Washington State Computer Science Education Strategic Plan

2022 ■

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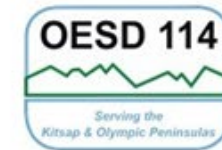Seattle Pacific University

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Acknowledgments

We would like to thank all of the organizations and individuals that made this report possible.

Computer Science Advisory Group

The purpose of this advisory group is to provide advice and support to the OSPI CS Team as they develop the WA State Computer Science Plan. The final plan will include outcomes from this workgroup. Implementation of the final plan will be subject to available funding. Your time and service are deeply appreciated.

Name	Position	Organization
Amanda Rodda	Math and Computer Science TVI	Washington State School of the Blind
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Sue Kane	Director of STEM Initiatives & Strategic Partnerships	North Central Educational Services District

Frequently Used Acronyms & Abbreviations

AESD   Association of Educational Service Districts

CEDARS   Comprehensive Education Data and Research System

CS   Computer Science

CSTA   Computer Science Teachers Association

ECEP   Expanding Computing Education Pathways Alliance

ESD   Educational Service Districts

HEI   Higher Education Institution

NCWIT   National Center for Women & Information Technology

OSPI   Office of Superintendent of Public Instruction

PESB   Professional Educators Standards Board

STEM   Science, Technology, Engineering, & Mathematics

TEP   Teacher Education Program

WA MESA   Mathematics, Engineering, Science Achievement Network

WA STEM   Science, Technology, Engineering, & Mathematics Network

Executive Summary

The Washington (WA) State Office of Superintendent of Public Instruction (OSPI) knows that computer science (CS) is foundational to developing and integrating 21st Century Skills (e.g., communication, collaboration, critical thinking, creativity, problem-solving, innovation). The WA OSPI further knows that all WA State public schools must provide exciting, equitable, educative, and rigorous programs of study in CS across all grade levels. Therefore, in 2015, OSPI formed a CS Advisory Group, comprising subject matter experts from higher education institutions (HEIs), Career and Technical Education, K–12, business, and other knowledgeable state representatives, to develop a strategic plan for CS program implementation. Additionally, in 2020, OSPI published Guidance on Teaching Computer Science in WA State K-12 Public Schools, a comprehensive guide that assists schools in implementing CS courses and reporting accurate data. The Guidance document has background information about key legislation, data collection, CS Course Code Descriptions and Guidance, and CS Standards and Practices by Grade Band.

This WA State K-12 Computer Science Strategic Plan is intended to be a companion to Guidance document and represents the continued work of the CS Advisory Group. This strategic plan outlines the key policy and implementation issues and strategies related to:

- **Diversity, equity, and inclusion.**
- **Teacher pathways.**
- **Curriculum and courses.**
- **Outreach.**
- **Funding.**

Code.org provided the format of this plan as part of ongoing efforts to assist states in broadening CS access to students.

This strategic plan will guide decisions that will ensure all K-12 students, especially those furthest from opportunity, in WA State will have the opportunity to engage in high-quality CS education. The successful implementation of this plan will require a coordinated effort by multiple stakeholders and oversight at all levels to ensure success.

Original template developed by Code.org with feedback from Expanding Computing Education Pathways Alliance (ECEP). For further information, contact pat@code.org or ecep@cs.umass.edu.

Washington State CS Implementation Planning Document

Phase 1: 2022-2023 Planning & Outreach Data Collection	Phase 2: 2023-2024 Develop & Implement Data Measures	Phase 3: 2024-25 Alignment & Integration Capacity Building

STATEWIDE COMMUNICATION AND COLLABORATION TO SUPPORT K-12 COMPUTER SCIENCE

Advisory (OSPI, ESD's, State Computer Science Leadership Team)

Create a charter for the OSPI CS Advisory Committee	Host two (2) Advisory Committee meetings per year (July/January)	Host two (2) Advisory Committee meetings per year (July/January)

Outreach/Network Building (OSPI Programs; State Computer Science Leadership Team)

Create clear, consistent, and timely messaging about CS opportunities • Create CS Computer Science Website	Develop CS support networks • Coordination with community and industry partners	Ongoing support of leadership network • Maintain and update CS information and communication

Diversity, Equity, and Inclusion
(OPSI Programs, State Computer Science Leadership Team; CS ESD Leads, STEM teachers, Administrators, Informal Educators)

Implementation of statewide and regional efforts • Integrate the Kapor framework into all work • Partner with external groups to create and build learning opportunities for students from underrepresented groups	Find funding for the professional development of teachers from underrepresented groups • Develop training modules for teachers to use equity/diversity as a lens for continuous improvement	Continue to coordinate device and internet access gap efforts with CS education efforts • Ensure that device efforts are compatible with CS pedagogy

Teacher Pathways (OSPI Programs, State Computer Science Leadership Team, CS ESD Leads, K-5 teachers, STEMteachers)

Focus on equity and integration. • Create an implementation process to align in-service and pre-service • Form a public-private partnership with CSTA	Continued focus on equity and integration • Implementation of defined professional learning needs (teachers, administrators, and community educators) • Develop and publish K-12 pathways	• Evaluate school district information about their CS needs and share this data with TEPs • Invest in pre-service CS teacher education faculty

Curriculum and Courses (OSPI Programs, State Computer Science Leadership Team, CS ESD Leads)

• Review and revise CS Standards to include elements of the new knowledge bases industry • Provide SCRIPT training to support implementation to districts	Develop an instructional focus on CT • Create and provide elementary a CT Integration Framework • Develop an implementation plan for districts based on readiness	Continue outreach and implementation efforts in the growing fields • Creating and posting crosswalks for elementary CS integration • Update and maintain promising instructional practices

Data Collection (OSPI)

Create a managed WA State CS data dashboard • Create guidelines and methods for how data will be collected • Develop CS classroom climate survey for students	Determine additional metrics to be tracked (e.g., course-taking, student achievements, STEM, etc.) • Study assessment opportunities with other states adopting CS Standards	Track and report CS-related data

Funding/Policy Shifts (OSPI, SBE, PESB, Legislature)

Identify and institute policies necessary to implement CS standards in elementary and a graduation requirement in secondary (e.g., PSEB teacher competencies, secondary pathways, assessment). Determine funding sources necessary to support policy changes.

Elements of Computer Science Implementation Plan 2022

Critical Stakeholders in Washington State Computer Science Implementation

OSPI Programs
- Learning and Teaching
- Assessment and Student Information
- CTE (STEM, Agriculture, Skilled and Technical Sciences, Family Consumer Science, Health, etc.)
- Migrant/Bilingual
- Special Education
- Native Education
- Early Learning
- Communications

State Science Leadership Team
- OSPI
- CS ESD Leads
- Higher Ed Partners
- Business Partners
- Administrators
- Teachers

Statewide Networks
- Educational Service Districts (ESD)

Higher Education
- Colleges of Education
- Colleges of Science and Engineering
- Community and Technical Colleges
- Content Faculty

Informal/Community Partners
- Various informal and community partners with connections to Computer Science

Business Industry Partners
- Various business/industry partners with connections to Computer Science
- Washington STEM

K-12 (Districts and Building Level) Schools
- Staff
- Students
- Administrators
- Community

State Boards
- Professional Educators Standards Board (PESB)
- State Board of Education (SBE)

State Associations
- Educator and Administrator Professional Organizations

National Computer Science Education Organizations
- Computer Science Teachers Association (CSTA)
- International Society for Technology in Education (ISTE)
- K12CS.org
- Code.org Advocacy

Elements of Computer Science Implementation Plan 2022

Current Landscape

WA State Definition of Computer Science

The state definition of computer science (CS) includes, but is not limited to, the following ideas:

- The design of both computer equipment and digital systems, and the interface between the hardware and software required for these systems.

