Kentucky Department of Education
Our Children, Our Commonwealth

KENTUCKY K-12
COMPUTER SCIENCE
COMPREHENSIVE PLAN

< Acknowledgements >

A special thanks to the following groups for their support, feedback and tireless efforts that brought this plan to life:

KENTUCKY CTE
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Most importantly, thank you to the districts, schools, teachers, students, parents and industry partners that have spent years already bringing computer science educational opportunities to our students in the Commonwealth. Our progress toward the goals set forth in this plan would not be possible without their dedication to this work.

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< Think CS >

< Learn CS >

< Do CS >

<com·pu·ter sci·ence>

...an academic discipline that encompasses the study of computers and algorithmic processes, including their principles, hardware and software designs, applications, networks, as well as their impact on society.

< Executive Summary >

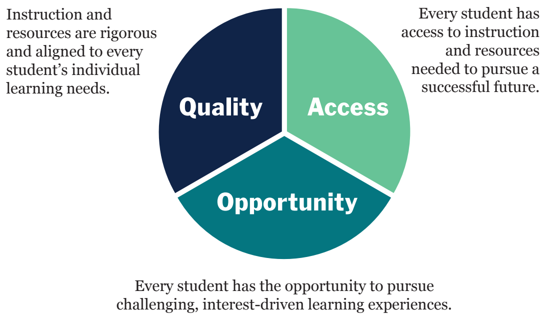
Kentucky believes an education in computer science and coding — the tools with which the future is being built — has been out of reach for too many students for too long. With the approval of the Kentucky K-12 Computer Science Academic Standards in 2018[1], more teachers were invited and prepared to teach CS skills through new learning experiences. Standards outline what students are taught – what they are expected to learn in each grade in order to successfully transition to the next level of learning -- not how they are taught. The curriculum, methods, and materials used to teach the standards is decided solely at the local level. The approval of curricular standards is but a small step to take in order to help all students discover how computing and technology shape the world around them.

In the spirit of re-envisioning success for each student, it has become imperative that we, as a state, a collective of educators who are responsible for the success of EACH of our students, position our students for success after graduation. We can accomplish this through emphasizing the skills and knowledge that will better equip students to create and compete within their communities, state, country and the world. In this re-envisioning process, the Kentucky Department of Education (KDE) is continuing ongoing support for strong computer science education with the creation of a dedicated K-12 Computer Science Program Manager within the Office of Education Technology and the development of this document, a Comprehensive State Plan for Computer Science Education. Like the aforementioned standards, this Comprehensive Plan and the Program Manager seek to provide oversight and strategic resource-alignment in order to make CS coursework accessible to EACH student served in all Kentucky public school districts.

The time has come for Kentucky's schools to embrace the skills and thinking associated with computer/computational sciences as an essential component of public education. The United States currently has over 389,000 unfilled computing jobs but only 71,000 computer science graduates to fill

References:
1. KY Academic Standards

those jobs[2]. By creating more opportunities for computer science learning, and executing a tactical approach to statewide implementation, we will: reach, keep, and engage more students as partners in learning; create a pool of more qualified individuals to fill existing job-openings within the state; and stimulate suppressed economic regions of our state through developing a workforce equipped with high-tech skills. In order to accomplish this, the Kentucky Department of Education (KDE) is engaging with local and national partners to diversify professional learning opportunities for teachers, modernize and distribute student industry certification and teacher certification guidance. In alignment with other KDE essential elements, this comprehensive plan intends to address all initiative components and highlight the initiative's commitment to quality instruction, equitable access, and the opportunity to pursue relevant coursework in a highly-skilled field.


Instruction and resources are rigorous and aligned to every student's individual learning needs.
Quality
Access
Every student has access to instruction and resources needed to pursue a successful future.
Opportunity
Every student has the opportunity to pursue challenging, interest-driven learning experiences.

