PACE K-12 District Infrastructure for Computer Science Survey

How long will the survey take to complete?
The survey should take no longer than 25 minutes to complete. If there are questions that you are unable to answer and need to pause to reference materials or information, it may add to total completion time.

What is the purpose of this survey? This survey collects information about the systemic supports, resources, and processes currently in place in your school district for computer science education. It is aligned to frameworks for strong district infrastructure, and was developed by the Programming the Acceleration of Computing and Education project by Education Development Center, with funding from the U.S. Department of Education.

Survey Sections

Section 1. Continuous Improvement
Section 2. Computer Science Curriculum and Materials
Section 3. Computer Science Leadership
Section 4. Computer Science Teacher Capacity and Development
Section 5. Computer Science Partnerships
Section 6. Community Engagement in Computer Science
Section 7. Implementation of Computer Science Infrastructure

The contents of this survey were developed under a grant from the U.S. Department of Education, Education Innovation and Research (EIR) Program. However, those contents do not necessarily represent the policy of the U.S. Department of Education. And you should not assume endorsement by the Federal Government.

1. Are there any major initiatives (including, but not limited to computer science) underway in your school/district this year? (select all that apply).

- ☐ Digital Now
- ☐ Project Lead the Way
- ☐ School to Work
- ☐ Career and Technical Education (CTE)
- ☐ Social Emotional Learning (SEL)
- ☐ Literacy Mathematics
- ☐ Project Based Learning
- ☐ Workforce Development
- ☐ SCRIPT
- ☐ None of these initiatives are underway in my district
- ☐ Other _____

Section 1. Continuous Improvement

Continuous improvement is an applied science that emphasizes innovation, rapid and iterative cycle testing in the field, and scaling in order to generate learning about what changes produce improvements in particular contexts (Institute for Healthcare Improvement, 2015). The outcomes of each cycle inform the revision, development, and fine-tuning of practices.

For each of the questions below, please indicate which option best describes the continuous improvement initiatives that are in place in your district.

2. Does your district have a continuous improvement initiative in place?

- ○ Our district has a data-based continuous improvement initiative and the initiative itself is also subject to continuous improvement processes.
- ○ Our district has a data-based continuous improvement initiative.
- ○ Our district has a continuous improvement initiative but does not use data to inform decisions.
- ○ No continuous improvement initiative.

2a. Does your district have systematic engagement in the continuous improvement initiative?

- ○ Teachers and staff have access to continuous improvement planning documents and reports. Continuous improvement teams include individuals from all levels (support, classroom, building, central office) of the district. An organized professional learning community exists for continually improving CS education in the district.
- ○ Our district has regular continuous improvement meetings. Continuous improvement practices are developed during in-service trainings.
- ○ Our district has infrequent continuous improvement meetings. There is no coherent team addressing CI initiatives.
- ○ No systematic engagement in the continuous improvement initiative.

Section 2. Computer Science Curriculum and Materials

The selection of appropriate, sequential, and vision-aligned computer science materials and curricula is done through a process that engages teachers and leaders. The selection process includes focus on sustainability, rigor, and inclusion of diverse students in the consideration of the curriculum and supporting materials.

For each of the questions below, please indicate which option best describes the computer science instruction in place in your district.

3. How well does your district select computer science curricula?

- ○ The selected CS curricula is sequential, and student learning builds each year in alignment with national standards and other district initiatives. There is a process for both grade level and multiple grade teams to meet and discuss or refine the curriculum based on individual needs of schools/students.
- ○ One or more CS curricula is selected with communication between teachers and across grades. Selected CS curricula address a majority of relevant state or national CS Education standards or K-12 CS Framework concepts and practices.
- ○ Some CS is taught in schools and the CS curriculum is selected by individual teachers with no communication for pathway options.
- ○ No CS curriculum selected for any grade levels.

4. How well are computer science classes sequenced and aligned in your district?

- ○ The vision and 12th grade outcomes for students are clearly defined and all teachers of CS can describe how their curriculum fits in a multiyear sequence to arrive at those outcomes. Additionally, advanced pathways or electives exist for students who would like to pursue

either more rigor (advanced placement or dual enrollment) or a specific flavor of CS (media arts or web design).

- ○ Curricular activities are aligned to K-12 DLCS standards or the K12 CS framework. Activities are sequential and connected to the vision/outcomes for the school or district.
- ○ CS curricular activities are developmentally appropriate for students but are disconnected and do not have a clear sequence to 12th grade for students.
- ○ There is no alignment or progression to any CS activities that occur in the district. (Schools may engage in one-off activities like Hour of Code, but do not sequence the activities for student learning).