- How algorithms, data structures, and modules are used to implement computer software and hardware.

- Problem-solving skills for designing computer software and hardware such as pattern recognition, decomposition, debugging, and software troubleshooting.

- How hardware and software are used to implement computers, networks, and other digital systems.

- The use of computer programs to collect, analyze, store, transform, model, and visualize data.

- How networking devices enable communication and organization and increase the need for cybersecurity.

- Using computers to collect, analyze, transform and store data to create visualizations, models, and inferences.

- How the privacy and security of data can be protected with computers.

- How computers affect people and society.

OSPI Computer Science Team

The Computer Science (CS) team at OSPI comprises staff across the subjects of English language arts, math, science, educational technology, and career and technical education. Working closely with statewide CS and STEM stakeholders, this team provides guidance for the development and implementation of WA State CS learning standards and CS education grants.

Supporting Documents

- Guidance on Teaching CS in WA State K-12 Schools
- K-12 Computer Science Data Summary Report
- K-12 Computer Science Course Offerings

Supporting Legislation

- WA State Computer Science Laws & Regulations
- Authorizing Legislation: WA HB 1577, SHB 5088

OSPI Vision Statement	OSPI Mission Statement	OSPI Values
All students prepared for post-secondary pathways, careers, and civic engagement.	Transform K–12 education into a system that is centered on closing opportunity gaps and is characterized by high expectations for all students and educators. We achieve this by developing equity-based policies and supports that empower educators, families, and communities.	- Ensuring Equity - Collaboration and Service - Achieving Excellence through Continuous Improvement - Focus on the Whole Child

Landscape Report

Goal(s)

1. Measure the current state of CS in WA State to inform goals.
2. Use data to guide strategies and support for districts statewide (by ESDs).

Progress *is indicated by one of three stages:*

Planning: The team is beginning to define this strategy (e.g., researching needs) and the necessary action steps.
Acting: Action on the strategy is currently underway.
Done: The actions have been completed.

Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
WA State Legislature passed HB 1813 Expanding CS Education	2015	WA State Legislature	Done	Computer Science Laws & Regulations
Obtained data from Code.org to inform state CS landscape report	Ongoing	OSPI, WA STEM, Code.org	Done	Code.org data for WA (yearly reports; data online fall 2021)
WA State Governor's STEM Education Innovation Alliance	2016, ongoing	OSPI, Governor's office, WA Student Achievement Council	Acting	WA Governor's STEM Education Report Card
Computer Science Teachers Association (CSTA) K–12 CS Standards Adopted	2016 (revised 2018)	OSPI, CSTA	Done	Computer Science Learning Standards
SCRIPT Facilitator Training	2017, ongoing	OSPI, AESD, Microsoft	Done	An annual offering of SCRIPT training
NEXTGEN STEM Teacher Preparation Grant	2016, 2021	WWU	Acting	NSF grant to expand teacher pathways for STEM

Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
CS Advisory Committee	2015/2020/ ongoing	OSPI, AESD, community stakeholders, STEM Networks	Done	Guidance on Teaching Computer Science in K–12 Public Schools
WA State Legislature allocated $1,000,000 in funding for CS education ($4 million public-private with 1:1 Match)	2015/2021/ ongoing	WA State Legislature	Done	WA State CS Laws & Regulations OSPI CS Grants
Guidance for Teaching Computer Science in K–12 Public Schools (document)	February 2018/ ongoing	OSPI	Done	Guidance on Teaching Computer Science in K–12 Public Schools Computer Science Guidance: Course Codes presentation Computer Science Guidance: Course Codes recording
K–12 Computer Science Education Data	2019/ ongoing	OSPI	Done	K–12 Computer Science Education Data Summary Report (2021)
Summary Report (document)				Computer Science Laws & Regulations
Create an OSPI managed CS Data Dashboard & visualizations that is open to all and will allow users to examine and analyze current data to evaluate CS at all levels in WA State.	Ongoing	OSPI, WA STEM	Planning	CS Data Dashboard

Strategic Goals

In this section, the strategic goals for WA State are identified by defining the overarching vision, goals, and responsible partners.

Overarching Vision Statement for CS Education

All K-12 schools in Washington will offer CS instruction aligned to the state-approved standards and have a qualified CS teacher to deliver this instruction. Students will have equitable access to CS instruction by a diverse and qualified teaching pool and high school graduates will be prepared for post-graduation opportunities in CS.

Strategic Goals *These goals correspond with the vision identified above and also appear in the corresponding sections of this plan.*	Corresponding Subsection of Strategic Plan	Possible Partners
Increase equity in access to CS opportunities for students and teachers in underrepresented groups. 1. Support diversity, inclusivity, and UDL by promoting the use of Kapor Center's (2021) framework for Culturally Responsive-Sustaining Computer Science Education. 2. Address the unique circumstances, challenges, and opportunities, across the different geographic regions across the state (especially rural and small schools). 3. Connect students to communities that represent their unique identities and circumstances, providing experiences that are culturally and socially relevant, responsive, and sustaining.	Diversity, Equity, and Inclusion	OSPI, Computer Science ESD Leads, STEM Networks, districts, HEIs/TEPs, professional learning partners

Strategic Goals *These goals correspond with the vision identified above and also appear in the corresponding sections of this plan.*	Corresponding Subsection of Strategic Plan	Possible Partners
Recruit, train, and retain a diverse and highly qualified pool of K-12 CS teachers. 1. Support K-12 teacher education programs to prepare teachers for endorsement in both elementary and secondary CS. 2. Support equitable and inclusive continued professional development opportunities for CS teachers that incorporate culturally relevant CS. 3. Expand the capacity of regions within the state to plan and offer professional learning aligned with state CS goals.	Teacher Pathways Professional Learning	OSPI, PESB, STEM Networks, HEIs/TEPs, professional learning partners
Recruit, train, and retain a diverse and highly qualified pool of K-12 CS teachers. 1. Recruit diverse teacher candidates to join CS programs. 2. Support recruitment and retention of CS teachers.	Teacher Pathways Certification and Licensure	OSPI, PESB, Computer Science ESD Leads, HEIs/TEPs, professional learning partners
Implement K-12 CS standards with fidelity at all grade levels. 1. Support integration of CS with all subject areas, including literacy, along with standalone CS teaching. 2. Develop multiple K-12 pathways, including CS in elementary HS to post-secondary pathways. 3. Update the CS Standards to reflect current changes in the industry (e.g., artificial intelligence (AI), augmented reality/virtual reality (AR/VR), cybersecurity, robotics, cloud computing), as well as to address issues of social justice, to increase the range of CS curriculum topics.	Curriculum and Courses Standards	OSPI, Computer Science ESD Leads, districts