Key elements to all Kentucky Department of Education plans

The CS initiative has not stopped at establishing academic standards, organizing oversight, and drafting an ongoing plan; Kentucky has also committed to advancing student industry certifications and professional development opportunities to encourage current and future credentialed teachers to attain computer science credentials. The CS initiative has not stopped at establishing academic standards, organizing oversight, and drafting an ongoing plan; Kentucky has also committed to advancing student industry certifications and professional development opportunities to encourage current and future credentialed teachers to attain computer science credentials. This commitment, backed by legislatively-earmarked funding through the CS/IT Academy, capitalizes on the organic year-over-year growth in CS course implementation, and positions our graduates to lead in this expanding field. In addition, the Kentucky Department of Education will count a computer science credit as either a standalone requirement or substituting as a high school science or math credit graduation requirement. The U.S. Bureau of Labor Statistics projects that occupations related to science, technology, engineering and

References:
2. The Conference Board and National Center for Education Statistics

mathematics (STEM) will grow to more than 9 million between 2012 and 2022, an increase of about 1 million jobs over that 10-year period.[3]

According to Code.org, a national, nonprofit organization that sponsors the Hour of Code, 67 percent of all new jobs in STEM fields are in computing, but only 11 percent of STEM graduates are in computer science. In Kentucky, computer science graduates earn 73 percent more annually than the average yearly salary in the state, and the demand for computer science professionals is 2.7 times the average.[4] When speaking in terms of economic growth, a robust infrastructure in computer science education provides an opportunity that could benefit the Commonwealth for decades to come.

Based on course standards and the teacher of record, a computer science course may qualify as a fourth mathematics course or an elective science course if it involves computational thinking, problem solving, computer programming and a significant emphasis on the science and engineering practices from the Kentucky Academic Standards. In addition to the AP computer science courses, many Kentucky schools offer instruction in computer programming and coding, either as part of their regular course offerings or as an extracurricular activity.

< CS Plan Core Beliefs >

- Every K-12 student deserves equitable access to high-quality computer science education.
- Computer science education must be flexible, dynamic, and developed according to research-based methods as well as industry trends.
- District-level computer science pathway implementations should include activities embedded into existing K-5 curriculum through integrated content standards, where applicable.
- Professional development opportunities must be provided that meet the grade-band specific needs of educators.

References:
3. U.S. Bureau of Labor Statistics | 4. Code.org Advocacy

- Stakeholders of current, potential, and future industries should play a vital role in the evolution of computer science education and attracting a diverse population to the field.

- Kentucky's institutions of postsecondary education are instrumental in establishing a robust system for the training and certification of future computer science educators and practitioners.

- The Office of Career and Technical Education has updated the catalog of beneficial computer science courses that are evolving to meet the requirements of a changing workforce and developing trends in computer science-related industries.

- Approved and valid computer science industry certifications not only test the knowledge of technology concepts and literacies, but also address the computational-thinking and problem solving components of the field.

We believe that the core beliefs, coupled with this plan's goals and objectives, will provide the mechanisms and catalysts to provide 5% growth per year in districts offering CS coursework. If this manifests, within 3 years of adoption, Kentucky can position itself as one of the only states that has at least one course in every single high school across the state and truly provides access to every student in the Commonwealth.

< What is Computer Science Education? >

Kentucky defines Computer Science (CS) as an academic discipline that encompasses the study of computers and algorithmic processes, including their principles, their hardware and software designs, their applications, networks, and their impact on society. The standards outlined in the Kentucky K-12 Computer Science Academic Standards document provide an important foundation to prepare students for post-secondary education and careers. The infusion of technology, computers, and digital experiences in our everyday life has blurred the lines of how computer science is defined. The K12 Computer Science Framework goes further to identify common terms and where those lines are blurred.

Computer science is often confused with the everyday use of computers and computer applications, such as learning how to access the Internet and use digital presentation software. Parents, teachers, students, and local and state administrators share this confusion. The K–12 Computer Science Framework clarifies not only what computer science is but also what students should know and be able to do in computer science from kindergarten to 12th grade. Computer science builds on computer literacy, educational technology, digital citizenship, and information technology. Their differences and relationship with computer science are described below.

- Computer literacy refers to the general use of computers and programs (i.e., computer applications) such as productivity software. Examples include performing an Internet search and creating a digital presentation.

- Educational technology applies computer literacy to school subjects. For example, students in an English class can use a web-based application to collaboratively create, edit, and store an essay online.

- Digital citizenship refers to the appropriate and responsible use of technology, such as choosing an appropriate password and keeping it secure.

- Information technology often overlaps with computer science but is mainly focused on industrial applications of computer science, such as installing and operating software rather than creating it. Information technology professionals often have a background in computer science.

