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

> ## Application Final Due Date: Wednesday, June 30, 2021 at 5:00 PM

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

[Submit K-12 Computer Science Full 4-Year Plan](#)

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.*

Please direct all questions to:

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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=4

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.

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:

2. Complete the full 4-year grant application by June 30, 2021 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 2022. 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 2022. 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.

TEAM: LEA Computer Science Leadership

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

Recommended Length: **1 Page**

LEA Name			
Title	**Name**	**Email**	**Phone**
LEA Computer Science Lead	Steven Mesker	smesker@hawthornacademy.org	801-260-3040
Superintendent/Director	Dr. Deborah L. Swensen	dswensen@hawthornacademy.org	801-282-9066
CTE Director	Karin Petty	kpetty@hawthornacademy.org	801-282-9066
Curriculum Director	Candalynn Mettmann	cmettmann@hawthornacademy.org	801-260-3040
Technology Director	Amber Wright	awright@hawthornacademy.org	801-260-3040
...	Sandy Brown	sbrown@hawthornacademy.org	801-282-9066
School Leaders...			
...			
Business Administrator			
Additional Leaders...	Brianna Johnson	bjohnson@hawthornacademy.org	801-282-9066
...			
High School Teacher Leader			
Middle School Teacher Leader	Yolane Rodriquez	yrodriquez@hawthornacademy.org	801-282-9066
Elementary School Teacher Leader	Joy Leavitt	jleavitt@hawthornacad	801-260-3040

		emy.org	
Community Member	Kristine Westman	kristine.westman@iechs.org,	385-800-2140
School Board Member	Heidi Scott	hscott@hawthornacademy.org	801-282-9066
….			

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.*

The mission of HA is to develop in students a desire to explore and understand the world around them and become lifelong seekers of knowledge. HA strives to help students prepare to be competitive in every aspect of society and ensure that they are prepared for the future. The focus of Hawthorn Academy(HA) is International Baccalaureate (IB), which is to prepare students to contribute to an international society. HA recognizes that Computer Science (CS) is an important component of student learning and engagement and CS computer standards can enhance student learning and be integrated into the curriculum of elementary classrooms.

This past year and half, HA has faced the challenges that many have with the pandemic. We found that we were limited in what we were able to do as we had students on hybrid schedules. Our teachers were supporting half students one day and half the next while at the same time preparing online instruction for when students were not in physical attendance. Added to that they had to support students who were 100% online. We recognize that many faced similar situations. With a return to all students in attendance we have been able to start to look at how we can move forward the implementation of the CS standards effectively and ensure that they are not only aligned to those standards, but are integrated within core curriculum instruction. As our teachers are in only the second year of a new math curriculum and just implementing a new ELA curriculum, we feel that we can integrate the CS standards as the teachers align their curriculum maps. We do not want it to appear as another stand alone directive. We want to have teachers present to students and see that CS is an integral part of learning in all content areas,

To accomplish this goal, Hawthorn's 4-year plan aligns with the areas of the Utah Computer Science Master Plan. We are focusing on addressing (1) teacher development, (2) curriculum & standards, (3) diversity, and (4) outreach & communications in the successful implementation of our plan. HA will use academic, observation and survey data to evaluate the effectiveness of our plan and make adjustments as needed to improve implementation progress. Coupling our Computer Science and CTE plans along with grants in STEM Professional Development and designated district funds will help the District in meeting the Computer Science master plan requirements. We have written all our plans in grants and state programs to help us move forward in the application of CS standards in our instruction.

We have set up a structure to support their implementation. In the 2020-21 HA participated in the state Assessment to Achievement cohort 2 which is training teacher leadership teams in setting a Common Learning Challenge(CLC) based on student learning. The CLC for HA supports the integration of the focus of the CS - Students will be able to justify their reasoning using evidence to support their own responses or in their critique of others' responses. Also, our content and/or grade level teams meet weekly to review student data, curriculum maps and cross curricular IB planners. This format allows us to increase the seamless integration of the CS standards with the other core areas.

To move the work forward, HA has formed a District Computer Science Leadership team and team members, working through their grade level/content PLCS are unpacking and aligning the CS standards to core content areas. To enrich the implementation of CS standards into the learning of students and ensure that effective implementation is occuring, the

Leadership team will meet in the first quarter, utilizing the CSforALL SCRIPT guiding questions to provide the District team with the guiding support in evaluation further developing HA 4-Year Computer Science Strategic Plan. The process will provide a format to re-evaluate effectiveness each year. We have strategically asked a couple of teachers who have gained an understanding of how to integrate CS standards within core curriculum instruction to create and demonstrate 2 -3 lessons. Teams will now take these to the next step.