Strategic Goals *These goals correspond with the vision identified above and also appear in the corresponding sections of this plan.*	Corresponding Subsection of Strategic Plan	Possible Partners
High-quality CS curricula adopted by all districts/schools. 1. Provide support and guidance to districts about available high-quality CS curriculum opportunities.	Curriculum and Courses Curriculum	OSPI, Computer Science ESD Leads, districts, STEM networks
Create K-12 pathways for CS and promote and support multiple post-secondary CS pathways. 1. CS credits will count as part of the STEM requirement for graduation. 2. Schools will implement guidance and opportunities for multiple post-secondary pathways.	Curriculum and Courses Graduation Requirements and Post-Secondary Pathways	OSPI, Career Connected Learning Coordinators at ESDs, districts
Implement an ongoing plan to engage with all stakeholder groups. 1. Develop opportunities for community participation that are visible to everyone. 2. Increase opportunities for potential partners (including nonprofits, NGOs, corporations, etc.). 3. Promote district-level support and implementation efforts.	Outreach	OSPI, Computer Science ESD Leads, Governor's Office, community partners
Develop and implement a sustainable funding pipeline for K-12 CS. 1. Develop opportunities for funding that are visible to everyone. 2. Increase opportunities for corporate involvement and potential funding partners. 3. Promote district-level funding support and implementation efforts.	Funding	OSPI, WA Legislature, WA STEM, community partners

1. Diversity, Equity, and Inclusion

■ **How will we ensure that all students have access to and are engaged in K–12 CS?**

■ **How will we measure outcomes to be sure these efforts are successful?**

The result of equitable access should be CS classrooms that are diverse in terms of race, gender, disability, socioeconomic status, and English language proficiency. WA State seeks to play a significant role in building access to and equity within systems for the implementation of high-quality and inclusive CS education.

OSPI Equity Statement

Each student, family, and community possesses strengths and cultural knowledge that benefits their peers, educators, and schools.

Ensuring educational equity:

■ Goes beyond equality; it requires education leaders to examine the ways current policies and practices result in disparate outcomes for our students of color, students living in poverty, students receiving special education and English Learner services, students who identify as LGBTQ+, and highly mobile student populations.

■ Requires education leaders to develop an understanding of historical racism; engage students, families, and community representatives as partners in decision-making; and actively dismantle systemic barriers, replacing them with policies and practices that ensure all students have access to the instruction and support they need to succeed in our schools.

OSPI acknowledges that non-racists and even anti-racists can unknowingly perpetuate a racist system despite intent and efforts to the contrary (e.g., adverse effects of subconscious heteronormativity in schools, well-meaning ableism, etc.). To combat this, goals and strategies related to diversity, equity, and inclusion will be considered in every part of the strategic plan through the adoption of strategies aligned with the [Kapor Center's (2021) framework for Culturally Responsive-Sustaining Computer Science](#)

Education, which provides Six Core Components to guide educators in creating culturally sustaining, equitable, and inclusive K-12 CS classrooms:

1. Acknowledge Racism in CS and Enact Anti-Racist Practices
2. Create Inclusive and Equitable Classroom Cultures
3. Pedagogy and Curriculum are Rigorous, Relevant, and Encourage Socio-Political Critiques
4. Student Voice, Agency, and Self-Determination are Prioritized in CS Classrooms
5. Family and Community Cultural Assets are Incorporated into CS Classrooms
6. Diverse Professionals and Role Models Provide Exposure to a Range of CS/Tech Careers

Diversity, Equity, and Inclusion Goals

1. Increase equity in access to CS opportunities for students and teachers in underrepresented groups.
2. Support diversity, inclusivity, and UDL by promoting the use of Kapor Center's (2021) framework for Culturally Responsive-Sustaining Computer Science Education.
3. Address the unique circumstances, challenges, and opportunities across the different geographic regions across the state (especially rural and small schools).
4. Connect students to CS communities that represent their unique identities and circumstances, providing experiences that are culturally and socially relevant, responsive, and sustaining.

Recommendations

1. Provide professional learning opportunities for educators based on the Kapor Center's (2021) framework for Culturally Responsive-Sustaining CS Education (Kapor Center, 2021; see also Recommendations in Teacher Pathways section).

    a. Develop training modules for teachers to use equity/diversity as a lens for continuous improvement (see also directive in WA State SB 5044 - 2021-22 Concerning professional learning, equity, cultural competency, and dismantling institutional racism in the public school system).

b. Develop training modules for specific strategies to locate and/or create accessible CS learning materials.

c. Use a data-informed decision-making process when choosing and/or creating resources.

d. Offer training and guidance for educators, including counselors/graduation specialists, to help students navigate secondary to post-secondary CS pathways.

2. Build a state dashboard for CS data analysis to collect and present data at the state, district, and school levels. To ensure accountability to equity goals, implement a public dashboard that makes student learning visible, as well as gaps in who is not participating and learning.

a. Include an annual CS classroom climate survey for students to identify inclusion problems and successes, including students who are choosing to opt out of CS learning.

3. Include data from CEDARS to identify the demographics of students who are taking CS courses.

4. Integrate CS as a component of ALL instruction for ALL student groups.

a. Make CS a graduation requirement for all students in WA State.

b. Integrate CS into preservice teacher education for all PK-12 teachers.

c. Integrate CS into K-5/K-8 learning.

5. Directly coordinate device and internet access gap efforts with CS education efforts to ensure that device efforts are compatible with CS pedagogy.

Suggested strategies can be found in Appendix C.

2. Teacher Pathways

■ **Where will the CS teachers come from?**

■ **How can we respond to the growing need for CS teachers?**

Equitable and inclusive access to CS education for all WA students begins with recruiting, training, and retaining a diverse and highly qualified pool of K-12 CS teachers. Research shows that teacher effectiveness has more impact on PK-12 student achievement than any other factor controlled by school systems. WA State seeks to address CS teacher pathways in three ways:

1. CS professional development for existing teachers.

2. CS certification and licensure to ensure qualified teachers are teaching CS courses.

3. The integration of CS content in preservice teacher education programs (TEPs) to maintain a supply of teachers over the long term.

Also see Teacher Pathways in the CS in WA State System Diagram Model (Appendix B).

This strategic plan's goals and strategies related to teacher recruitment, certification, licensure, retention, and professional learning align with both the Strategic CSforALL Planning Tool for School Districts (SCRIPT) and the Kapor Center's (2021) framework for Culturally Responsive-Sustaining Computer Science Education.

Professional Learning

The purpose of providing CS professional learning for teachers of other subjects is to leverage the existing pool of teachers and provide both a short-term approach for increasing the number of CS opportunities in schools and a long-term approach for cross-curricular integration of CS literacy.

Professional Learning Goals

Recruit, train, and retain a diverse and highly qualified pool of K-12 CS teachers.

1. Support K-12 teacher education programs to prepare teachers for endorsement in both elementary and secondary CS.

2. Support equitable and inclusive continued professional development opportunities for CS teachers that incorporate culturally relevant CS.

3. Expand the capacity of regions within the state to plan and offer professional learning aligned with state CS goals.

Alignment with Kapor Framework (2021)

1. Educators ensure curriculum is high-quality, rigorous, challenging, and aligned to state and national standards (Kapor Framework Core Component 3.1)

2. Educators expose students to a range of computing and technology-related careers, programs, and opportunities that are aligned to student interests (Kapor Framework Core Component 6.1)

3. Educators leverage a variety of tech tools to introduce students to industry professionals and career pathways within their classroom, especially when in-person opportunities are a challenge (Kapor Framework Core Component 6.4)

Certification and Licensure

Certification and licensure allow teachers to formally document their CS teaching proficiency. In this section, strategies are identified that will promote a certification system that includes short-term steps to allow existing teachers to add a CS endorsement quickly, as well as long-term steps including full certification pathways.

Resources: Teacher Certification Pathways flowchart (Appendix A)

Certification and Licensure Goals

Recruit, train, and retain a diverse and highly qualified pool of K-12 CS teachers.

