	*Spring 2021*

Important note: Our K-5 CS implementation involves using the following people and ideas:

We will hire "Roaming CS paraprofessionals" that we train in CS concepts. One para will cover two schools--going into one school for two days (Mon. Grades K-2) (Tues. Grades 3-5) and then Wed. and Thurs. going to their other assigned school and doing the same thing. Fridays the paras will be trained by the district CS Specialist and prepare curriculum for upcoming week.

There will be an application process for schools to apply for "roaming paras" to come to their school. We will hire enough paras to accommodate the amount of schools we list below. Schools that don't choose to apply initially for a para, will see positive outcomes through our CS program and find effective strategies to repurpose some paras already in their building allowing us paras to cover every school. Our "roaming paras" will be going into the teachers' classrooms, training the teachers how to implement the CS curriculum, and at same time, teaching the students. We believe this increases sustainability so that teachers can continue these efforts when grant funding ends. We hope this will allow many schools to see the value in possibly "repurposing" an existing school para or finding a way to fund their own CS para.

The digital learning "computer lab paras" we have employed in the past will train students in keyboarding rather than CS coding opportunities, and that training will happen in the computer labs. This will allow a more focused experience for them on keyboarding, We believe having the roaming CS para going into the classrooms will also allow for the experience of using the Utah Core CS Guides in the classroom with teachers.

We are planning to repurpose a bus to be a "CS Mobile Classroom" which schools can schedule for additional CS opportunities. As some schools may be resistant in the beginning to the idea of "one more thing" required of them. This is why we want to implement the application process initially for the paras, so that we aren't forcing the schools to do this. The CS Mobile Classroom will allow all schools to have CS opportunities even if they don't have an assigned para and hopefully help them "get onboard" with CS implementation in their school!

Kindergarten	*Roaming CS para coming into Kindergarten classes weekly. Integrated CS-STEM lessons in Math, L.A., and Science.* **Concepts:** ● **Algorithms** ● **Collaboration** ● **Communication** ● **Creativity** ● **Critical Thinking**	**Once Weekly (30 min)**	● *[Utah Core Guides (link)](link)* ● *LEGO Education* ○ *Coding Express* ○ *Creative Brick Duplo* ○ *SteamPark kit* ● *BeeBots* ● Unplugged Activities ● Code.org (pre-reader express course)	**Fall 2020 in 6 schools total** **Fall 2021 in 18 schools total** **Fall 2022 in 22 schools total** **Fall 2022 in 22 schools total**
1st Grade	*Roaming CS para coming into all 1st grade classes weekly. Integrated CS-STEM lessons in Math, L.A., and Science.* **Concepts:** ● **Algorithms** ● **Sequence** ● **Loops** ● **Collaboration** ● **Communication** ● **Creativity** ● **Critical Thinking**	**Once Weekly (45 min)**	● *[Utah Core Guides (link)](link)* ● *LEGO Education* ○ *Coding Express* ○ *Creative Brick Duplo* ○ *SteamPark kit* ● Beebots ● Unplugged Activities ● Code.org (Course A or B)	**Fall 2020 in 6 schools total** **Fall 2021 in 18 schools total** **Fall 2022 in 22 schools total** **Fall 2022 in 22 schools total**
2nd Grade	*Roaming CS para coming into all 2nd grade classes weekly. Integrated CS-STEM lessons in Math, L.A., and Science.* **Concepts:** ● **Algorithm** ● **Sequence** ● **Loops** ● **Nested Loops**	**Once Weekly (45 min)**	● *[Utah Core Guides (link)](link)* ● *LEGO Education* ○ *We-Do* ○ *Creative Brick* ● Code.org (course B or C) ● UnPlugged Activities	**Fall 2020 in 6 schools total** **Fall 2021 in 18 schools total** **Fall 2022 in 22 schools total** **Fall 2022 in 22 schools total**

	● **Conditionals** ● **Collaboration** ● **Communication** ● **Creativity** ● **Critical Thinking**			

3rd Grade	*Roaming CS para coming into all 3rd grade classes weekly. Integrated CS-STEM lessons in Math, L.A., and Science.*
	
	Concepts:
	● **Algorithms**
	● **Sequence**
	● **Loops**
	● **Nested Loops**
	● **Conditionals**
	● **Collaboration**
	● **Communication**
	● **Creativity**
	● **Critical Thinking**
		Once Weekly (45 min)	● *Utah Core Guides (link)*
			● *LEGO Education*
			  ○ *We-Do*
			  ○ *Creative Brick*
			● Code.org (course B or C)
			● UnPlugged Activities
				Fall 2020 in 6 schools total
				
				Fall 2021 in 18 schools total
				
				Fall 2022 in 22 schools total
				
				Fall 2022 in 22 schools total

4th Grade	*Roaming CS para coming into all 4th grade classes weekly. Integrated CS-STEM lessons in Math, L.A., and Science.*
	
	Concepts:
	● **Algorithms**
	● **Sequence**
	● **Loops**
	● **Nested Loops**
	● **Conditionals**
	● **Collaboration**
	● **Communication**
	● **Creativity**
	● **Critical Thinking**
		Once Weekly (45 min)	● *Utah Core Guides (link)*
			● *LEGO Education*
			  ○ *We-Do*
			  ○ *Creative Brick*
			● Code.org (course B, C or D)
			● UnPlugged Activities
				Fall 2020 in 6 schools total
				
				Fall 2021 in 18 schools total
				
				Fall 2022 in 22 schools total
				
				Fall 2022 in 22 schools total

5th Grade	*Roaming CS para coming into all 5th grade classes*	**Once Weekly (45 min)**	● *Utah Core Guides (link)* ● *LEGO Education*	**Fall 2020 in 6 schools total**

	weekly. Integrated CS-STEM lessons in Math, L.A., and Science. **Concepts:** ● **Algorithms** ● **Sequence** ● **Loops** ● **Nested Loops** ● **Conditionals** ● **Collaboration** ● **Communication** ● **Creativity** ● **Critical Thinking**		○ *We-Do* ○ *Spike Prime* ● Code.org (course C or D) ● UnPlugged Activities	**Fall 2021 in 18 schools total** **Fall 2022 in 22 schools total** **Fall 2022 in 22 schools total**

6th Grade and 7th grade	*Creative Coding 1 and 2*	**Each course 1 Trimester/Seme ster**	● CodeHS (block-based)
			● LEGO Education
			  ○ Spike Prime
			  ○ Spike Prime Expansion
			● Code.org "CS Discoveries"
			● Sphero - NSF Course 1
				All Intermediate Schools Fall 2020

	Important Note: Students will demonstrate competency in 5th grade with needed intervention in 6th grade. Those who have demonstrated competency (tested on technique) will take "Creative Coding" classes. Because some Intermediate Schools teach on trimester systems, we will offer a Creative Coding 1 and a Creative Coding 2 class which will both be mapped to the same USBE course code, and spread over two trimesters. The Creative Coding classes will be offered for 6th and 7th graders.			
7th Grade	*Intro to Computer Science (New USBE course)*	**Each course 1 Trimester**	● State Curriculum (former ECS curricula?)	**Fall 2021 All Intermediate Schools**
	Important Note: Since our Intermediate Schools teach on trimester systems, we will offer an Intro to CS 1 and an Intro to CS 2 class which will both be mapped to the same USBE course code, and spread over 2 trimesters.			