The Hawthorn Academy's plan focuses on (1) professional development for all teachers, (2) elementary implementation, (3) middle school implementation and (4) provide a clear delineation of classes which build upon the opportunities in High School.

 1. Professional Development(PD): Training is a key element in meeting the objectives of this CS grant. The PD focus will be critical in meeting the objectives of our plan. We will be providing professional development for all teachers, with a focus on Modeling of implementation CS into a core content lesson/activity in grades K - 6. Using the example of other teacher's lessons, teacher teams will meet and plan into their IB planners the integration of one to two CS standards in each planner. This will be done with each 6 week planner and PD and PLC meetings. 2. Elementary Implementation: Implementation of the standards will be driven by helping teachers to bridge the connection between their content teaching standards to computer science and everyday. A key identified area is to include in curriculum maps how the CS vocabulary, what that is in ELA or math or science, etc. is applicable to everyday life. In implementation teachers will pull out key words in the CS standards and align them to words in content standards. We will have our teachers who created plans this past year share additional plans - both as a lesson plan and in a demonstration to show implementation. We will also obtain additional devices in order to increase engagement in the process. Our plan will incorporate the use of such technology as Ozobots, Spheros and Hummingbird coding robots; identifying, purchasing, and implementing an online CS Coding program; using text editors; and developing an integrated development environment (IDE). Items 3 and 4 will allow students to share and collaborate on the development of programs in a safe and transparent manner. The District will provide professional opportunities and time for K-6 teachers to integrate the CS standards into their curriculum. We plan to offer after school activities and evening parent Town Halls throughout the grant timeline to engage families that will support our computer science learning goals. Additionally, we hope to hire a teacher who is dedicated to helping grade level teams incorporate CS standards in their instruction and team teach lessons in each classroom. 3. Middle School Level: Our plan will focus on programs that include (1) integrating the 7-8 CS standards into our CCA and related classes; offer Exploring Computer Science in 9th grade with electives for students in grades 7 -9 in such courses as Python, A+ Computer Repair, and future middle school courses built through teacher shared contract tie with our high school with whom we have an articulation agreement; build opportunities to incorporate CS into math, science and elective content areas and during the grant implementation explore and offer CS activities. 4. High School Level: Our plan will focus on providing a

clear delineation of classes which build upon the opportunities in High School through collaboration with the High School with which we have an articulation agreement - Itineris; offering pathway direction from the counseling center working with students and parents for the high school options as they determine where they will go for grades 10 - 12; and explore incorporation of robotics competitions into our extra-curricular organizations. Finally, as a way to promote Computer Science within our District we will plan a CS event each year such as an "Hour of Code". In doing the process we will reach out to our articulation High School, parents and industry/businesses.

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 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
   - 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 2

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 2024 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*
Kindergarten	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB planners and/ **Code.org**	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)
1st Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the

			planners and/ **Code.org Fundamentals for Elem. Schools**	previous year's work)
2nd Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB planners and/ **Code.org Fundamentals for Elem. Schools**	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)
3rd Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB planners and/ **Code.org CS Fundamentals for Elem. Schools**	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)
4th Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB planners and/ **Code.org Fundamentals for Elem.**	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)

			Schools	
5th Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-5 CS Standards Elementary Science, Math, ELA Standards Hawthorn Academy IB planners and/ **Code.org Fundamentals for Elem. Schools**	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)
6th Grade	CS Integration Science/Math CS Integration - ELA Core Content Integration - ELA. math, science	1 lesson/week 1 lesson/week 2 lessons/week	K-6 CS Standards Elementary Science, Math, ELA Standards and/ **Code.org Fundamentals for Elem. Schools**	
7th Grade	College Career Awareness pathway exploration CS Standards Integration 8th CS Standards in Science, Math, and Language Arts classes and electives Creative Coding Python	Year long class Code.org	CCA Strands & Standards Guide: https://www.schools.utah.gov/file/67f089cd-631b-4c70-9d64-f1c0c86cb430 Intro to Python - code combat & Strands & Standards Guide:https://www.schools.utah.gov/file/9f9d2a61-06a3-43d1-9712-61bb1f2a6768	Fall 2021 Spring/Fall 2022 Fall 2023 (Each year we will build on the previous year's work)