These aspects of computing are distinguished from computer science because they are focused on using computer technologies rather than understanding why they work and how to create those technologies. Knowing why and how computers work (i.e., computer science), provides the basis for a deep understanding of computer use and the relevant rights, responsibilities, and applications. The framework envisions a future in which being computer literate means knowing computer science.

Based on these distinct nuances, this plan strives to distinguish traditional ‘Information Technology’ programs from true ‘Computer Science’ educational opportunities. It is in this distinction that Kentucky can be a leader in the preparation of students who are equipped to dominate this career field.

< Changing the Invitation — K-8 CS Opportunities >

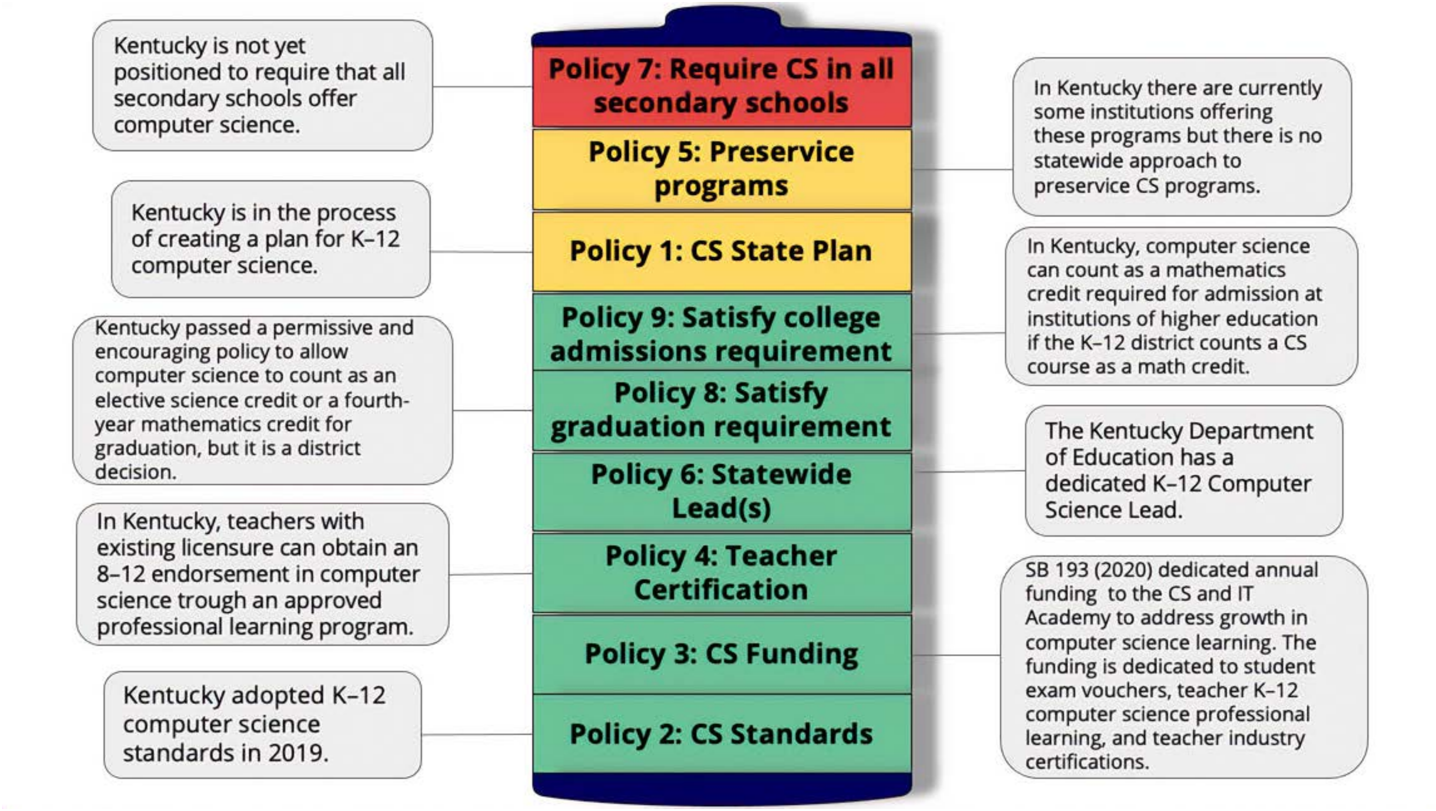
Foundational skills essential to computer science learning are already ingrained and valued across Kentucky's K-12 academic standards and locally adopted curriculum. Problem-solving, creative thinking, and collaboration are just a few of the skills deemed ‘desirable’ in both higher education and industry sectors; programs that incorporate computer science are building these skills in their students. While the focus for computer science learning has been mainly on the secondary grade levels, it is our belief that it is not only an ideal addition to K-8 learning experiences, but it must also start in our earliest grades to foster interest and participation. Starting computer science learning in early grades changes the invitation for middle and high school students.