	Another Note: Using CTE funds, we have purchased Sphero Bolt Powerpack classroom sets for all of our secondary CS teachers. We are planning to have secondary CS teachers and students take their Sphero kits into intermediate schools. The older students will work with the Intermediate school students using the Sphero-National Science Foundation Course 1 curricula (geared for 6-7th grade and block based coding of Spheros). This way, we won't have to invest in Spheros for the intermediate school, but they can still get the experience as well as peer mentoring. This plan will get the younger students excited about what comes at the next grade band! The Sphero Bolt curriculum we purchased for all of our secondary schools was developed by the National Science Foundation and is very high quality. It maps to not only national core standards but also national CS standards. There are also many lesson plans that are made for other non-core disciplines like Art, Music, Social Studies.			
8th Grade	*Intro to Python 1*	**Semester**	● CodeHS ● LEGO EV3 ● LEGO EV3 Expansion ● Sphero - NSF Course 1	**Fall 2021 All Middle Schools**
9th Grade	*Intro to Python 1*	**Semester**	● CodeHS ● LEGO EV3 ● LEGO EV3 Expansion ● Sphero - NSF Course 2	**Fall 2020 All Middle Schools**
	Intro to Python 2	**Semester**	● CodeHS ● LEGO EV3 ● LEGO EV3 Expansion ● Sphero - NSF Course 2 ● Give MTA Industry test in Python	**Spring 2021 All Middle Schools**
	Important Note: The Intro to Python 1 and Intro to Python 2 courses along with successful passing of MTA Intro to Programming-Python test will be prerequisites for the DSU CE CS1400 course.			
	Exploring Computer Science (newer course)	**Semester**	USBE State Curricula with more rigor	**Possible Implementation Fall 2022 in Some Middle Schools if**

				sufficient enrollment
High School Course Offerings (10th-12 Grades)	*Computer Science Principles (possibly AP)*	Full year course	● CodeHS (JavaScript or Python) CSP courses ● Code.org (App Inventor) ● Sphero - NSF Course 3 ● MTA Intro to programming Javascript or Python?	Fall 2020 in 3 High Schools Fall 2022 in additional schools (could help build program since counts as a science credit)
	Programming 1	1st Semester	● C# procedural programming course ● Canvas curricula from various sources	Fall 2020 in All High Schools
	Programming 2	2nd Semester	● C# Object Oriented course ● Canvas curricula from various sources	Fall 2020 in All High Schools
	AP Computer Science A	Full year course	● CodeHS AP CS "A" course ● JAVA	Not sure there will be room in schedules for this course. We believe students would instead focus on the CE CS1410 course.
High School Concurrent Enrollment	*DSU CE CS1400 (maps to Programming 2 CE USBE course*	Full year course	● DSU CE CS 1400 Python ● DJI Robots ● MTA Software Development Industry Exam	Fall 2020 (one school) (others to follow Fall 2022)

	DSU CE CS1410 (Advanced Computer Programming CE USBE course)	Full year course	● DSU CE CS 1410 Python ● DJI Robots	Fall 2023
	Important Note: PVHS has tried offering CS1400 as a semester class and reported that it was just too much for the students on A/B schedule. They had much better success as a full-year course. We plan to make this course only a CE course and NOT give students the option of taking it without college credit. If they don't want college credit, they will take Programming 1 and 2. We want to keep this all CE students so that teachers don't teach to upper level students and leave struggling students behind, likely discouraging them from other CS classes.			
	Important LEGO Curriculum Note: The use of the LEGO Curriculum in all grade bands allows increased opportunity to meet core standards as we integrate computer science into all disciplines. LEGO CS and STEM curriculum have now been developed to allow this integration to occur with the help of their lesson plans. The LEGO kits we are proposing to use have detailed lesson plans that map to national core standards, national CS standards, as well as the Utah CS standards. PLEASE as a grant reviewer, click on the links in this narrative to have a better understanding of what the LEGO curriculum offers and how it has been mapped to Utah CS Standards. LEGO curriculum and equipment K-12 are a large and effective part of our plans to help us meet the CS Master Plan. Additional narrative about budget justification can be found at the bottom of our budget sheet. An example of a lesson plan for 3rd Grade can be found at this link: 3rd Grade Forces and Motion Lesson Plan Note that the lesson plans include ideas and structure for integrating each lesson into math, science, language arts, and computer science courses. All grade bands K-12 have a rigorous curriculum included with the LEGO kits. A Kindergarten lesson plan is provided at this link: Kindergarten Sequence Unit. Note also that for elementary and intermediate grade levels, the LEGO curriculum integrates with Scratch. There are also many lessons that map to other non-core disciplines.			

PROFESSIONAL LEARNING: Creating Effective CS Teachers

Each LEA must complete the tables below to provide an overview of the LEA's K-12 Computer Science Goal, including:

- Professional development for teachers of other subjects is required to leverage the existing pool of teachers and provide a short-term approach for increasing the number of CS opportunities in schools.

- Long term sustainability will include steps towards a certification or license endorsement to teach computer science, and adding a pipeline of new teachers graduating from pre-service programs with the ability and desire to teach CS.
- A commitment to how teachers and leaders in the LEA will have access to computer science learning as outlined in the Utah Computer Science standards during the school day for each grade at the conclusion of the 4-year plan.
- An alignment to the vision and guiding principles for computer science for all students in the Utah Computer Science Education Master Plan.
- Projected implementation dates for achieving training to all teachers and leaders in each division.

Recommended Length: **4 Pages**

BASELINE FOR CURRENT STATE OF TEACHER CS ENDORSEMENTS:

Computer Science Endorsements	Current # of Teachers with Endorsement in LEA
***Exploring Computer Science** [now historic (as of Feb 1, 2020)]	5
Computer Science 2 (updated endorsement to Programming and Software Development as of 2/1/2020)	13 (CS Level 2) 1 (CS Level 1) *we have 13 teachers with level 2 endorsements but only 3 of them are willing to teach CS at this time
Introduction to Information Technology (updated endorsement to Information Technology as of 2/1/2020)	4 (Intro to I.T.) 3 (A+ Computer Repair) 1 (Network+) 1 (Security+) 4 (Multimedia)
Web Development (updated endorsement: Web Development as of 2/1/2020)	6 (Web Development) *we have 6 teachers with this endorsement but only 4 are willing to teach it