8th Grade	Commercial Art CS Standards Integration 8th CS Standards in Science, Math, and Language Arts classes and electives Creative Coding Python	Semester Class		Intro to Python: Code combat & Strands & Standards Guide:https://www.schools.utah.gov/file/9f9d2a61-06a3-43d1-9712-61bb1f2a6768	Fall 2021 Winter 2022 Fall 2023 Fall 2023
High School Course Offerings	9 th grade - Exploring CS 1 Python A+ Computer Repair Creative Coding Feeder High School current and future offerings - Science and CE 1400 - Programming (Java) Exploring Computer Science and Computer Programming I. Web Development and Game Development.	Semester Class Year Class Semester Semester Semester and year Semester and year	Exploring Computer Science Course Guide: https://www.uen.org/core/core.do?courseNum=350207; scratch.mit.edu Will coordinate with feeder High School(s) for future courses building on ours -	Fall 2021 Fall 2022 Fall 2023 Fall 2021 Fall 2022 Fall 2023
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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:

At this time we do not have any teachers with CS endorsements. However, part of our plan is to start to encourage and support teachers to take classes/training in this field.

[Computer Science Endorsements](#)	Current # of Teachers with Endorsement in LEA
***Exploring Computer Science** [now historic (as of Feb 1, 2020)]	
Computer Science 1 (updated endorsement to [Introduction to Computer Science](#) as of 2/1/2020)	
Computer Science 2 (updated	

endorsement to [Programming and Software Development](#) as of 2/1/2020)	
Introduction to Information Technology (updated endorsement to [Information Technology](#) Systems as of 2/1/2020)	
Web Development (updated endorsement: [Web Development](#) as of 2/1/2020)	1

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.*
School Year 2021-2022	*Grades K - 6*	3 sessions for grade level teachers with application of CS standards into science/math (# teachers - 46) Modeled lessons monthly created and then modeled with teachers applying in curricular	*Analysis and integration of CS standards into Science/math standards*	*Teachers will be able to incorporate the technology and understand data in the Science/math classes.*

		maps		
School Year 2022-2023	*Grades K - 6*	Quarterly sessions for grade level teachers with application of CS standards into science/math and builds upon what was integrated with Science/math in the previous year. (# teachers - 46)	Continued *analysis and integration of CS standards into Science/math standards*	*Teachers will be able to incorporate the technology and understand data in the Science/math classes.*
School Year 2023 - 2024	*Grades K - 6*	Quarterly sessions for grade level teachers with application of CS standards into ELA and builds upon what was integrated with Science/math in the previous year. (# teachers - 46)	Analysis and integration of CS standards into ELA standards Analysis and integration of standards in all subjects.	*Teachers will be able to incorporate the technology and understand data in the ELA classes in addition to their Science/math classes.* Teacher collaborations as they integrate CS standards into all subjects. Feedback from peer and summative evaluations.

Middle 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.
School year 2021-22	Middle School and High School CS teachers will participate in collaboration time once per quarter	Modeled lessons monthly created with teachers adapting concepts and applying them in curricular maps during PLC during the year and at District Trainings.		
...				

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.*
We do not have any classes beyond 9th grade and 9th is a part of our middle school. Please see the MIddle School PD. Also see vision on how we will connect with feeder HS. We feed into multiple HS and so have targeted a partnership	We will coordinate with feeder High Schools. At this time we have a strong connection with Itineris and will continue to work with them.			

with Itineris where we can Coordinate specific pathways for students..				

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?*

Elementary schools: Our plan is to integrate the CS standards into the regular elementary curriculum. As a result, all students will have equitable access to high quality CS curriculum and instruction. Additionally, we are purchasing Ozobots (K- 4) for identified teachers, and Spheros (4-7) f so that teachers and students will have access to tools or items that will enhance their CS instruction and make it more interesting and exciting for our students. These tools have already been incorporated in some classes with STEM cross curricular lessons providing a base on which we can build. Teachers, who are already implementing STEM into math and science will build on the concepts to include the CS standard.Also, in our elementary schools, we have a 1:1 ratio of computers so that every student will have access to a computer. Before COVID we had an after school coding class for female students and we will again offer this activity. Finally, elementary schools will schedule a parent night for CS to build the knowledge base and support of parents. The district's plan is to better prepare our students for middle school classes and entering into high school pathways. Middle/High School: Our school counselor will work with all students and parents of female as well as traditionally underserved students to ensure they are made aware of and participate in Computer Science opportunities at the middle and high schools. During career planning with 9th grade students, she will again guide students and make them aware of pathway opportunities. The CCA teacher and CTE director will provide career exploration opportunities and make connections between learning and jobs. In addition CS standards integration in middle schools classes will increase student understanding of CS and students' confidence in being able to

participate in this field. A District Computer Science Education day will be held annually and grow to be a Computer science week to be held in December/January.