1. Recruit diverse teacher candidates to join CS programs.

2. Support recruitment and retention of CS teachers.

Alignment with Kapor Framework (2021)

1. Educators actively and intentionally confront and dispel stereotypes and biases about the abilities and skills of students from groups marginalized in CS (Kapor Framework Core Component 2.1).

2. Educators intentionally recruit students with disabilities; Black, Native American, and Latinx students; girls; and non-binary students into CS courses (Kapor Framework Core Component 2.4).

3. Educators actively build relationships with members of the local and national tech community who can lend their knowledge and expertise to the classroom experience (Kapor Framework Core Component 6.2).

Recommendations

1. Develop a public-private partnership with CSTA to create a WA State CSTA director who will engage educators, TEPs, and private industry in a state-wide CS professional learning network (PLN; see WA State HB 1980 - 2007-08 regarding the financial literacy public-private partnership).

2. Create regional teams of CS teachers to build a supportive community.

   a. Include CSTA regional chapters.

   b. Ensure that high-quality professional development strategies are leveraged for new CS teachers.

   c. Provide incentives for districts that create alternative pathways for teacher certification (e.g., "Grow Your Own" initiatives, etc.) and who retain teachers with non-CTE endorsements or with specialty endorsements.

3. Gather data from school districts about their CS needs and share this data with TEPs to help guide their programs to match what districts needed (especially rural and small districts).

4. Invest in pre-service CS teacher education faculty in TEPs in WA State to create capacity for pre-service TEPs to grow and sustain our CS teacher workforce.

5. Develop and implement an incentive program designed to recruit teachers from currently underrepresented groups and from industry or education to get/add the CS endorsement.

6. Provide incentives for teachers (from industry or education) to get the CS endorsement and for districts to hire CS-endorsed teachers (like CTE incentive).

7. Provide incentives for CS education in pre-service TEPs.

Suggested strategies can be found in [Appendix C](#).

3. Curriculum and Courses

■ **What curriculum best aligns with the CS goals in our state?**

■ **What courses will teachers be teaching?**

Standards are an essential component of a larger education plan and provide a foundation with which to align the other components, such as curriculum, instruction, and policies such as graduation requirements. The expectation that all students learn CS can be supported by integrating CS into academic subjects and allowing CS to satisfy a core graduation requirement. The development and selection of curriculum and courses play a significant role in the access and equity movement in CS education. Goals and strategies related to curriculum and coursework will be aligned with the WA State CS K-12 Learning Standards. Further information about CS Course Code Descriptions and Guidance, and CS Standards and Practices by Grade Band can be found in the Guidance on Teaching CS in WA State K-12 Public Schools.

See Curriculum, Pathways, and Progressions in the CS in WA State System Diagram Model (Appendix B).

Standards

Standards allow curriculum to be created and selected based on a coherent vision of CS education that sets learning goals for all students, from kindergarten through high school graduation. To provide guidance in curriculum and courses, WA State adopted the CSTA Standards in 2016 (revised 2018).

Standards Goals

Implement K-12 CS standards with fidelity at all grade levels.

1. Support integration of CS with all subject areas, including literacy, along with standalone CS teaching.

2. Develop multiple K-12 pathways, including CS in elementary and HS to post-secondary pathways.

3. Update the CS Standards to reflect current changes in the industry (e.g., artificial intelligence (AI), augmented reality/virtual reality (AR/VR), cybersecurity, robotics, cloud computing), as well as to address issues of social justice, to increases the range of CS curriculum topics.

Alignment with Kapor Framework (2021)

1. Educators demonstrate awareness of white supremacy and racism in education, computing, and CS classrooms as well as commit to ongoing learning to understand systemic racism as a part of their commitment to anti-racist and trauma-informed pedagogy (Kapor Framework Core Component 1.2)

2. Educators explicitly teach and engage in anti-racist/anti-bias and trauma-informed practices in CS (Kapor Framework Core Component 1.4)

3. Educators utilize pedagogy and curriculum which equips students to critically examine technology and interrogate its role in society as well as its ethical, political, and societal implications (Kapor Framework Core Component 3.4)

Curriculum

Curriculum and course selection provide the building blocks for a strong CS program. WA State seeks to provide guidance to districts and schools for planning the development and selection of CS curriculum and courses.

Curriculum Goals

High-quality CS curricula adopted by all districts/schools.

1. Provide support and guidance to districts about available high-quality CS curriculum opportunities.

Alignment with Kapor Framework (2021)

Educators explicitly teach and engage in anti-racist/anti-bias and trauma-informed practices in CS (Kapor Framework Core Component 1.4)

Graduation Requirements and Post-Secondary Pathways

States that allow CS to count as a graduation requirement show subsequent increased rates of student enrollment in CS courses (Code.org, 2021). WA State promotes CS as a graduation requirement and seeks to promote and support multiple post-secondary CS pathways.

Graduation Requirements Goals

Create K-12 pathways for CS and promote and support multiple post-secondary CS pathways.

1. CS credits will count as part of the STEM requirement for graduation.

2. Schools will implement guidance and opportunities for multiple post-secondary pathways.

Alignment with Kapor Framework (2021)

1. Educators explore their own identities (racial, gender, cultural, ethnic, linguistic, religious, socioeconomic, etc.) and their positions of privilege and power/oppression (Kapor Framework Core Component 1.1)

2. Educators explicitly teach and engage in anti-racist/anti-bias and trauma-informed practices in CS (Kapor Framework Core Component 1.4)

3. Educators honor and affirm students' intersecting identities within the curriculum, instructional practices, and classroom culture and support students' navigation of CS and society at large (Kapor Framework Core Component 2.3)

4. Educators expose students to a range of computing and technology-related careers, programs, and opportunities that are aligned to student interests (Kapor Framework Core Component 6.1)

5. Educators actively build relationships with members of the local and national tech community who can lend their knowledge and expertise to the classroom experience (Kapor Framework Core Component 6.2)

6. Educators leverage a variety of tech tools to introduce students to industry professionals and career pathways within their classroom, especially when in-person opportunities are a challenge (Kapor Framework Core Component 6.4)

Recommendations

1. Regularly review and revise CS Standards to include elements of the new knowledge bases industry (e.g., AI, AR/VR, cybersecurity, robotics, cloud computing), based on information gathered from industry experts.

2. OSPI and the ESDs should promote the use of the "Standards and Practices by Grade Band Guide" in OSPI's Guidance on Teaching CS in WA State K-12 Public Schools, which provides a crosswalk of the CS standards and performance indicators across grade band and academic subject areas.

3. Create an OSPI managed CS dashboard that is open to all and will allow users to examine and analyze current data in order to evaluate CS at all levels, and especially elementary student CS access, in WA State.
   a. Create guidelines and methods for how data will be collected.
   b. Create a separate column for CS in WA Data Displays Graduation Pathways OSPI.
   c. Provide SCRIPT training to support implementation to districts.

4. Provide elementary school administrators and teachers with a computational thinking (CT) Integration Framework (see also work being done under NSF Grant 1838523).
   a. Help elementary school administrators to make preliminary determinations about their school's readiness to integrate an instructional focus on CT across the elementary school curriculum (see also work being done under NSF Grant 1838523).
   b. Help them to develop an implementation plan based on the results of their readiness assessment (see also work being done under NSF Grant 1838523).

5. Create a full time OSPI elementary CS position to increase outreach and implementation efforts in a growing field, including, but not limited to:
   a. Creating and posting crosswalks for elementary CS integration.
   b. Monitoring the WA State CS Data Dashboard for elementary data collection.

Suggested strategies can be found in Appendix C.