It is with this belief that this plan emphasizes the importance of the comprehensive K-12 mindset in the persistence toward the goals and objectives stated. The invitation to begin learning CS has to be extended past the high school level and begin engaging students at lower grade levels. Districts that are already championing this idea exist all across the Commonwealth, and it is to their examples we look to begin disseminating this strategy of incorporation to other locales. Additionally, opportunities exist within ‘event-driven’ co-curricular activities to spark interest, engage learners, and provide avenues to be creative in their pursuits.

Woven into the fabric of this plan is the belief that computer science is foundational for all students. This belief carries withit the imperative for providing CS education to all students across grade levels. With a robust K-12 approach to computer science that specifically capitalizes on the opportunities for embedded learning on the K-8 levels, we can put our students on a path toward some of the highest paying and fastest-growing career sectors in the world.

< 'Fully Charged' CS in Kentucky >

Code.org has created nine policy recommendations that states should adopt to build and sustain computer science programs for students. As of this moment, Kentucky is only short three policies from being 'Fully Charged' for CS Learning.



Policy 7: Require CS in all secondary schools – Kentucky is not yet positioned to require that all secondary schools offer computer science.

Policy 5: Preservice programs – In Kentucky there are currently some institutions offering these programs but there is no statewide approach to preservice CS programs.

Policy 1: CS State Plan – Kentucky is in the process of creating a plan for K–12 computer science.

Policy 9: Satisfy college admissions requirement – In Kentucky, computer science can count as a mathematics credit required for admission at institutions of higher education if the K-12 district counts a CS course as a math credit.

Policy 8: Satisfy graduation requirement – Kentucky passed a permissive and encouraging policy to allow computer science to count as an elective science credit or a fourth-year mathematics credit for graduation, but it is a district decision.

Policy 6: Statewide Lead(s) – The Kentucky Department of Education has a dedicated K–12 Computer Science Lead.

Policy 4: Teacher Certification – In Kentucky, teachers with existing licensure can obtain an 8–12 endorsement in computer science trough an approved professional learning program.

Policy 3: CS Funding – SB 193 (2020) dedicated annual funding to the CS and IT Academy to address growth in computer science learning. The funding is dedicated to student exam vouchers, teacher K–12 computer science professional learning, and teacher industry certifications.

Policy 2: CS Standards – Kentucky adopted K–12 computer science standards in 2019.

< Current Landscape and Strategic Goals >

States are working to strengthen computer science participation by enacting policies to make computer science a fundamental part of the K–12 ecosystem. Over the past year, 28 states passed 42 new laws and regulations promoting computer science. Kentucky is on the leading edge of these efforts, as it has been in all realms of educational technology leadership over the past few decades. In addition to building on the grassroots efforts of students, school districts and entities like the Kentucky Science and Technology Corporation, state education leaders and legislative advocates have continued to extend and innovate on previously adopted policies: continuing to fund computer science education and training, supporting teachers and students, and providing leadership and guidance.

Landscape and Growth Report

SB 193 (2020) amends KRS 158.843 and establishes a requirement for the Department of Education to submit an annual report on public school students participating in computer science courses. The subsequent landscape report will gather relevant policy, student participation, and teacher development metrics and use them to further define, clarify and redirect ongoing state planning efforts.

Goals

1.1 Collect and compile data on the current state of computer science education in Kentucky to inform the state’s goals.
1.2 Write and publish Kentucky CS Landscape Report annually.
1.3 In accordance with SB 193, the Department of Education will submit an annual report on public school CS course participation.