Finally, our key technology teachers are female. These individuals serve as outstanding role models and examples of success for our female and traditionally underserved population.

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

All schools have established school leadership teams and teacher collaboration time focused on data-driven instruction and identifying Tier II and Tier III students (generally at-risk or ELL) who may need additional support and appropriate accommodations. K-9 Special Education teachers will participate in CS professional development opportunities and will integrate CS standards into their curriculum. Additionally, students in special Education participate in a 'push in model'. Students work in the general education classroom with paraprofessional and Special Education teacher support to access all content standards. Students will receive integrated instruction of core content area standards with CS standards. Students then receive additional support in study skills classes and small group work with Special Education teachers and trained Special Education paraprofessionals. Special Education teachers will be made aware of CS opportunities to include extracurricular and after school activities. All Special Education teachers will work with student IEP teams to ensure that appropriate accommodations for students with disabilities are made. Computer assisted devices will be provided as needed. At the middle school, our school counselor will work with teachers and parents in providing career exploration opportunities and making connections between learning and jobs. The focus of the HA charter is to teach the whole student. This is the philosophy schoolwide. The requirement for this to be accessible to all students is a part of the philosophy of HA.

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)?*

Elementary School: Our plan is to integrate the CS standards into the regular elementary curriculum so that all students will participate in CS learning. Additionally we are purchasing technology so that teachers will have access to tools or items that will enhance their CS instruction and make it more interesting and exciting for our students. As Friday is our short day, HA is working with teacher teams in the elementary to provide one rotation in their grade levels where they do enrichment and remediation that will focus on STEM and CS standard implementation. This will involve inquiry based instruction and application. In the middle school we have a SOAR time four days a week. Students in need of remediation or support in core content areas are called in by teachers. Students who do not need to receive additional help then have activities provided by

teachers in electives and core areas not calling students in for additional support. Teachers in these areas will focus instruction and activities around the integration of CS standards at least three times a quarter for the first year with increasing application each year. We will provide after school Coding activities for students. In middle school (we could include elementary as well) we will be participating in the hour of code to celebrate computer science day.

A Computer Science day in December/January and schedule a parent Town Hall night. Middle/High School: Our school counselor and Technology teachers, and administration will provide opportunities and activities for all students and parents so that they are aware of and can participate in Computer Science opportunities at the middle school. Parents will receive information on High School pathways at Itineris and other feeder HS. This information will be provided in (1) College and Career Awareness (CCA) classes; (2) parent-teacher conferences and family nights; (4) guest speakers; (5) individual student counseling; (6) career day held for all middle school students; (7) flyers, website postings and newsletters; (8) 9th grade Exploring Computer Science class. Newsletters will have a 9th grade corner monthly. We will develop and provide after-school club opportunities to participate in CS activities.

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**

Our Computer Science communication plan shall include:

- Presenting the CS plan in an open Board meeting where parents can attend and provide feedback.
- Posting the District CS plan on the District Website and asking for feedback on our plan.
- Publishing elementary activities and after-school programs in school and district communication on the website.
- Providing this information in parent-teacher conferences and in family night activities.
- Publishing our CTE CS pathways and classes in CTE course handouts, brochures, flyers, and posters, and on the CTE teachers' websites
- Providing CCA CS projects for 7th grade students.
- Having parent nights focused on CS activities.
- Having guest speakers who have careers in CS participate in the career day for middle school
- Middle school will participate in an hour of code, with plans to roll out to elementary in the next school year or two.
- Providing individual student counseling outlining CS opportunities.
- Connect with Itineris as part of our community outreach - kristine.westman@iechs.org, 385-800-2140

https://www.hawthornacademy.org/policies-procedures (linked under procedures as Computer Science Initiative)