COMPUTER SCIENCE PROFESSIONAL LEARNING TIMELINE

Elementary Teachers

When	Grade level	# of Projected Participants	Content	Outcome/ Endorsement
Ex. Fall 2020	*Elementary teachers grade 3-5*	*3 sessions of 25 teachers*	*Data and Analysis Standards in Utah CS Standards 3-5*	*Teachers will be able to incorporate data visualizations and technology into their math and science instruction.*
Summer 2020	*•Elementary STEM teachers and other interested K-5 teachers*	*•Online Code.org hybrid training (likely 4-6 teachers)*	*•CS Fundamentals Code.org training*	*•Teachers will develop skills to incorporate CS concepts across different disciplines*
Fall 2020	*•All Elementary STEM teachers and other interested K-5 teachers* *•Roaming CS Elementary paras*	*•1 day (+ 2 virtual trainings and 1 more 1 day training later in the year)*	*•LEGO Education Curriculum K-5*	*•Teachers and paras will understand how to provide CS interactive opportunities & team building with students*
Fall 2020	*•All Elementary teachers K-5*	*•Ongoing throughout all school years*	*•Schoology LMS PD Course developed by CS Specialist.* *•This course will include CS Standards and all discipline Core Guides training K-5*	*•Teachers will have a repository of CS tools and lesson plan ideas. Teachers will receive video based PD through this LMS course.*
2020-2021 School Year *2021-2022 School Year*	*•Roaming CS paras*	*•CS roaming paras trained every Friday by district CS Specialist*	*•CS Standards and all discipline Core Guides training K-5*	*•Classroom teachers will be able to integrate CS standards and core guides into*

				curriculum on a regular basis
2022-2023 School Year	*•Elementary School teachers*	*•Elementary School teachers will assist the CS para as they present the lesson in the classroom. This allows teachers to be "trained" in the entire implementation process.*	*•Curriculum integration lesson plans will be prepared/moderated by CS Specialist who is Elementary/Intermediate school teacher on special assignment* *•LEGO Education Curricula* *•Code.org course units*	*•CS lessons taught in the students' classrooms will be integrated into curricula already being taught that week.* *•Coordination of topics taught weekly will be between the CS Specialist and the teachers.*

Important Note: We *are planning to have CS Roaming Paras that we train on CS Standards and Core Guides as well as LEGO Education training and Code.org training. Those paras will go into elementary teachers classrooms once a week for 45 minutes with an integrated lesson **customized** to fit what the teacher has been teaching that week. This will allow the teachers to be "trained" in CS by the para as they help in the process. This will allow teachers to continue implementing CS concepts in their classrooms even if CS paras are not there.*

We anticipate funding from the grant will allow us to hire 7 roaming CS paras. This will cover 14 elementary schools' needs. We will also train our elementary STEM teachers to implement the same CS concepts in their STEM programs at the schools so we will not assign roaming CS paras to the STEM schools since we believe their needs can be covered by the STEM teacher. This will allow us to have 6 more schools covered. For the remaining 7 schools, we plan to provide CS integration and opportunities through a mobile classroom CS Bus. The CS Bus will have a trained CS para traveling to our most rural schools and to schools that are not participating in the Roaming CS para program.

Our CS Roaming para plan will be available to schools through an application process so that we aren't forcing all schools to do this integration right away. Elementary principals will apply to have the CS Roaming para come to their school for one school year. The following year other school's can apply. We anticipate that principals will eventually see a need for "repurposing" one of their already funded paras to take on the CS integration in the classroom so that all schools will eventually be participating. Use of the Mobile CS Bus will also allow principals who haven't embraced the idea and applied for a roaming CS para, to see the amazing opportunities for students when the CS Bus comes to visit their school.

Summer 2021, Summer 2022, Summer 2023	*•Roaming CS Elementary paras*	*•1 day (+ 2 virtual trainings and 1 more 1 day*	*•LEGO Education Curriculum K-5*	*•Teachers and paras will understand how to*

	•All Elementary STEM teachers and other interested K-5 teachers	training later in the year) for each of these school years		provide CS interactive opportunities & team building with students

Intermediate School Teachers

When	Grade level	# of Projected Participants	Content	Outcome/ Endorsement
Ex. Fall 2020	Elementary teachers grade 6	2 sessions of 30 teachers	Data and Analysis Standards in Utah 6th grade CS Standards	Teachers will be able to incorporate data visualizations and technology into their science instruction.
Summer 2020

We completed this June 2020. We had 100% of 44 teachers complete CS Methods course described here. It was amazing! We trained all of our Creative Coding and CCA teachers in CS Methods! We also trained some teachers from science, math, language arts, and library media specialists. | •Intermediate CS teachers grades 6-7 | •CodeHS Online 40-50 hr. PD course (CS pedagogy) with mentor (Teachers will also have 4 year access to repeat training and/or work with mentor | •CodeHS-"Intro to Programming Javascript" industry certification course

•Stipend to be paid with Perkins money for completion | •Teachers will understand how to teach the theory and logic of programming (pedagogy training)

•Fills pedagogy requirement for Intro to CS Endorsement (as per Joel Marquez)

•CS Training of teachers from other disciplines will help them to see how CS can be integrated into their curriculum and they will see relevance. This increases access to CS and |

				sustainability! Training CCA teachers will help them to see relevance of how CS can apply to many different career choices which in turn will strengthen students' knowledge of career pathways and innovation.
Fall 2020	•*Intermediate CS teachers grades 6-7*	•*1 day (+ 2 virtual trainings and 1 more 1 day training later in the year)*	•*LEGO Education Curriculum 6-7*	•*Teachers will understand how to provide CS interactive opportunities & team building with students*
Fall 2020	•*Intermediate CS teachers grades 6-7*	•*CodeHS 2 day face-to-face training*	•*CodeHS Best practices of teaching CS course*	•*Teachers will understand how to challenge students and differentiate learning in CS courses*
Summer 2021	•*Intermediate CS teachers grades 6-7*	•*14 teachers (in person 5 day course + 2 additional PD days throughout year)*	•*Code.org CS Discoveries PD Course (possibly for Southern Region)*	•*Teachers seeking Intro to CS endorsement will have required training.* •*Teachers will understand how to teach the theory and logic of programming (pedagogy training)*
Fall 2021 and forward through all years	•*All Intermediate teachers 6-7*	•*Ongoing throughout all school years*	•*Schoology LMS PD Course developed by CS*	•*Teachers will have a repository of CS tools and*

			Specialist.	lesson plan ideas.
			•This course will include CS Standards and all discipline Core Guides training 6-7	•Teachers will receive video based PD through this LMS course. •Discussion boards will take place where teachers can "show off" what they are doing in their schools and inspire others viewing the course to try new things.