Strategies	Stakeholders	Evidence of Success or Completion
Goal 1.1: Collect and compile data on the current state of computer science education in Kentucky to inform the state's goals. • Identify team/leads to define needed data, develop collection methods and write a report. • Gather data from student information system (SIS), district self-reporting, and Code.org collected data for cross-reference. **Start: Fall 2020 End: Ongoing annually**	• KDE CS Lead • OCTE Program Consultant • Digital Learning team	Team identified and strategies outlined to continue to provide accurate and timely data points.
Goal 1.2: Write and deliver Landscape and Growth Report • Coordinate efforts between OET, CTE and other offices to deliver the report to schools and districts. • Establish a baseline from collected information to use to measure success and areas for growth. **Start: Fall/Winter 2020 End: Ongoing annually**	• KDE CS Lead • OCTE Program Consultant • Digital Learning team	Publicly available report delivered that serves as the baseline report for further growth.

Progress Key: ☐ Planning 🟩 Acting

References:

1. 2018-19 Computer Science (CS) Update Report | 2. Code.org 9 Policy Report Document | 3. Code.org Advocacy Report documents

< Strategic Goals >

Learning through computer science can benefit all students, Kindergarten through Twelfth grade. The Kentucky K-12 Computer Science Plan, as well as the respective standards, is designed to direct the efforts of Computer Science programming and oversight in three categorical areas:

<Think CS>

Stakeholders come together and define a community-specific strategy to embed CS work in schools

<Learn CS>

Train and equip teachers with relevant and rigorous PD to be able to provide meaningful CS learning opportunities for students aligned with the state CS strategies

<Do CS>

Provide ALL students the opportunity to apply learning in authentic application of their CS knowledge.

All three of these categories are essential for an effective district CS strategy. With the focus on these areas, it is the hope that equitable access to high-quality computer science education can be provided to each and every student in the Commonwealth.

Goal(s)	Related Subsection	Responsible Party/Partners
Think CS Goal 1: Establish clearly defined and organized K-12 state plan for expansion of Computer Science. **Start: August 2020 End: January 2021**		K-12 CS Lead and other stakeholders
Think CS Goal 2: Modernize CS pathways to reflect the goals of the state CS Plan and CS Standards. **Start: August 2020 End: Fall 2021**		K-12 CS Lead, OCTE Program Consultant
Learn CS Goal 1: Create dedicated pipelines for CS educator certification, professional learning and training. **Start: Spring 2020 End: TBD**		K-12 CS Lead, OCTE Program Consultant, EPSB
Learn CS Goal 2: Establish high-quality, standards-aligned K-12 CS Programs in every district. **Start: Summer 2020 End: TBD**		K-12 CS Lead, OCTE Program Consultant, Professional Learning Providers, Curriculum Developers, CS teachers
Do CS Goal 1: Engage under-represented K-12 groups in CS coursework and CS learning by making data-driven equity decisions. **Start: Spring 2021 End: TBD**		K-12 CS Lead, OCTE Program Consultant, KDE Chief Equity Officer(s) and possible steering committees
Do CS Goal 2: Increase number of students attaining CS industry certifications OR passing an Advanced Placement (AP) CS exam prior to graduation. **Start: Spring 2020 End: TBD**		K-12 CS Lead through CS/IT Academy program administration

Progress Key: ☐ Planning 🟩 Acting

<Think CS> Goals and Objectives

It's all about PROGRAMMING

Create a course programming and sequencing plan that engages all grade levels in mastery of the appropriate K-12 CS Standards.

Rationale

It is imperative that stakeholders come together and define a community-specific strategy to embed relevant CS work in schools. This is not just a call to action for local school districts; it is also a call for state agency work surrounding CS programming to be just as focused and forward-thinking in meeting the needs of developing programs. Many of the objectives within this section focus on changing the conversations at the top to provide more accessibility to districts in beginning CS programs.

Goals

1. Establish a clearly defined and organized state plan for expansion of Computer Science.
2. Modernize CS pathways to reflect the goals of the state CS Plan and CS Standards.

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
<Goal 1> Establish a clearly defined and organized state plan for expansion of Computer Science.		
Objective 1. Use Landscape report to highlight areas of success and improve-mentreflect the goals of the state CS Plan and CS Standards. **Start: Spring 2020 End: Fall 2021**	K-12 CS Lead, Career and Technical Education (CTE) Program Consultant	Approved and published CS State Plan
Objective 2. Communicate plan with stakeholders **Start: Fall 2021 End: Spring 2022**	K-12 CS Lead	Increased school participation in CS/IT Academy as well as participation in district-wide professional learning and visioning activities.