4. Outreach

■ **How will we effectively communicate with supporters, partners, and community and provide opportunities for feedback from all stakeholders?**

Effective implementation of a statewide CS initiative requires proactive communication using a variety of methods at the state, district, and school levels. WA State seeks to provide open communication channels for students, educators, administrators, community members, and industry leaders from diverse backgrounds and identities to learn more about CS, ask questions and provide feedback using a variety of channels.

See Outreach in the CS in WA State System Diagram Model ([Appendix B](#)).

Outreach Goals

Implement an ongoing plan to engage with all stakeholder groups.

1. Develop opportunities for community participation that are visible to everyone.

2. Increase opportunities for potential partners (including nonprofits, NGOs, corporations, etc.).

3. Promote district-level support and implementation efforts.

Alignment with Kapor Framework (2021)

1. Educators actively explore, understand, and reflect upon their own identities, positionality, power, and privilege, and how these constructs reside/operate within society and computer science (Kapor Framework Core Component 2.2)

2. Educators actively seek out vetted resources and regular opportunities to learn about the current and historical cultures of their students (Kapor Framework Core Component 3.3)

3. Educators incorporate student voices and perspectives throughout the curriculum and classroom experience, engaging them as cultural experts (Kapor Framework Core Component 4.1)

4. Educators value and consult with families and community members and incorporate their perspectives into the CS classroom (Kapor Framework Core Component 5.1)

5. Educators partner with community-based organizations to build interest in CS among students and families and encourage the learning of CS inside and outside of the classroom (Kapor Framework Core Component 5.2)

6. Educators encourage and invite families and communities to engage in learning CS for their own knowledge and growth, as well as to support student learning (Kapor Framework Core Component 5.3)

7. Educators align CS content and instruction with in-school and out-of-school experiences, cultures, and perspectives (Kapor Framework Core Component 5.4)

8. Educators actively build relationships with members of the local and national tech community who can lend their knowledge and expertise to the classroom experience (Kapor Framework Core Component 6.2)

9. Educators actively seek out and recruit diverse guest speakers and experts representing underrepresented or marginalized groups in computing (Kapor Framework Core Component 6.3)

Recommendations

1. CS webpage is maintained to include:

    a. References and links to OER.

    b. Links to curriculum resources (e.g., Computer Science Resource Bank webpage, part of Colorado CS Education webpage).

    c. Links to grant opportunities (e.g., Colorado CS Education webpage).

    d. Announcements about upcoming opportunities (e.g., grants, PD offerings, PLNs, committee membership and meetings).

    e. List of CS program supporters.

    f. Widget (or other method) for schools and ESDs to embed OSPI content in their web sites to make it easier for families to find information.

2. Create a managed WA State CS data dashboard that is open to all and will allow users to examine and analyze current data in order to evaluate CS at all levels in WA State.

   a. Create guidelines and methods for how data will be collected.

3. Create a charter for the OSPI CS Advisory Committee that outlines recruitment, membership, meeting obligations, and deliverable expectations.

   a. Committee membership should aim for a diverse group of stakeholders, including educators, industry professionals, nonprofit organization representatives, and students and families.

4. Collaborate with trusted messengers in communities, community-based organizations (CBOs), nonprofit organizations, and industry to make clear, consistent, and timely messaging about CS opportunities available and to decentralize OSPI's communications role, including but not limited to:

   a. Use AESD network to create clear, consistent, and timely messaging about CS opportunities.

   b. Connect with tribal partners for outreach in their communities.

   c. Use the Digital Navigator platform to explore community connections.

   d. Provide a script for each of the legislators (legislators have a communications budget and could put together a video about updates/successes in CS education).

   e. Connect with the military for outreach in their communities.

   f. Ask WSPTA and local school boards and PTSAs to tailor information to the needs of their communities.

Suggested strategies can be found in [Appendix C](#).

5. Funding

Funding will be required to achieve many of the goals in this plan. In the short term, WA State will prioritize funding for professional development in CS for existing WA State teachers, while also supporting pre-service teacher CS endorsement pathways. Additionally, funding priority will be given to districts in which a demonstrable effort is made to engage underrepresented groups.

CS Education Grants

The WA State Legislature allocated $1,000,000 of the General Fund in fiscal year 2020 and $1,000,000 in fiscal year 2021 for CS education. These funds are designated for: (1) Teacher training and credentialing in CS; (2) Technology upgrades needed to learn CS; and (3) Engaging students in CS.

In 2020, the Legislature approved a supplemental operating budget that included changes to the matching fund requirements of the CS education grant.

Funding Goals

Develop and implement a sustainable funding pipeline for K-12 CS.

1. Develop opportunities for funding that are visible to everyone.

2. Increase opportunities for corporate involvement and potential funding partners.

3. Promote district-level funding support and implementation efforts.

Recommendations

1. Create a full time OSPI elementary CS position to increase outreach and implementation efforts in a growing K-5 field.

2. Establish stable funding for a full-time CS position at each ESD to facilitate:

   a. Outreach and identification of district needs

    b. Communication of statewide CS initiatives to districts

    c. Professional development and technical assistance to districts

    d. Provision of strategic planning (SCRIPT) and support for district CS goals

    e. Implementation of statewide and regional efforts to increase equitable access to CS education

    f. Coordination with community and industry partners to support CS pathways.

    g. Coordination between CTE, elementary, secondary, and basic education (programs) to ensure vertical alignment and maximize impact of CS efforts and funding

    h. Collaborating with statewide CS leads

3. Funding for work related to state CS data dashboard.

DEI Funding Recommendations

4. Target workforce educator fund to CS pre-service teacher tuition subsidy for preservice teachers from underrepresented groups.

5. Partner with external groups to build and maintain dashboards, run surveys, reduce costs, and create learning opportunities for students from underrepresented groups.

6. Change the funding structure for the CS Education Grants from the allocated general funds to remove the matching requirement for all awardees and open a public interest fund which will match awardee's grants with private funds or in-kind contributions to increase opportunities for underrepresented groups.

7. Allocate ESSER funding towards professional development for teachers from underrepresented groups (before 2024) and create a long-term implementation process to align in-service and pre-service TEPs with professional learning recommendations.

Teacher Pathways Recommendations

8. Funding for a public-private partnership with CSTA to create a WA State CSTA director and open a public interest fund which will collect private contributions to fund partnership with CSTA to support CS educators.

9. Funding for an incentive program designed to recruit from industry or education.

a. Recruit companies in the tech industry to offer scholarships to professionals to pursue a career in CS education to support the goal to develop and implement an incentive program designed to recruit teachers.

b. Provide tax breaks for companies that allow employees with tech and computing skills/background to work part time as CS teachers.

c. Provide incentives for teachers (from industry or education) to get the CS endorsement, for CS in pre-service TEPs, and for districts to hire CS-endorsed teachers.

Outreach Recommendations

10. Identify funding sources (including industry or other partners) for statewide, regional, and local efforts for:

a. Marketing and communication of CS education and related activities

b. Non-labor costs associated with professional development and technical assistance for districts

c. Identification and coordination of industry and informal CS opportunities

d. Support for grant writing and management

Suggested strategies can be found in <u>Appendix C</u>.