Middle School Teachers

When	Grade level	# of Projected Participants	Content	Outcome/ Endorsement
Ex. Fall 2020	MIddle School teachers grade 8-9	2 sessions of 30 teachers	Data and Analysis Standards in Utah 6th grade CS Standards	Teachers will be able to incorporate data visualizations and technology into their science instruction.
Summer 2020 We completed this June 2020. We had 100% of our middle school CS teachers complete CS Methods course described here. We also trained interested science, math, language arts	•Middle School CS teachers grades 8-9	•CodeHS Online 40-50 hr. PD course (CS pedagogy) with mentor (Teachers will also have 4 year access to repeat training and/or work with mentor	•CodeHS-"Intro to Programming Javascript" industry certification course •Stipend to be paid with Perkins money for completion	•Teachers will understand how to teach the theory and logic of programming (pedagogy training) •Fills pedagogy requirements for Intro to CS Endorsement and Programming and

teachers, and library media specialists! 44/44 teachers completed 100% of the training--It was amazing!				*Software Development endorsement (as per Joel Marquez)* *•CS Training of teachers from other disciplines will help them to see how CS can be integrated into their curriculum and they will see relevance. This increases access to CS and sustainability!*
Fall 2020	*•Middle School CS teachers grades 8-9*	*•1 day (+ 2 virtual trainings and 1 more 1 day training later in the year)*	*•LEGO Education Curriculum 8-9*	*•Teachers will understand how to provide CS interactive opportunities & team building with students*
Fall 2020	*•Middle School CS teachers grades 8-9*	*•CodeHS 2 day face-to-face training*	*•CodeHS Best practices of teaching CS course*	*•Teachers will understand how to challenge students and differentiate learning in CS courses*
2020-2021 School Year *2021-2022 School Year* *2022-2023 School Year*	*•Middle School CS teachers grade 9 needing endorsements or wanting extra help*	*•CS Cohort to meet in person twice a month (first and third weeks) and twice a month virtually (2nd and 4th weeks)*	*•DSU's "Instructor of the Professional Practice" employee will help facilitate cohorts as much of the help in the cohort will be related to •DSU courses teachers are required to take for endorsements they are seeking.*	*•Teachers will feel supported and have a weekly opportunity to take a deeper dive into CS concepts.* *•Teachers will be successful with their endorsements' required courses.* *•Teachers will*

			•CS Coordinator and CS High School Teacher Lead will also be involved in the cohort.	develop a sense of being part of a district CS "team" where they share, collaborate, and learn.
Summer 2021	•Middle School CS teachers grade 8-9	•6 teachers (in person 5 day course + 2 additional PD days throughout year)	•Code.org Computer Science Principles (combine with high school teachers and possibly open to all of Southern Region)	•Teachers seeking Intro to CS or Programming Software Development endorsement will have required training. •Teachers will understand how to teach the theory and logic of programming (pedagogy training)
Fall 2021 and forward through all years	•All Middle School teachers grades 8-9	•Ongoing throughout all school years	•Canvas LMS PD Course developed by CS Coordinator. •This course will include CS Standards and all discipline Core Guides training 8-9	•Teachers will have a repository of CS tools and lesson plan ideas for all teaching disciplines. •Teachers will receive video-based PD through this LMS course. •Discussion boards will take place where teachers can "show off" what they are doing in their schools and inspire others viewing the course to try new things.

2020-2021 School Year *2021-2022 School Year* *2022-2023 School Year*	*•Middle School teachers grades 8-9*	*•Two 6-hr. day trainings during the school year hosted by district's ESL Coordinator*	*•ESL Methods and Practices training to help teachers better understand pedagogy for reaching ESL students and underserved students.*	*•Teachers will implement strategies for reaching students who are struggling for various reasons including but not limited to language barriers or other deficits.* *•Students will feel like they are included in the classroom setting and not being "overlooked" and labeled as just students who "can't do it".* *•Students will be more likely to see themselves as capable of taking further pathway courses with success.*

High School Teachers

WHEN	Grade level	# of Projected Participants	Content	Outcome/ Endorsement
Ex. Fall 2021	*High School Teachers for Computer Science Principles (CSP) Endorsement*	*1 session of 15 teachers*	*Weeklong Training sponsored by the STEM Action Center with Code.org*	*Teachers will have completed the methods requirement for their Intro to CS endorsement.*
Summer 2020 *We completed this*	*•High School CS teachers grades 10-12*	*•CodeHS Online 40-50 hr. PD course (CS*	*•CodeHS-"Intro to Programming Javascript"*	*•Teachers will understand how to teach the theory*

June 2020. We had 100% of our high school CS teachers complete CS Methods course described here. We also trained interested science, math, language arts teachers, and library media specialists! 44/44 teachers completed 100% of the training--It was amazing!		*pedagogy) with mentor (Teachers will also have 4 year access to repeat training and/or work with mentor*	*industry certification course* *•(Stipend to be paid with Perkins money for completion)*	*and logic of programming (pedagogy training)* *•Likely fill methods requirement for Intro to CS Endorsement and Programming and Software Development endorsement (as per Joel Marquez)* *•CS Training of teachers from other disciplines will help them to see how CS can be integrated into their curriculum and they will see relevance. This increases access to CS and sustainability!*
Fall 2020	*•High School CS teachers grades 10-12*	*•1 day (+ 2 virtual trainings and 1 more 1 day training later in the year)*	*•LEGO Education Curriculum 10-12*	*•Teachers will understand how to provide CS interactive opportunities & team building with students*
Fall 2020	*•High School CS teachers grades 10-12*	*•CodeHS 2 day face-to-face training*	*•CodeHS Best practices of teaching CS course*	*•Teachers will understand how to challenge students and differentiate learning in CS courses*
2020-2021 School Year	*•High School CS teachers grades 10-12 needing*	*•CS Cohort to meet in person twice a month*	*•DSU's "Instructor of the Professional Practice"*	*•Teachers will feel supported and have a weekly*

2021-2022 School Year *2022-2023 School Year*	endorsements or wanting extra help	(first and third weeks) and twice a month virtually (2nd and 4th weeks)	employee will help facilitate cohorts as much of the help in the cohort will be related to DSU courses teachers are required to take for endorsements they are seeking. •CS Coordinator and CS High School Teacher Lead will also be involved in the cohort.	opportunity to take a deeper dive into CS concepts. •Teachers will be successful with their endorsements' required courses. •Teachers will develop a sense of being part of a district CS "team" where they share, collaborate, and learn.
Summer 2021	•High School CS teachers grades 10-12	•9 teachers (in person 5 day course + 2 additional PD days throughout year)	•Code.org Computer Science Principles (combine with high school teachers and possibly open to all of Southern Region)	•Teachers seeking Intro to CS or Programming Software Development endorsement will have required training methods training. •Teachers will understand how to teach the theory and logic of programming (pedagogy training)
Fall 2021 and forward through all years	•All High School teachers grades 10-12	•Ongoing throughout all school years	•Canvas LMS PD Course developed by CS Coordinator. •This course will include CS Standards and all discipline Core Guides training 10-12	•Teachers will have a repository of CS tools and lesson plan ideas for all teaching disciplines. •Teachers will receive video based PD through this LMS course.