Progress Key: ☐ Planning 🟩 Acting

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
Objective 3. Connect districts with the tools and resources necessary to build K-12 CS programs **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers	Creation of 'CS Implementation' primer for districts just beginning their CS story as well as for those expanding on their existing pathways.
<Goal 2> Modernize CS pathways to reflect the goals of the state CS Plan and CS Standards.		
Objective 1. Re-brand 'Information Technology' CTE Pathways as Computer Science. **Start: Fall 2019 End: Fall 2021**	K-12 CS Lead, Office of Career and Technical Education (OCTE)	2021-2022 Program of Studies (POS) Document published and incorporated into district pathway planning.
Objective 2. Separate the traditionally 'Business IT' coursework and certifications from the new pathways. **Start: Fall 2019 End: Fall 2021**	K-12 CS Lead, OCTE	2021-2022 Program of Studies (POS) Document published and incorporated into district pathway planning.
Objective 3. Align CS Standards into the programmatic development of pathways and revision of the Program of Studies (POS) **Start: Fall 2019 End: Fall 2021**	K-12 CS Lead, OCTE	2021-2022 Program of Studies (POS) Document published and incorporated into district pathway planning.
Objective 4. Extend CS CTE Courses/Pathways to Middle Grades **Start: Spring 2021 End: TBD**	K-12 CS Lead, OCTE	CS Coursework is separated from the Middle Grade Engineering Career Studies path and re-identified courses are aligned to KY K-12 CS Standards for their appropriate grade bands.

Progress Key: ☐ Planning 🟩 Acting

<Learn CS> Goals and Objectives

It's all about PASSION

Identify passionate educators that are ready to be 'all-in' on CS.

Rationale

Currently, Kentucky has the infrastructure which allows every student to take a Computer Science course. While this is true, enabling access to districts wishing to implement such paths from the ground up proves difficult due to the lack of teacher preparation programs for this content area. To address this, the Approval for Computer Science (ACS) code has been created to provide an avenue for passionate educators to offer this content. Additionally, the Program of Studies has been amended to incorporate more courses into the programming path. Neither one of these moves is an attempt to 'game the system;' we are attempting to meet the needs of our districts and schools while also strengthening the system.

Goals

1. Create permanent mechanisms for CS certification and professional learning.
2. Establish high-quality, standards-aligned K-12 CS Programs in every district.

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
<Goal 1> Create permanent mechanisms for CS certification and professional learning.		
Objective 1. Continue to push Approval for Computer Science (ACS) certification attainment through Professional Learning networks. **Start: Fall 2021** **End: Ongoing**	K-12 CS Lead, OCTE, Education Professional Standards Board (EPSB), Professional Learning providers	Increased number of ACS code recipients.

Progress Key: ☐ Planning 🟩 Acting

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
Objective 2. Engage EPSB and Educator Preparation Programs (EPPs) in discussions on leveraging 16 KAR 5:030 Proficiency Evaluation to certify in-service and pre-service educators. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers	Creation of 'CS Implementation' primer for districts just beginning their CS story as well as for those expanding on their existing pathways.
Objective 3. Work with Post-secondary institutions to identify opportunities for pre-service CS educator programs. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, OCTE, EPPs	Development of actionable plan for preservice teachers for attaining CS certifications.
Objective 4. Continue CS/IT Academy programmatic funding of CS professional learning for CS teachers at all grade levels. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers	Continued teacher/district participation in professional learning, expanded content offerings.
Objective 5. Leverage new or emerging funding sources for CS professional learning. **Start: Fall 2020 End: Ongoing**	K-12 CS Lead, Professional Learning providers	As funding opportunities arise, success will be determined as appropriate.
Objective 6. Engage existing and future CS teachers in state and regional professional network(s). **Start: Fall 2020 End: Ongoing**	K-12 CS Lead, OCTE, Professional Learning providers, CS organization affiliates.	Teacher engagement in such communities. Revitalization of membership pools.