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
PreK (if applicable)		
Kindergarten	25	166
First Grade		180
Second Grade	26	174
Third Grade	15	166
Fourth Grade	17	158
Fifth Grade	25	158
Sixth Grade	65	152
Seventh Grade	9	112
Eighth Grade	12	95
Ninth Grade	60	75

Elementary and Middle Computer Science Student Demographics:
HA used the data of 2020-21 as it was the most accurate. Percents are based on the percent of students served in each category for the class in which they were served and received instruction on CS standards

Grade Level	Female %	Underserved CS Population %	SPED %	ELL %	FRL %
PreK (if applicable)					
Kindergarten	52%	8%	0	0	4%
First Grade	50%	40%	13%	13%	19%
Second Grade	56%	20%	8%	4%	8%
Third Grade	40%	23%	12%	6%	8%
Fourth Grade	29%	23.5%	8%	0%	11.76%
Fifth Grade	56%	8%	16%	8%	28%
Sixth Grade	41%	19%	10%	6%	14%
Seventh Grade	3%	10%	3%	5%	10%
Eighth Grade	20%	6%	3%	5%	5%
TOTAL representation in all CS courses currently offered	**38.5%**	**17.5%**	**9%**	**6%**	**13.47**

High School Current Computer Science Course Offerings FY 2021

Course Code and Title	Number of Sections Offered (FY2021)	Total Students Enrolled FY2021
'35020000037', -- Algorithms and Data Structures		
'35020013037', -- Algorithms and Data Structures CE		
'35020000041', -- AP Computer Science		
'35020000034', -- AP Computer Science Principles		
'35020000030', -- Computer Programming 1		
'35020013030', -- Computer Programming 1 CE		
'35020000040', -- Computer Programming 2		
'35020013040', -- Computer Programming 2 CE		
'35020000035', -- Computer Science Principles		
'35020013035', -- Computer Science Principles CE		
'35020000003', -- Creative Coding		
'35020000007', -- Exploring Computer Science 1	3	73
'35020000008', -- Exploring Computer Science 2		
'35020000045', -- Gaming Development Fundamentals		
'35020000046', -- Gaming Development Fundamentals 2		
'35020000055', -- HTML5 App Development Fundamentals		
'35020000050', -- IB Computer Science SL 1		
'35020000051', -- IB Computer Science SL 2		
'35020000048', -- Mobile Development Fundamentals		

Secondary Computer Science Student Demographics:

Course Code	Female %	Underserved CS Population %	SPED %	ELL %	FRL %
'35020000037', -- Algorithms and Data Structures					
'35020013037', -- Algorithms and Data Structures CE					
'35020000041', -- AP Computer Science					
'35020000034', -- AP Computer Science Principles					
'35020000030', -- Computer Programming 1					
'35020013030', -- Computer Programming 1 CE					
'35020000040', -- Computer Programming 2					
'35020013040', -- Computer Programming 2 CE					
'35020000035', -- Computer Science Principles					
'35020013035', -- Computer Science Principles CE					

'35020000003', -- Creative Coding					
'35020000007', -- Exploring Computer Science 1	49%	12%	15.67%	.03%	.03%
'35020000008', -- Exploring Computer Science 2					
'35020000045', -- Gaming Development Fundamentals					
'35020000046', -- Gaming Development Fundamentals 2					
'35020000055', -- HTML5 App Development Fundamentals					
'35020000050', -- IB Computer Science SL 1					
'35020000051', -- IB Computer Science SL 2					
'35020000048', -- Mobile Development Fundamentals					
In 2021 we offered Python 1- We had one section with the following information	20%	21%	4%	7%	11%
TOTAL representation in all CS courses currently offered	**20%**	**21%**	**4%**	**7%**	**11%**

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. All costs must be in alignment with state purchasing guidelines.
2. All costs must directly support your plan and the expansion of computer science during the school day to all K-12 students.
3. 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.
4. This grant will be administered through the Utah State Board of Education through the Utah Grants Management System.

Recommended Length: **3-4 Pages**

The Computer Science plan budget priorities are focused on (1) professional development for K-9 teachers, (2) summer preparation time for K-8 teachers, (3) Consultant professional development during the school year,, and (4) supplies to include classroom sets of equipment for each school as part of each school's innovation/maker space.