				•Discussion boards will take place where teachers can "show off" what they are doing in their schools and inspire others viewing the course to try new things.
2020-2021 School Year *2021-2022 School Year* *2022-2023 School Year*	*•High School teachers grades 10-12*	*•Two 6-hr. day trainings during the school year hosted by district's ESL Coordinator*	*•ESL Methods and Practices training to help teachers better understand pedagogy for reaching ESL students and underserved students.*	*•Teachers will implement strategies for reaching students who are struggling for various reasons including but not limited to language barriers or other deficits.* *•Students will feel like they are included in the classroom setting and not being "overlooked" and labeled as just students who "can't do it".* *•Students will be more likely to see themselves as capable of taking further pathway courses with success.*

DIVERSITY: Creating Computer Science for ALL

Each LEA must complete the responses below including:

- Computer science for every student requires that equity and diversity be at the forefront of any transformative effort. When equity prevails, there is appropriate support based on individual students' needs so that all have the opportunity to achieve similar levels of success.
- A successful plan will ensure that every student in Utah has equitable access to high-quality computer science curriculum and instruction aligned to the UT K–12 CS Framework.
- An alignment to the vision and guiding principles for computer science for all students in the Utah Computer Science Education Master Plan.

Recommended Length: **2-3 Pages**

REQUIRED: How will your LEA increase numbers of female students, as well as traditionally underserved students in computer science?

The number of female students is greater in courses that emphasize creativity. That seems to be the "hook" for female students. This proves to be true in reviewing our ECS and Creative Coding enrollments from past classes. These courses have had a high number of females in them. The Computer Science Principles course has an incredible "creative" component to it as well. We believe if we work to increase the number of these "introductory" courses offered in our district, we will in turn be increasing the number of females. This should give us the opportunity to increase the female registration in other higher level CS courses. Our district has been a 2019-2020 Community Partner with Girls Who Code, championing for equity in tech. We have applied to continue our partnership for future Years with this organization. Encouraging "Girls who Code", LEGO League clubs and camps, and/or other CS clubs will provide opportunities for girls to gather together and find like-minded friends and support. Supporting and encouraging female students to apply for NCWIT Aspirations awards will help them realize that there are many opportunities for them in the CS field as well as scholarship opportunities. Inviting guest speakers to come into the classroom to talk about CS in Careers will be something that we believe will allow female students to envision themselves in that type of career. Our washk12 internship program will also provide opportunities for females to train in businesses where they can network with other women who have chosen CS occupations.

We have learned that there are many materials and activities available through the Girl Scouts and 4-H programs in our area. We plan to include facilitators of these groups in our CS Community Advisory Board which will align our effort with students who frequent those groups. Our CS Coordinator and CS Specialist are both female CS educators who will promote female enrollment in CS courses.

For the traditionally underserved students, we believe that the "hook" for most students is getting them to "see" themselves being successful in the courses. Some of these students may have even been told or believed through past experiences or stereotyping, that they could never "do" computers. Addition of the Computer Science Principles course to all high schools could help with this. Students in that course learn to think of ways they could make contributions to society with their "creations or inventions", then coding their own program showcasing something they "connected" with that could have an impact on society. This experience helps them to see that they can have an opinion and that their opinions, efforts, and creativity are valuable and needed.

Our district ESL team indicates that "ESL Methods and Practices" training is available for all classroom teachers. This training is recommended for all teachers--ESPECIALLY CTE teachers. Evidence shows us that a high percentage of underserved students will enter the vocational job market. This means that these students are in our CTE classes. Often, these students are overlooked in class because of communication or understanding barriers. With this training, CTE teachers would be able to implement strategies to reach these students. We believe students would be more "connected" to the teacher and not excluded. This would create an enjoyable class for them where they would likely be able to "see" themselves being successful in the course. Encouraging them to take a 2nd more advanced course would be more doable. ESL methods and practices training for teachers would help to create a more equitable classroom environment where everyone feels valued and capable. For this reason, we have plans to encourage all of our teachers to complete this PD training.

The CS Mobile Classroom (CS Bus) that we hope to obtain and renovate, will provide an exciting opportunity for our Indian Education students and their families to participate in CS on the reservation near us. Efforts will be made in partnering with DSU to bus students in underserved outlying areas that don't have transportation to CS camps, competitions, and other CS opportunities--ensuring our events are accessible to all students.

The Utah State Governor's office stresses the importance of equity in CS education stating, "It is important to create equality within Utah so that everyone, regardless of their gender, their race, their socio-economic background can have access to high quality computer science education at all levels ... across all parts of Utah, city, rural Indian reservation, everyone."

REQUIRED: *How will you ensure that all curriculum and course content is accessible to all students, including students with disabilities?*

Our CS K-12 implementation involves us offering CS coding opportunities and courses (in every discipline, in all grades, in all schools), in other words -- for EVERYONE! Below we have outlined the steps we will make to ensure that CS will be implemented in all disciplines for all students:

- K-5 - Roaming CS paras who will work with teachers and bring CS lessons (LEGO curriculum and USBE Core Guides) into every grade and classroom weekly at every school
- 6-12 grade - We have hired a CTE Academic Support Coordinator and also a CS Coordinator who will work together to create a Canvas repository of CS curriculum and

activities for use in all disciplines. These district coordinators will work with teachers of all disciplines by team-teaching in the classroom if needed, providing equipment for lessons from our "CS Lending Library", or other needed coaching as we incorporate the critical thinking and problem solving skills that CS can bring to all disciplines.

In addition to the above mentioned efforts, we further describe our access for all below:

In our 6th grade through 12 grade, we will be using CodeHS curricula that can be accessed on Chromebooks, MACS, or PCs. This curriculum is offered in Spanish as well as English. Using an online curriculum allows differentiation for struggling students as students can watch and re-watch video instruction and revisit lesson material that was done in class for further understanding.

We have 5 high schools with Computer Repair programs. We have plans to have students in those classes work to "clean up and overhaul" many computers that would have normally been recycled or sold in public surplus sales. These computers will be made available for families who could use one at home (free of charge) in an effort to allow all students to have access to a computer at home. Distance learning this year has opened up opportunities to ISPs to discount or comp their Internet services for families who have need.

Through Learning Management Systems like Schoology and Canvas, a CS repository of fun and relevant curricula ideas can be used in courses like "Life Skills" and SPED courses, showing teachers how they can integrate CS into their classrooms. The LMS systems can include "discussion" where teachers from different schools can "show-off" what they are doing in their disciplines and schools, allowing teachers to learn from each other about ideas that fit their curricula and classroom needs.

In our elementary schools, our plan to involve using "Roaming CS Paras" will allow CS instruction to occur in every classroom thus creating the opportunity for all students. Use of our CS Bus will also bring further equity to our CS opportunities reaching those schools that do not have a roaming CS para as well as students in rural areas of our district.

REQUIRED: What strategies will you develop and implement for increasing diversity in K-12 Computer Science (i.e. expand programs to include parents and counselors in the learning process)?

As mentioned previously, our CS Family Celebration will allow families to learn how exciting CS is! We believe family engagement in coding activities will increase students' enrollment and success as they see their families viewing CS courses as exciting and necessary course options for their children. Break-out sessions educating parents on topics that their children are learning about in school will encourage conversations in the family regarding these discoveries and ultimately improving relationships. We plan to reach out to our Indian Education students' and other underserved students' families to involve them in the planning process, even hosting breakout sessions (i.e. Native American beadwork, rug-weaving examples with ECS curricula tie to ancient pattern making and modern computing). The CS Celebration event for all district teachers allows teachers of every discipline to see what computer science might "look like" in their discipline.