Appendix A: Teacher Certification Pathways

How to become a Licenced K-12 Computer Science Teacher in Washington State

Elements of Computer Science Implementation Plan 2022
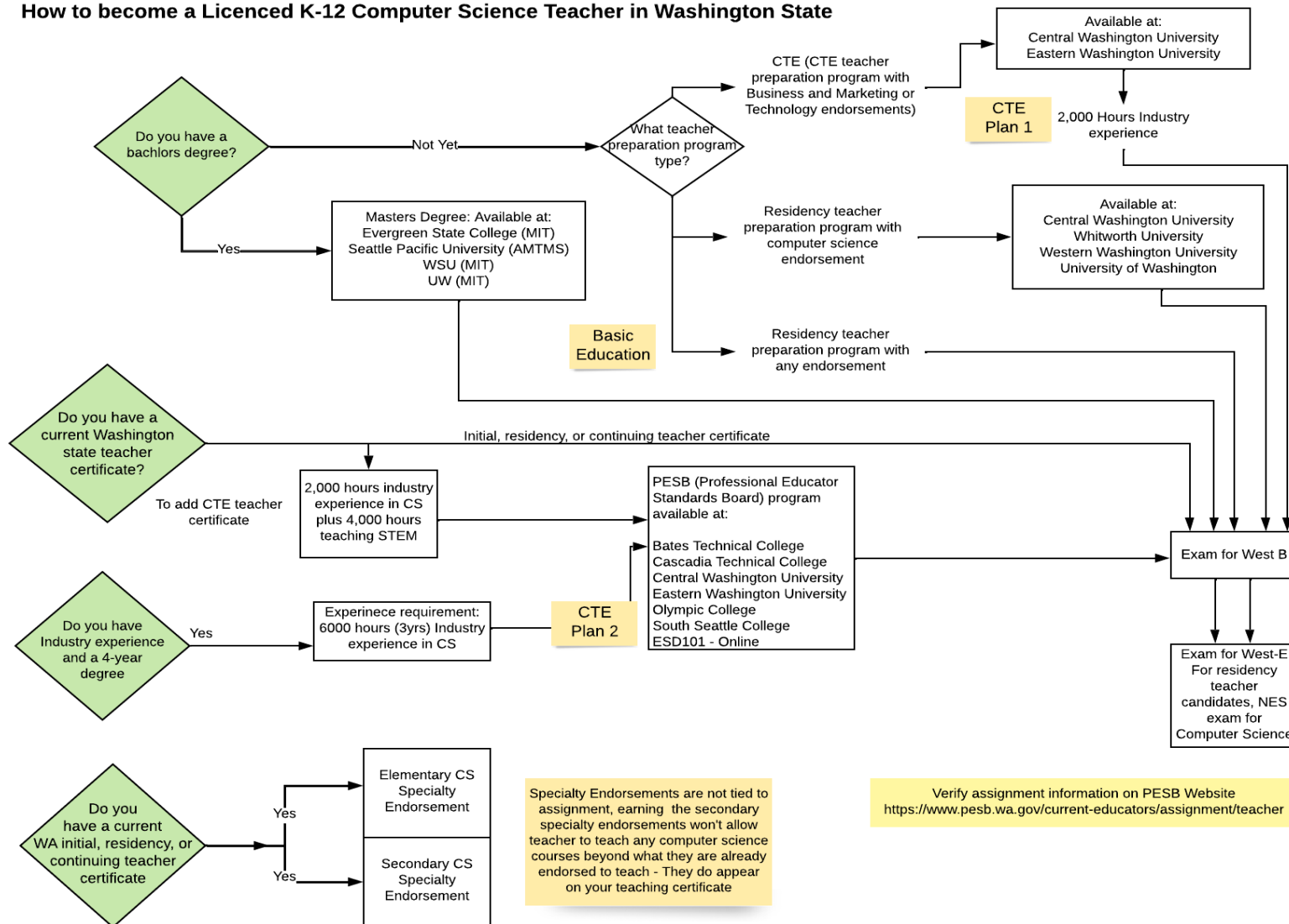
Appendix B: CS in WA State System Dynamics Model

The Outer Ring of the System Diagram

1. Equitable access to CS instruction in K-12
2. Diverse and qualified CS teachers in K-12
3. CS instruction for all WA K-12 students
4. High school grads prepared for post-grad opportunities that use CS

CS instruction and career-connected CS learning opportunities for all WA students increase the number of high school graduates prepared for postsecondary CS opportunities. As the number of high school graduates who are prepared for postsecondary CS opportunities increases and post-secondary institutions promote CS pathways, the potential pool of diverse and qualified CS teachers in K-12 will also increase. As more diverse and qualified teachers enter K-12 teaching, equitable access to CS instruction during K-12 improves/increases. This creates a reinforcing feedback loop, designated by the label R1 in blue on the diagram. Intervention that causes any of these four conditions to increase or decrease will affect the other three in the same direction and have a positive or negative snowball effect.

The system diagram shows another reinforcing feedback loop, R2, that is adjacent to R1 and states that as diverse and qualified CS teachers in K-12 increase, awareness of CS as a pathway for all learners improves/increases, which increases the number of high school graduates prepared for post-graduate opportunities that use CS, which increases the potential pool of diverse and qualified CS teachers in K-12.

As equitable access to CS instruction during K-12 increases, then CS instruction for all WA students improves/increases. Both of these are improved/increased by the existence of highly qualified CS/CT in urban, suburban, and rural areas, which in turn is improved/increased by strategies for attracting and retaining credentialed teachers in rural areas. Equitable access to CS instruction during K-12 and CS instruction for all WA students are also improved/increased by incentives for teachers to get the CS endorsement.

Strategies: The Inside of the System Diagram

Educators and Workforce Professional Learning

Improved/increased in-service teacher PD in CS leads to improved/increased computational thinking and its integration into better CS instruction for all WA K-12 students, equitable access to CS instruction during K-12, as well as sustainable CS/CTE pathways. Teaching CS from an integration perspective increases ability and willingness to implement CS activities in elementary grades. Computational thinking at an early age is critical to building robust CS pathways from K-12.

Preservice Teacher Education

The inclusion of CS in pre-service teacher education is key to increasing teacher capacity and the number of diverse and qualified CS teachers in K-12. The recruitment and retention of diverse CS teacher candidates can be improved/increased by defining "teacher graduate" in ways that best serve districts in terms of excellence in equitable CS.

Curriculum, Pathways, and Progressions

Curriculum-related products and practices influence the system in multiple ways. Accessible CS materials improve/increase equitable access to CS instruction in K-12, which in turn, improves/increases the production of accessible CS materials. Integrated CS teaching is improved/increased with the integration of computational thinking. More sustainable CS/CTE pathways also increase the number of CS/CTE teachers that school districts hire, which creates incentives for teachers to get the CS endorsement, which results in greater inclusion of CS in pre-service teacher education. Sustainable CS/CTE pathways increase when more CS resource planning tools are available.

Outreach

Community, STEM Network, and partner support for CS also has a role in improving/increasing equitable access to CS instruction during K-12 and CS instruction for all WA students. Community participation and Network coordination in CS increases when the following audiences for opportunities include 1) families, 2) industry, 3) school districts, 4) employers who employ people with CS skills, and 5) other community partners such as STEM Networks. Community and partner support for CS also increases when there are increased opportunities for industry to partner in CS education on a statewide basis.