5. How well are diverse learners supported with CS materials in your district?

- ○ Working groups of CS/content teachers and special education teachers proactively review curricula and materials for accessibility and potential bias. Together, the teams produce guidance documents for all teachers with best practices in the project-based computer science classroom. The teams apply Universal Design for Learning (UDL) principles used in other disciplines for potential areas of relevance.
- ○ Teachers use Universal Design for Learning principles when creating CS materials for diverse learners. The teachers are connected to appropriate special educators and the teams have district support for necessary material development and refinement.
- ○ Individual teachers create CS materials for diverse learners based upon a limited understanding of students in their class.
- ○ There is no support for the creation or identification of CS materials for diverse learners.

Section 3. Computer Science Leadership

The selection of appropriate, sequential, and vision-aligned computer science materials and curricula is done through a process that engages teachers and leaders. The selection process includes focus on sustainability, rigor, and inclusion of diverse students in the consideration of the curriculum and supporting materials.

For each of the questions below, please indicate which option best describes the ways leadership works to support CS instruction.

6. What role does district-level leadership play in the planning and development of CS curriculum?

- ○ District leadership proactively establishes a clear vision and plan that includes incentives for plan execution and engagement with CS education activities.
- ○ District leadership actively participates in vision and goal setting activities for CS and coordinates across schools for coherent CS objectives.
- ○ District leadership recognizes CS education efforts but is not engaged in coordination or shared planning processes (if they exist).
- ○ District leadership does not play a role in CS education efforts in the schools.

7. What role does school-level leadership play in the planning and development of CS curriculum?

- ○ Leadership teams make use of data about CS education enrollment and student performance to guide discussions of CS education. The leadership team actively encourages the participation of teacher leaders and collaborates with other schools for best practices and shared experiences. Schools feel connected to CS education outcomes and supported in the pursuit of those outcomes for specific needs of school populations.
- ○ A representative sample of school leaders participate in vision and goal setting activities for CS, and all schools have leaders who are aware of district CS activities and given opportunities to provide feedback on initiative priorities based on individual school needs.
- ○ School leadership recognizes CS education efforts but is not engaged in coordination or a shared planning process in their school.
- ○ School leadership does not play a role in CS education efforts in their school.

8. What role does school personnel (support teachers and staff) play in the planning and development of CS curriculum?

- ○ Library media specialists, special educators, and guidance counselors are provided opportunities to engage in CS education PD as appropriate for their roles. They also regularly communicate with teachers and leadership teams about CS education plans and useful connections to their work.
- ○ Library media specialists are aware of and participate in CS education activities in the school. Special educators are engaged in CS education planning, weighing in about curricular and tool choices and how they impact diverse learners. Guidance counselors are

supported with information about pathways for students who are interested in CS, as well as the benefits of CS as a minor for students with other interests.

- ○ School personnel are aware of CS education efforts but are not engaged in coordination or shared planning processes.
- ○ School personnel do not play a role in CS education efforts in the schools.

9. Which of the following best describes your district's plan for computer science education?

- ○ A CS education plan exists that is updated regularly and has the ability for individual schools to use locally with different implementation. The plan was created with a shared process. The plan is actionable, flexible as necessary for multiple schools, and aligned with the district goals.
- ○ A CS education plan exists that was created with a shared process. The plan is actionable, flexible as necessary for multiple schools, and aligned with the district goals.
- ○ A CS education plan exists but does not use a shared process for its creation, and is not specific, actionable, or aligned with district vision for CS education.
- ○ The school district does not have a documented plan for CS education efforts.

10. Which of the following best describes the way computer science education is implemented in your district?

- ○ Data is regularly collected and shared to help drive planning process and updated goals. The implementation of CS education in the district is goal- and vision-aligned. There is coordination of pathways and progressions for students across grades. All students are engaged in CS education efforts, especially traditionally under-represented minority groups and at-risk populations.
- ○ The implementation of CS education in the district is goal and vision aligned. There is coordination of pathways and progressions for students across grades. All students are engaged in CS education efforts, especially traditionally under-represented minority groups and at-risk populations. However, there is no regularly collected data that is incorporated into the process.
- ○ The implementation of CS education is teacher-led with little coordination for pathways or progressions. Electives may be offered at individual schools, but no connected sequence of courses exists.
- ○ There is no implementation of CS education within the district.

11. Which of the following best describes the computer science outcomes that have been set by the district?

- ○ Community level outcomes exist regarding parent education, community engagement, and informal learning opportunities for students. Student level outcomes exist aligned to state/national standards where appropriate. Teacher level outcomes exist related to Teacher development.
- ○ Student level outcomes exist aligned to state/national standards where appropriate. Teacher level outcomes exist related to Teacher development. There are no community level outcomes.
- ○ Course or program level outcomes exist (e.g. offer a class, run an hour of code).
- ○ There are no defined outcomes for CS education within the district.

Section 4. Computer Science Teacher Capacity and Development

All teachers have an understanding of the CS education initiatives in the district, and opportunities for integrated CS projects. Teachers with responsibility for CS content have clearly defined opportunities to learn computer science and expand their pedagogical fluency. There are well defined incentives for participating in such professional development opportunities.

For each of the questions below, please indicate which option best describes the computer science capacity building in your district.