Counselors who also attend, can get a better idea what computer science really is; it's not just computer coding.

Counselors are an important part of our internship program at washk12. As we work to provide excellent CS internship opportunities for students, counselors will be closely tied to the process, including viewing reports on their experience "on the job". Counselors will surely become more educated about CS careers and the needed skills as they help to guide our students through the internship application process and evaluation process at the completion of the internship.

Washk12 Computer Science Education recognizes the importance of higher-ed partners like DSU and Dixie-Tech in our pipeline of opportunities in CS for students. We plan to work closely with them as we plan coding camps, STEM experiences, etc.

We are excited about our new website for stakeholders **http://computercoding.washk12.org/** where we have detailed documentation of our efforts towards complete CS K-12 implementation.

OUTREACH AND COMMUNICATION

Each LEA must complete the responses below including:

- Increase awareness of the current computer science work and resources available in the state, communicate the CS Master plan, receive dynamic feedback from a variety of stakeholders, and communicate best practices for implementation across the state.
- Increase awareness of the importance of computer science across your LEA, including a dedicated website URL
- Create a network for proactive communication at the LEA and school level
- An alignment to the vision and guiding principles for computer science for all students in the Utah Computer Science Education Master Plan.

Recommended Length: **2 Pages**

REQUIRED: How will your LEA communicate your computer science offerings and advances toward access for all students as you implement your 4-year plan?

As mentioned in the diversity narrative, we have created a stakeholder website
http://computercoding.washk12.org/. This website has a vast array of information about the
washk12 CS K-12 program for students, parents, teachers, counselors, and community members.
There are links to Utah's CS Master plan, information about our CS teacher-led leadership team,
infographics showing our timeline, endorsement information, curriculum information and more. A
detailed "CS Landscape Analysis" by conesite is showcased, documenting our CS opportunities at
each school in our district and will be updated regularly. Our website's "contact us" button is
coded to get input from the user via a form that determines which member of our CS Leadership
Team will be emailed depending on whether the person is requesting elementary or secondary
education information. To track advances in our 4-year plan, we have incorporated a bar graph
showing our progress of implementation by grade band. Our website highlights best practices in
computer science education as it was planned and designed by computer science educators in
washk12.

There is a menu system on our website which allows either students, parents, teachers,
counselors, or community members to view opportunities, pathways, current courses offered in
CS at their schools, events and activities, and even ask questions that are auto forwarded to the
member of our CS team who handles the specific type of question they are asking.

Further outreach and communication is available on our public social media sites accessible from
our website via the following links:

Washk12 Computer Science Education Facebook page

Washk12 Computer Science Education Twitter Feed

Washk12 Computer Science Education Linkedin Feed

Washk12 CS Advisory Board (Private Group) (this will allow the Advisory Board to have
interaction on a regular basis and not just at quarterly meetings. Interacting regularly with
members of the group will allow them to see what we are doing and assess how they might help
us.

Note that the purpose of our social media public sites is to generate interest, showcase our
efforts, network with parents, educators in other states, industry partners, etc. These media sites
will allow opportunities for the public to provide input in the form of comments.

*REQUIRED: Where will your LEA communicate your plan, updates on implementation, and
required data and reporting on your website?*

Website URL - http://computercoding.washk12.org/

On our website, we have a landscape analysis by school that showcases what each school offers in CS opportunities. This will be updated regularly. There is also a progress meter that shows our current implementation progress.

We have active Washk12 Computer Science Education Facebook, Twitter, and LinkedIn social media pages where we post about our events, opportunities for students and families. We are connecting strongly with our washk12 Internship program to work together to provide computer science opportunities for all students. This collaboration and team-work reaches down into all grade bands with Industry partners being aware of our needs through these social media outlets and posts.

Southern Region higher-education institutions are collaborating with Washk12's CS Education's leadership team in planning and facilitating CS events. In turn, Washk12 will assist these institutions with their efforts to plan activities in order to maximize our students' opportunities in computer science. All events will be advertised and publicized through joint efforts to reach maximum stakeholders.

Our use of the LinkedIn social media website is already creating interest from Industry Partners who are excited about our CS strategic plan. This allows us continuous communication with them (not just seeing them at Advisory meetings) and they can learn of our needs often and how they can help. LinkedIn has been adopted by our Internship program as the platform for our students to showcase their skills and have Industry Partners endorse their efforts. This is creating a direct connection to our computer science outreach efforts and allows us further networking with students as we help them learn to showcase their skills relating to computer science.

We also plan to use St. George News and other community news outlets to publicize articles about our computer science plan and opportunities for students so parents will learn of our plans and understand where to go to get more information.

To reach families that may have limited Internet/cable access, we will provide direct mail announcements publicizing our CS activities and efforts.

We are working closely with counselors in the schools to involve them in our initiative with registration materials related to CS courses as well as training to help the counselors understand the dynamics of each course offered so they can make appropriate recommendations to students.

We have trained our Library Media Specialists in secondary schools in CS pedagogy and have plans to incorporate "Coding Corners" in our libraries where we can have media and updates for students to inform and encourage them to participate in CS events and courses.

DATA AND REPORTING

Each LEA must complete the responses below including:

- Measure the state of computer science and computer education and technology in Utah across demographics and regions to inform the LEA's goals.
- An alignment to the vision and guiding principles for computer science for all students in the Utah Computer Science Education Master Plan.

Recommended Length: **5 Pages**

Elementary and Middle Current Computer Science Course Offerings FY 2020
(Please note that keyboarding and digital literacy are not CS courses.)

Grade Level	Number of Students Engaged in Computer Science Learning FY 2020	Total Number of Students (District)
PreK (if applicable)	246	1433
Kindergarten	670	2398
First Grade	673	2489
Second Grade	663	2426
Third Grade	664	2623
Fourth Grade	739	2647
Fifth Grade	780	2704
Sixth Grade	139	2924
Seventh Grade	208	2903
Eighth Grade	0	3009

Elementary and Middle Computer Science Student Demographics:

Grade Level	Female %	Underserved CS Population %	SPED %	ELL %	FRL %
PreK (if applicable)	44%	27%	24%	<1%	27%
Kindergarten	48%	46%	11%	8%	46%
First Grade	45%	52%	14%	1%	52%
Second Grade	47%	52%	13%	17%	52%
Third Grade	49%	49%	21%	13%	49%
Fourth Grade	48%	49%	18%	19%	49%
Fifth Grade	51%	52%	14%	19%	52%
Sixth Grade	49/139 35%	31/139 22%	22/139 16%	12/139 <1%	66/139 47%
Seventh Grade	74/208 36%	46/208 22%	33/208 16%	18/208 <1%	104/208 50%
Eighth Grade	No CS courses	No CS courses	No CS courses	No CS courses	No CS courses
TOTAL representation in all CS courses currently offered	**45%** 1173	**41%** 980	**16%** 765	**9%** 430	**47%** 1434