View the System Diagram online: https://tinyurl.com/WASysDiag

The System Diagram
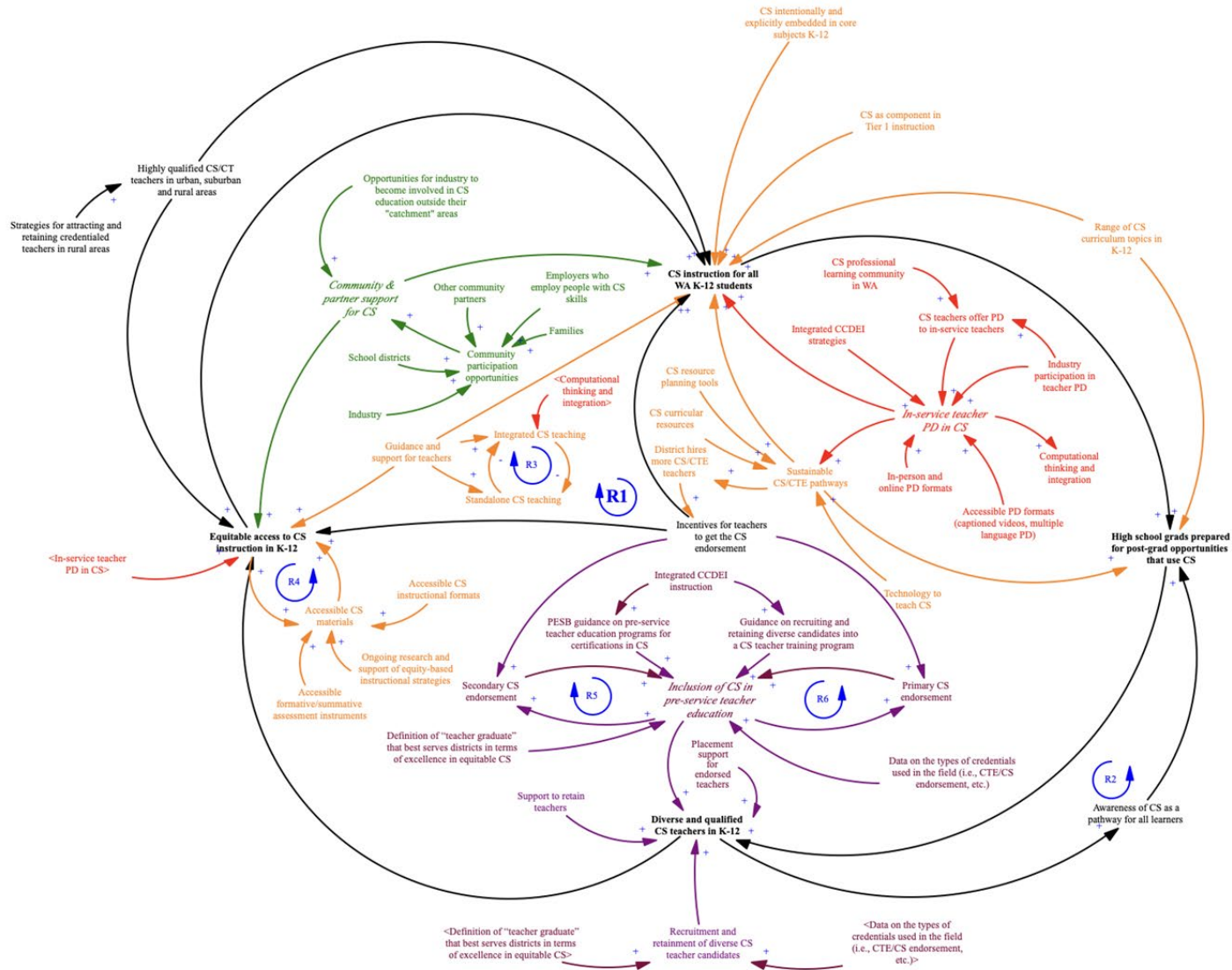
Color key: *Black = Anchoring variables for diagram's primary narrative (problem statement); Orange = Curriculum related variables; Red = In-service PD related variables; Purple = Pre-service teacher prep related variables; Green = Community partner and other supporter related variables.*

Appendix C: Strategies

*Progress *is indicated by one of three stages:*

Planning: The team is beginning to define this strategy (e.g., researching needs) and the necessary action steps.
Acting: Action on the strategy is currently underway.
Done: The actions have been completed.

1. Diversity, Equity, and Inclusion

Diversity, Equity, and Inclusion Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Increase CS education opportunities for students from underrepresented groups, beginning in elementary school, ensuring that every student sees themselves using CS in all fields.	2015/ Ongoing	OSPI, ESDs, districts, STEM Networks, CSforAll, NCWIT, CSTA, WA MESA, TechBridge Girls, CodeGirls	Acting	Pre/Post CS course enrollment data shows an increase in the number of students from underrepresented groups.
Provide guidance about currently available accessible CS teaching materials.	2016/ Ongoing	Curriculum Providers, districts/schools, STEM Networks, OSPI, Computer Science ESD Leads, WINforCS network	Acting	All CS learning materials meet current standards for accessibility.
Ensure that the racial, cultural, and ethnic identities of CS teachers reflect the identities of students in their communities and that this diversity is also visible in communities that are not diverse.	2021/ Ongoing	OSPI, PESB, STEM Networks, ESDs, districts, curriculum providers, HEIs, community partners, diversity engagement partners, CSTA	Acting	Data shows that the racial, cultural, and ethnic identities of CS teachers reflect the students in their communities.

Diversity, Equity, and Inclusion Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide support to districts/schools in rural areas with limited CS teacher pools to expand the CS teaching skills of their in-service teachers.	Planning: August 2021 Implementation goal: 22/23	OSPI, PESB, Computer Science ESD Leads, districts (e.g., shared roles), co-ops, industry partners (e.g., MS TEALS)	Planning	Data dashboard: Staffing Data shows an increase in the number of CS teachers in rural schools.
Provide training for teachers to use DEI as a lens to continuous improvement.	2021/ Ongoing	OSPI, Computer Science ESD Leads, districts, Curriculum Providers, HEIs, community partners, diversity engagement partners	Acting	Pre/Post CS course enrollment data shows an increase in the number of students from under-represented groups. CS achievement data shows continuous improvement for the number of students from under-represented groups through the CEDARS system.
Provide equitable and inclusive access for teachers to resources and CS professional development.	Ongoing (annual evaluation)	OSPI, Computer Science ESD Leads	Acting	PD Enroller: Participation data. Implementation tracking. OER will be available in accessible formats. Inclusive language is used in all materials (see OSPI's Reviewing Instructional Materials for Bias).

2. Teacher Pathways: Professional Learning

Professional Learning Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide teacher professional learning in CS in early elementary, setting up students for CS success in secondary school.	Ongoing	OSPI, ESD, districts, STEM Networks, curriculum providers, HEIs, community partners	Acting	PD Enroller participation data
Provide training for teachers on curricula and content for integrating CS literacy and CS into other K-12 subject areas.	Ongoing	OSPI, CSforAll, WA (ECEP), STEM Networks, WA MESA, WA STEM, Microsoft, Code.org, HEIs/TEPs	Acting	PD Enroller participation data

2. Teacher Pathways: Certification and Licensure

Certification and Licensure Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide guidance for pre-service TEPs to offer both elementary and secondary certifications in CS.	2021	OSPI, PESB, HEIs/TEPs, CSforAll, WA (ECEP)	Planning	TEPs develop and implement a strategic plan for CS endorsement TEP enrollment and endorsement data

Certification and Licensure Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide guidance for districts and pre-service TEPs about ideal endorsements for teacher graduates for elementary or secondary specialty endorsement, and standalone K-12 CS.	2021	OSPI, PESB, AESD, CSforAll, WA ECEP	Planning	TEP enrollment and endorsement data Educator Data System state teacher certification data
Continuously collect and share data on the existing and emerging credentials used in the field (e.g., CTE, CS, etc.).		OSPI, PESB, districts	Acting	Educator Data System teacher certification data
Provide guidance on recruiting and retaining diverse candidates in CS TEPs.		OSPI, HEIs/TEPs	Planning	TEPs develop and implement a strategic plan for recruiting and retaining CS teacher candidates TEP enrollment and endorsement data. Educator Data System teacher certification data