Progress Key: ☐ Planning 🟩 Acting

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
<Goal 2> Establish high-quality, standards-aligned K-12 CS programs/pathways in every district.		
Objective 1. Align CS pathways, standards and Program of Studies to ensure all CS coursework has a programming component. **Start: Fall 2020 End: Summer 2022**	K-12 CS Lead, OCTE	Merging of current CS pathways into one comprehensive path.
Objective 2. Ensure that End-of-Program (EOP) assessments as well as CS/IT Academy-funded certifications specifically assess programming. **Start: Spring 2021 End: Summer 2022**	K-12 CS Lead, OCTE	New EOP and Industry exams meet the requirements set forth in the amended program-of-studies.
Objective 3. Support schools offering only one CS course to assist in completing a full CS pathway and expanding into other grade levels. **Start: Fall 2021 End: Ongoing**	K-12 CS Lead, OCTE	Annual CS report reflects growth in districts offering complete pathway.
Objective 4. Engage with teacher-recruitment stakeholders to recruit and retain diverse teachers of computer science. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, OCTE, Educator Preparation Programs (EPPs)	Annual CS report reflects growth in certified teachers in program areas.

Progress Key: ☐ Planning 🟩 Acting

<Do CS> Goals and Objectives

It's all about PERSISTENCE

Persist toward a diverse CS student population that is representative of the school population and 'workforce ready.'

Rationale

The purpose of equity and diversity in computer science is not to create computer scientists out of all students. Rather, it is about enabling all students to have access to high-quality computer science coursework, ensure that courses are taught without bias or assumption of existing knowledge and support recruitment/retention of a population representative of the student population in each district. Additionally, the question of equity should also consider participation of gender groups as well as students of differing ability levels.

Goals

1. Engage diverse gender and racial groups in CS coursework and CS learning by making data-driven equity decisions.

2. Increase number of students attaining CS Career Certifications OR passing an Advanced Placement (AP) CS exam prior to graduation.

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
<Goal 1> Establish a clearly defined and organized state plan for expansion of Computer Science.		
Objective 1. Use Landscape report to highlight areas of success and improvement reflect the goals of the state CS Plan and CS Standards. **Start: Spring 2021 End: Fall 2021**	K-12 CS Lead, Career and Technical Education (CTE) Program Consultant	Approved and published CS State Plan

Progress Key: ☐ Planning 🟩 Acting

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
Objective 2. Engage with state diversity advocates and Chief Equity Officers to incorporate or create district guidance that focuses on recruitment and retention of diverse gender and racial groups. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers	Creation of 'CS Implementation' primer for districts just beginning their CS story as well as for those expanding on their existing pathways.
Objective 3. Train administrators, teachers and community members on strategies focused on recruiting and educating diverse populations. **Start: Upon completion of 'Equity in CS Action Plan' End: Ongoing**	K-12 CS Lead, OCTE, Chief Equity Officer(s), Professional Learning providers	Support schools in implementing 'Equity in CS Action Plan' addressing diversification of teacher and student populations and assists in continuing growth of targeted group participation.
<Goal 2> Increase number of students attaining CS industry certifications OR passing an Advanced Placement (AP) CS exam prior to graduation.		
Objective 1. Increase students completing foundational CS experiences in K-8, AP coursework and attaining passing scores on exams. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers, CS Teachers	Annual Digital Readiness Survey, involvement in club-based activities, College Board AP reports and Infinite Campus information reflect progress on this objective.
Objective 2. Continue expansion of CS/IT Academy reach to students in CS pathway areas. **Start: Spring 2021 End: Ongoing**	K-12 CS Lead, Professional Learning providers	Increase in districts participating in the certification program and number of students achieving career readiness.

Progress Key: ☐ Planning 🟩 Acting

Goal-Aligned Objectives	Stakeholders	Evidence of Success or Completion
Objective 3. Expand scope of Cyber Security courses by facilitating industry engagement, leveraging Dual-Credit offerings and participating in projects aimed at K-12 expansion in this field. **Start: TBD End: TBD**	K-12 CS Lead, Professional Learning providers	Creation of 'CS Implementation' primer for districts just beginning their CS story as well as for those expanding on their existing pathways.
Objective 4. Engage with higher education, co-curricular student organizations and industry partners to provide avenues for certified students to pursue careers or further education in their field upon graduation. **Start: TBD End: TBD**	K-12 CS Lead, OCTE, Professional Learning providers, STLP, TSA, industry representatives, higher education institutions	Strategic approach to apprenticeships, co-ops or intern activities for students. Greater involvement in co-curricular CS events and competitions. Greater availability and participation in Dual Credit coursework.

Progress Key: ☐ Planning 🟩 Acting