High School Current Computer Science Course Offerings FY 2020

Course Code and Title	Number of Sections Offered (FY2020)	Total Students Enrolled FY2020
'35020000037', -- Algorithms and Data Structures	0	0
'35020013037', -- Algorithms and Data Structures CE	0	0
'35020000041', -- AP Computer Science	0	0
'35020000034', -- AP Computer Science Principles	2	29
'35020000030', -- Computer Programming 1	7	110
'35020013030', -- Computer Programming 1 CE	2	66
'35020000040', -- Computer Programming 2	7	102
'35020013040', -- Computer Programming 2 CE	1	16
'35020000035', -- Computer Science Principles	0	0
'35020013035', -- Computer Science Principles CE	0	0
'35020000003', -- Creative Coding	9	347
'35020000007', -- Exploring Computer Science 1	7	168
'35020000008', -- Exploring Computer Science 2	0	0
'35020000045', -- Gaming Development Fundamentals	2	49
'35020000046', -- Gaming Development Fundamentals 2	1	6
'35020000055', -- HTML5 App Development Fundamentals	0	0
'35020000050', -- IB Computer Science SL 1	0	0
'35020000051', -- IB Computer Science SL 2	0	0
'35020000048', -- Mobile Development Fundamentals	0	0

Secondary Computer Science Student Demographics:

Course Code	Female %	Underserved CS Population %	SPED %	ELL %	FRL %
'35020000037', -- Algorithms and Data Structures	n/a	n/a	n/a	n/a	n/a
'35020013037', -- Algorithms and Data Structures CE	n/a	n/a	n/a	n/a	n/a
'35020000041', -- AP Computer Science	n/a	n/a	n/a	n/a	n/a
'35020000034', -- AP Computer Science Principles	3/29 girls 10.3%	2 underserved 6.8%	4/29 SPED 13.7%	0/29 ELL 0%	6/29 FRL 5.4%
'35020000030', -- Computer Programming 1	19/110 girls 17.2%	21 underserved 19%	7/110 SPED 6%	3/110 ELL 3%	23/110 20.9%
'35020013030', -- Computer Programming 1 CE	17/66 girls 25.7%	5 underserved 7.5%	4/66 SPED 6%	0/66 ELL 0%	17/66 FRL 25.7%
'35020000032', -- Computer Programming 2	19/102 girls 18.6%	18 underserved 17.6%	7/102 SPED 6.8%	3/102 ELL 2.9%	23/102 FRL 22.5%
'35020013040', -- Computer Programming 2 CE	4/16 girls 25%	5 underserved 31.2%	0/16 SPED 0%	0/16 ELL 0%	3/16 FRL 18.7%
'35020000035', -- Computer Science Principles	n/a	n/a	n/a	n/a	n/a
'35020013035', -- Computer Science Principles CE	n/a	n/a	n/a	n/a	n/a

'35020000003', -- Creative Coding	123/347 girls 35%	77 underserved 2%	55/347 SPED 15.8%	30/347 ELL 8.6%	174/347 FRL 50%
'35020000007', -- Exploring Computer Science 1	69/168 girls 41%	36 underserved 21.4%	22/168 SPED 13%	7/168 ELL 4.1%	81/168 FRL 48%
'35020000008', -- Exploring Computer Science 2	n/a	n/a	n/a	n/a	n/a
'35020000045', -- Gaming Development Fundamentals	0/49 girls 0%	3 underserved 6.1%	7/49 SPED 14.2%	0/49 ELL 0%	6/49 FRL 12.2%
'35020000046', -- Gaming Development Fundamentals 2	1/6 girls 16.6%	1 underserved 16.6%	0/6 SPED 0%	0/6 ELL 0%	2/6 FRL 33%
'35020000055', -- HTML5 App Development Fundamentals	n/a	n/a	n/a	n/a	n/a
'35020000050', -- IB Computer Science SL 1	n/a	n/a	n/a	n/a	n/a
'35020000051', -- IB Computer Science SL 2	n/a	n/a	n/a	n/a	n/a
'35020000048', -- Mobile Development Fundamentals	n/a	n/a	n/a	n/a	n/a
TOTAL representation in all CS courses currently offered	**254/893 girls 28.4%**	**168/893 underserved 18.81%**	**106/893 SPED 11.8%**	**43/893 ELL 4.8%**	**335/893 FRL 37.5%**

The following are the data targets we will use as we track data through all 4-years of the grant:

- Number of CS endorsed teachers
- Number of CS courses offered "Improved CS Offerings"
- Improved student learning
- Number of schools participating
- Number of students in CS courses
- Number of females in CS courses
- Number of underserved students in CS courses
- Number of ESL students in CS courses
- Number of FRL students in CS courses
- Number of SPED students in CS courses
- Number of schools implementing CS in other disciplines
- Number of schools with after school or summer clubs or camps

Note: An annual CS Survey will be used to get input. We have data from the same CS survey that we sent out this year that we will use as a baseline.

PROPOSED BUDGET

An effective budget development and review process is guided by a deep understanding of school finance at the District, State and Federal levels. Funding is required to achieve many of the goals in this Utah Computer Science plan, including:

- In the short term, dedicated funding for computer science should be allocated and the funding should emphasize the professional development of existing teachers for the purpose of expanding computer science education efforts.
- In the long term, funding streams from state and federal sources, as well as from public/private partnerships, should support a system of high-quality computer science education.
- All budgets at the district and school level are aligned in order to prioritize student learning and cost-efficiency, with consistent funding streams for both recurring and non-recurring costs.

Note:
1. Indirect costs are not allowed in USBE Board Rule R277-473-9.
2. All costs must be in alignment with state purchasing guidelines.
3. All costs must directly support your plan and the expansion of computer science during the school day to all K-12 students.
4. Reminder that the following are not allowable expenses as defined in legislation:
   (1) to fund non-computer science programs;
   (2) to purchase mobile telephones;
   (3) to fund voice or data plans for mobile telephones;

(4) to supplant existing funding for educational technology; or

(5) for any expenditures outside of an LEA's budget for the LEA's approved plan.

5. This grant will be administered through the Utah State Board of Education through reimbursement in Utah Grants.

Recommended Length: **3-4 Pages**

REQUIRED: Proposed K-12 Computer Science Plan Budget Narrative

Note: Justification for each budget category can be found in the far right-hand column of our budget sheet along with detailed information about our budget.

Our growth in computer science will increase by 4.5 FTE's in grades 9th -12th for 2020-2021 school year (which represents the hiring of 5 new CS teachers). These new teaching positions will be split between middle school and high schools in 4 out of 6 cone sites (based on geographic locations). Our CTE funds will be used for all CS FTE's so these salaries are not included in our grant budget.