- Salaries & Benefits: Pay for a teacher($50,000 plus benefits) dedicated to helping teachers integrate CS standards into their IB planners and who can provide CS lessons aligned to both the IB planner of that grade and the state core curriculum. This teacher will model and or team teach a lesson twice a month across both campuses for our K-8 teachers as they integrate the CS standards into their curriculum. This teacher will coordinate and help deliver the professional development needed for our K-8 teachers. We have limited CS expertise in our schools and this position will be critical as we provide the professional development necessary for K-8 teachers to gain the confidence needed to integrate the CS standards into their curriculum. This individual will be assisted by other teachers in the schools who have some CS and technology experience.
- Salaries and benefits: $100 Inservice stipend for K-9 teachers from each grade level team to participate in CS professional development and integrate the CS standards into their lesson plans divided over the four years (50 teachers, 3 days a year at $100 plus benefits). See justification above.
- Purchased Services: (1) Purchase a yet to be determined online coding program ($1000). (2) Establish a connection with a higher education partner (UVU - Susan Cox) Elementary CS Consultant to visit each elementary school and provide professional development activities ($2,000 first year and $1,000 for years 2 & 3). We need to purchase a simple online program to help teachers integrate CS standards into their curriculum. We will have a team of teachers evaluate different programs and purchase by the end of 2022 to identify what we plan to purchase.
- Stipend:For teachers to attend CS classes to increase trained teachers at HA. professional development ($2,000 for years 1 and 2. $1000 for years 3 and 4). Since we only have one teacher with a CS endorsement, provide a stipend to 4 teachers to take two classes a year towards the endorsement.
- Supplies: Purchase classroom sets over the years of the program until at least each grade level has one set of devices (1) Ozobots for grades K-3 (1 set per grade, per campus for each of the four years. In the 4th year we have one less class per grade), Sphero robots and required ipads for implementation for grades 4-6(1 set per grade, per campus for each of the four years with one less class in the 4th year per grade), and

Hummingbird coding robots for 6- 9 grades(2 classroom set per grade for each year 2 sets will be purchased with other grant funds). Funds for this category will provide tools to help teachers make their CS lessons focused, fun and exciting. These items will be cataloged into our school system and be available for check out through team leads.

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

- Our 4-Year Computer Science Plan aligns with our District CTE, STEM Professional Development Grant, DTL grant and our charter vision. We will be using the combination of district funds, funds from several grants, and CTE funds to get our CS programs started and functioning. CTE funds will support most 7-9 Computer Science requirements.

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

- As elementary teachers become competent in the Elementary CS Standards, the professional development requirements will be integrated into Hawthorn Academy's ongoing professional development, monthly PLC meetings, and the Comprehensive School Improvement Plan. The initial startup costs for purchasing classroom devices to increase engagement in the coding programs and other CS supplies will not exist in 4-years. Schools will be able to incorporate any requirements into their budgets and computer rotation cycles. As more students become interested in the middle school we anticipate sharing an instructor with Itineris (one of our feeder HS) to offer additional classes and also to offer after school clubs/programs.

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

Professional Development is our primary objective in our 4-Year CS Plan and grant application.If the funding is increased, the District will increase the purchase of devices and make it only shared by two teachers. The District will also attempt to hire a full-time endorsed technology coach/teacher who will focus on CS standards integration in K-6 and support CS courses in middle school.

Proposed Budget				
Description	Funding Requested – Year One (FY2021)	Funding Requested – Year Two (FY2022)	Funding Requested – Year Three (FY2023)	Funding Requested – Year Four (FY2024)
A.(100) Salaries	35,500	35,300	35500	35500
B (200) Employee Benefits	5325	5325	5325	5325
C. (300) Purchased Professional & Technical Services	4,000	2,000	2,000	2,000
D. (400) Purchased Property Services	3,000	2000	2000	1000
E. (500) Other Purchased Services - stipend	4000	4000	4000	4000
F. (580) Travel				
G.(600) Supplies/Materials				
H. (800) Other (Exclude Audit Costs)				
I. TOTAL DIRECT COSTS (Lines A through H)				
J. (800) Other (Audit Costs)				
K. Indirect Costs				
L. Property (includes equipment)	15,836	15,836	15,836	15,836
M. TOTAL (Lines I through L)	**67,661**	**64,661**	**64,661**	**63,661**

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.

Dr. Deborah L. Swensen	Superintendent	*Dr Deborah L. Swensen*	June 25, 2021

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

LEAs with full Computer Science 4-years plans will[2]:

✓ 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

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