3. Curriculum and Courses: Standards

Standards Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Revise CSTA Standards.	2016 (revised 2018)	OSPI, CSTA	Done	WA State CS K-12 Learning Standards Page 2 of WA State CS K-12 Learning Standards: Learning Standards: Equity, Access, Inclusion, and Diversity
Perform regular review of CS Standards to integrate new knowledge bases, including relevant education research.	March 2021/ ongoing	OSPI, CS Committee	Planning	WA State CS K-12 Learning Standards
Provide guidance for implementing CS standards at all grade levels.	2016 (revised 2018) / ongoing	OSPI, ESDs, districts, curriculum providers, HEIs	Acting	WA State CS K-12 Learning Standards, Standards by grade band, concept, and crosswalks OSPI's Guidance on Teaching CS in WA State K-12 Public Schools
Presentations and training for districts and teachers on integrating CS standards in elementary and secondary.	2018- present	CSforAll, Code.org, AVID	Planning	Expansion of Professional Development PD participation data

3. Curriculum and Courses: Curriculum

Curriculum Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide curricular resources for districts.	Ongoing	OSPI, Computer Science ESD Leads, districts, STEM Networks, curriculum providers, HEIs	Planning	District curriculum adoption data

3. Curriculum and Courses: Graduation Requirements

Graduation Requirements Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Provide guidance to districts for implementation of standards-based CS courses.	Ongoing	OSPI, Computer Science ESD Leads, districts, STEM Networks,	Acting	Guidance on Teaching CS in WA State K-12 Public Schools
Provide examples of K-12 pathways during SCRIPT training.	2017 / ongoing	Computer Science ESD Leads, OSPI	Acting	SCRIPT participation and implementation data
Expand support to districts to implement AP and early college experience credit courses in CS in HS in partnership with community and HEIs.	Ongoing	OSPI, College Board (AP), HEIs, Career Connected Learning Coordinators at ESDs	Planning	OSPI CEDARS AP CS and early college experience credit in CS enrollment and achievement data

Graduation Requirements Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Forge and sustain connections between school levels (elementary, middle, high school, post-secondary, industry, government, and nonprofits) (Goals 1 & 2)	Ongoing	OSPI, STEM Networks, WA MESA, districts, HEIs/TEPs, community partners	Planning	K-12 and HS to college enrollment data Post-college data (e.g., from HEIs and/or community partners)
Provide opportunities for multiple post-secondary pathways.	Ongoing	OSPI, post-secondary partners, Career Connected Learning Coordinators at ESDs	Planning	Post-secondary pathway participation data
Collaborate with HEIs to allow CS to satisfy an admissions requirement.	Ongoing	OSPI, districts, HEIs, STEM Networks	Planning	Post-secondary admissions/enrollment data

4. Outreach

Outreach Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Maintain the CS page on the OSPI website to provide information relevant to CS education across the state.	Ongoing	OSPI	Acting	Up to date OSPI Computer Science webpage an OER Webpage user experience data

Outreach Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Develop materials that present general messaging across multiple channels and multiple audiences.	Ongoing	OSPI, OSPI, Computer Science ESD Leads, districts	Planning	Postings on OSPI, and other related websites (e.g., community partners), AESD Network (emails, publications, social media, videos, etc.), OSPI social media, OSPI YouTube channel, One-Page Handout with talking points Communications engagement data
Create a CS dashboard to provide access to planning tools and resources for district leadership to engage with and use.	Ongoing	OSPI, WA STEM	Planning	OSPI CS Dashboard User statistics for CS dashboard
Conduct focus groups with key leadership organizations, including WA STEM, PESB, ESDs, AESD, CSforAll Fellows, HEIs/TEPs, districts, as well as principal and teacher unions, parent/caregiver organizations (e.g., WSPTA), and students to solicit feedback on the strategic plan.	Ongoing	OSPI, WA STEM Networks, PESB, ESDs, teacher unions, WSPTA, Digital Navigators	Planning	Focus group-informed documents and outcomes (e.g., meeting minutes, feedback, reports, plans, etc.)

Outreach Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Continue to engage with stakeholders by maintaining the CS Advisory Committee.	2015, 2019, 2021 / ongoing	OSPI Computer Science ESD Leads	Acting	DEI assessment is part of the committee selection process Committee membership opportunities target rural communities and communities with a high percentage of students from underrepresented groups
Maintain current partnerships and continue to explore possible partnerships with local, national, and international CS/STEM organizations.	Ongoing	OSPI, AESD, community partners, STEM Networks	Acting	Internally shared list of partnerships (existing and possible) Externally shared list of CS opportunities available through current partnerships (e.g., summer programs, HS internships)
Host events for community partners to connect with each other to support possible collaborations.	Ongoing	OSPI, STEM Networks	Planning	Report of event outcomes (e.g., partner collaborations)

5. Funding

Funding Strategies	Start/End	Possible Partners	Progress*	Evidence of Success/Completion
Allocate state funding earmarked for teacher training and credentialing in CS.	Ongoing	OSPI	Acting	TEP enrollment and endorsement data State and district endorsement data
Allocate state funding earmarked for technology upgrades needed to learn CS.	Ongoing	OSPI, districts	Acting	District data for technology upgrades
Allocate state funding earmarked for engaging students in CS.	2020, 2021 / ongoing	OSPI, districts, community partners	Acting	K-12 CS enrollment data K-12 CS implementation data

Appendix D: Methodology Used in the Development of this Document

A mixed-methods approach informed the development of this strategic plan document. First, a current landscape and literature review was conducted to ground the work in the current documentation and data for CS education in WA state and the learned experiences of other states across the nation that have published state CS plans.

A total of three Advisory Committee meetings occurred (all virtual) in October and November 2021. The first half-day Advisory Committee in-person meeting provided the committee members with the context for their work and invited them to reflect on how OSPI strategic goals, the Kapor Framework, and Improvement Science would inform their work.

The second half-day Advisory Committee meeting occurred virtually in November 2021. During this meeting, committee members met with their section subcommittees and provided feedback and comments on the first draft document, with a primary focus on (a) aligning strategy statements with goal statements and (b) creating a list of recommendations for action items necessary to operationalize the strategies. The feedback and comments were analyzed resulting in a second draft of the strategic plan document.

The third half-day Advisory Committee meeting occurred virtually in November 2021. During this meeting, committee members met with their section subcommittees and provided feedback and comments on the second draft document, with a primary focus on (a) creating a list of funding recommendations aligned with subsection recommendations. The feedback and comments were analyzed resulting in a third draft of the strategic plan document.

The last public engagement opportunity occurred as a review and response opportunity in December 2021. The draft document was sent for public review and feedback was collected via a survey with open-ended questions designed to elicit respondents' feelings about representation within and accessibility of the document. Survey responses were analyzed using inductive qualitative analysis. Emerging themes from the analysis informed the final draft document.

The final draft circulated among state leaders for review. Slight revisions were made, and the first version published in May 2022 with the acknowledgment that this is a living document that will be revised as legislation is implemented.

Original template developed by Code.org with feedback from Expanding Computing Education Pathways Alliance (ECEP). For further information, contact pat@code.org or ecep@cs.umass.edu.