In 2020-2021, we will be offering CS courses in 19 of our 21 schools (6th -12th grade) with coding opportunities in the other two schools. This represents a dramatic increase over the past school year -- where CS was only offered in 6 of our 21 schools (6th - 12th grade). 90% of our 6th -12th grade schools will now be offering coding classes -- which represents 61% course offering growth in one year (with 100% of 6th -12th grade schools offering coding opportunities)!

REQUIRED: Use of non-grant funds and existing LEA resources.

Our CTE director, Dave Gardner, has been very supportive in authorizing CTE funding for equipment, curriculum, and staffing for grades 9-12 CS implementation. This will allow us to concentrate grant funds heavily on elementary and intermediate schools in an effort to ensure we can implement our plan across every grade band K-12, providing all schools with equitable CS opportunities.

CTE funds will be used for the following 9th-12th grade needs:

- CTE CS Coordinator (full-time) salary
- CTE CS Staffing FTEs
- CTE Lab equipment and software

- LEGO Education kits for middle schools and high schools
- Sphero Bolt powerpacks for middle schools and high schools
- CodeHS curriculum for middle schools and high schools
- Stipends for teachers who pass industry certification tests
- CS Celebration Costs

Perkins V funding will be used for the following 5th-12th grade needs:

- CS Specialist (full-time teacher on special assignment) salary (primary focus to support grades 5-12)
- Professional Development training needs
- Professional Development Stipends

Regional Perkins V funding will be used for the following 5th-12 grade events:

- Southern Region Professional Development courses (possibly code.org)
- Stipends for participants of regional summer PD opportunities

STEM Action Center grants were awarded to:

- Hurricane cone
- Water Canyon

The STEM Action Center grants will fund the above mentioned schools' after-school CS activities, clubs, camps and necessary equipment relating to those activities.

REQUIRED: How will your LEA sustain the computer science program after the term of the award?

- Teacher-led CS Advisory Team in place
- Our "train the trainer" program (CS Leadership team training STEM teachers and roaming CS paras) will allow those trained to take their skills into elementary classrooms and work directly with classroom teachers to provide CS integration into the school-day on standards that are already being discussed that week in classes. Since classroom teachers will be involved in the CS instruction for students, they will understand how to effectively continue implementation in the future.
- Schoology (elementary) and Canvas (secondary) LMS repositories ("courses" teachers connect to (organized by grade band) with materials for teachers to use in CS integration with core subjects. These will be developed and accessible to all disciplines.
- CS Coordinator paid for outside of grant funds
- CS Specialist paid for outside of grant funds
- Strong professional development plan to develop and sustain teachers' CS knowledge

- Cohort to aid CS teachers seeking endorsements so they can become qualified to continue teaching CS and not abandon endorsement process
- DSU's Instructor of the Professional Practice assigned to assist washk12 in training and team-teaching efforts
- LEGO Education kits and curricula for all schools K-12
- Sphero Bolt powerpacks and NSFcurriculum for secondary schools
- CS Lending Library/Maker Space for schools to check-out materials they might not have in their schools
- Implementation of a district initiative to allow used computers that would normally be surplussed to be available for needy families who don't have computer access (sustains students' interest in computer and ability to be successful in course homework)
- CS Advisory Board in place (industry partners, parents, CS Leadership, some district admins, digital learning team representative, school board representative, higher-ed representation) (meeting quarterly in person but also as invited members of a private Linkedin group.
- Regular attendance at State conferences
- SEDC CS-related events
- Collaboration between southern region districts
- CS Teacher Leads are spokespeople within their grade bands in the state and they will share/present at conferences
- Making our program the best it can be will increase demand and therefore increase sustainability and need!

REQUIRED: If an increase in funding is available through unclaimed grant redistribution, how will your LEA utilize additional funding toward your plan?

<In the event that additional K-12 CS funding becomes available, describe how you anticipate using the funds.>

- <50% increase
  - Hire 5 more paras so every elementary school can be covered each year with roaming CS paras and not have to "apply" for a limited number of paras
  - Provide equipment for elementary/intermediate schools (rather than having to use it on a check-out basis) like the following:
    - Ipads
    - Spheros
    - Bee-bots for reading/math intervention
    - Makey Makey kits for elementary schools
  - Stipends for teachers of all disciplines if they complete CS integration PD on USBE Core Guides

- More money for elementary and intermediate school substitutes for when then attend PD training
- Money for extending CS Celebration to include break-out sessions
- Money for travel up North for PD opportunities that may not exist in Southern Region (especially intermediate and elementary teachers)
- >100% increase
  - A CS para hired for every school (even the STEM schools) to assist in classroom CS integration
  - More PD for teachers in other disciplines to experience CS excitement hands-on and not just through LMS
  - Maker Spaces at each high school
  - Host and facilitate our own code camps during the school days making them accessible to all interested students.
  - Host our own competitions in each cone site
  - Equipment for CS Bus
    - Drones
    - Net, weather balloons for drone implementation
    - Chromebooks, ipads for CS Bus
    - VR Headsets for CS Bus
    - DJI Robots for CS Bus

LEA FY2021 CS Projected Allocation *(Coming Soon: https://www.schools.utah.gov/cte?mid=3363&tid=5)*

Link to proposed WCSD K-12 Grant Budget (Landscape Mode):
https://docs.google.com/spreadsheets/d/1hGeZj9WnpyyxN9xQUW74Rg-W0hz2AVv78NUNXxkM0qY/edit?usp=sharing Note at the bottom of the budget sheet (in bright blue fill color) there is an amended narrative that was written after feedback about our grant

Note: Our budget was more detailed than the USBE provided template but will need to be access via the link above because it is in landscape mode and this USBE grant application template is in portrait mode.

STATEMENT OF ASSURANCES

Should an award of funds from the K-12 Computer Science Grant Program be made to the applicant in support of the activities proposed in this application, the authorized signature on this page of the application certifies to the USBE that the authorized official will:

1. Upon request, provide the Utah State Board of Education with access to records and other sources of information that may be necessary to determine compliance with appropriate federal and state laws and regulations.

2. Conduct educational activities funded by this project in compliance with the following federal laws:

    a.   Title VI of the Civil Rights Act of 1964

    b.   Title IX of the Education Amendments of 1972

    c.   Section 504 of the Rehabilitation Act of 1973

    d.   Age Discrimination Act of 1975

    e.   Americans with Disabilities Act of 1990

    f.   Improving America's Schools Act of 1994

3. Use grant funds to supplement and not supplant existing funds from all sources.

4. Take into account, during the development of programming, the need for greater access to and participation in the targeted disciplines by students from historically underrepresented and underserved groups.

5. Submit, in accordance with stated guidelines and deadlines, all K-12 Computer Science Grant Program and evaluation reports required by the Utah State Board of Education.

6. The applicant will retain records of the K-12 Computer Science Grant Program for five years and will allow access to those records for purposes of review and audit.

7. Execute all actions defined under the LEA Statement of Assurances outlined below.

Linda Brown   CS Coordinator   4/30/2020
Dave Gardner   CTE Director   4/30/2020

(Digital Signatures encouraged, as final submission of plan needs to be a Google Document.)