12. Which of the following best describes the computer science teacher professional development in your district?

- ○ Teacher CS professional development is chosen to align with district vision and goals, and teachers are supported in the selection and attendance of the PD.
- ○ Teachers are supported in their selection of CS professional development opportunities and are connected to each other for coherent pathways and grade level consistency.
- ○ Teachers independently identify CS professional development opportunities and participate in CS orientation PD at their own discretion.
- ○ Teachers have not participated in CS education PD or have not had prior CS education experience.

13. Which of the following best describes the computer science teacher working groups in your district?

- ○ There are K-12 working groups for sequential CS education planning in the district, and outcomes from these groups are shared in district communication. Teacher working groups

use student data and artifacts to drive teacher development. Meetings are scheduled and participation is part of incentive structures for teacher performance rating and there is a consistently high attendance rate.

- ○ Teachers participate in CS working groups both at a local and national level as a part of their professional learning network (PLN). Teachers are supported and recognized for this work with PD hours or other standard district incentives for professional learning.
- ○ Participation in CS teacher working groups is entirely driven by individual teachers and mostly consists of participation in national communities such as CSTA or CSforALL Teachers.
- ○ There is no participation by teachers in working groups focused on CS education.

14. Which of the following best describes the district-level resources for the computer science teacher working groups in your district?

- ○ The district supports working groups of administrators and teachers in order to create relevant feedback frameworks for CS education and provide training for their implementation. District-level resources for administrators connect to best practices research for CS education.
- ○ Administrators work with teachers or district teams to understand the relevant goals and best practices in CS education for use in teacher observation and feedback.
- ○ Teacher feedback is aligned to best practices in CS education by individual administrators.
- ○ There is no support for administrators in the observation and teacher feedback and evaluation process for CS teachers or lessons containing CS content.

Section 5. Computer Science Partnerships

Partners are engaged entities who are connected to the district or schools through formal or informal partnerships. They represent trusted entities that can be used to provide opportunities for students or teachers.

For each of the questions below, please indicate which option best describes the computer science partnerships at your district.

15. Which of the following best describes the local partners (including informal education) that engage with computer science education in your district?

- ○ Local partners are included in the district planning and revision processes. Informal enrichment opportunities are included as a part of student pathway options, and efforts are made to engage local partners in curricular efforts for students and learning opportunities

for teachers. Local partners are connected with teachers for PD opportunities (teachers participating in informal activities) or for content specialists who can engage with teachers for knowledge and resource sharing.

- ○ Local partners are engaged by the school district for awareness and integration into any CS education plans. Communications for students and parents include enrichment opportunities from local partners in addition to classroom-based opportunities.
- ○ The district/teachers are aware of some local partners (e.g. Girl Scouts, community centers, etc.) who offer enrichment activities, and activities may be advertised in the school.
- ○ Local partners are not engaged with CS education efforts.

16. Which of the following best describes the professional learning partners that engage with computer science education in your district?

- ○ Professional learning partners are used not only by individual teachers, but as a part of larger development plans. Information from partners is used in CS education plan development and revision, and district activities are shared in relevant networks as exemplars and for feedback.
- ○ Engagement with professional learning partners is recognized by the district and CS education plan as a positive, and incentivized part of teacher development. Teachers new to computer science receive information about relevant partners in mentoring or advising sessions.
- ○ Teachers in the district are aware of and make use of professional learning partners for continued development. Examples could include participating in teacher associations (CSTA) discussion boards (Code.org, CSforAll Teachers) or social network communities (twitter chats, Facebook groups).
- ○ The district or teachers have not identified any professional learning partners outside the district for support.

Section 6. Community Engagement in Computer Science

The engagement of the local community is an important part of sustainability for CS education efforts.

For each of the questions below, please indicate which option best describes the level of community engagement with computer science initiatives in your district.

17. Which of the following best describes the ways families engage with computer science education in your district?

- ○ Teachers and guidance counselors not only share the parent resource, but also regularly review it for updates. The resource may include a calendar for partners and community members to add items (such as hackathons, summer workshops, etc.). Evening and weekend events are planned to engage families in CS education opportunities.
- ○ There is a developed resource for parents offering clarity around the CS education plan of the district, in-school pathways for students, extracurricular activities, and partner opportunities for enrichment.
- ○ Individual teachers or guidance counselors discuss CS education options with parents or families during back-to-school nights, open houses, or parent teacher conferences. District communications including flyers and newsletters include information about CS education efforts.
- ○ Families are not engaged or informed of CS offerings or student pathways.

18. Which of the following best describes the ways the local workforce engages with computer science education in your district?

- ○ Local workforce efforts engage with individual schools to provide materials for student pathways, and clarity for guidance counselors in recommending student experiences. The school community (teachers, students, parents, guidance, and administrators) understand the regional workforce efforts and leverage appropriate resources to supplement district resources.
- ○ Local workforce efforts are connected or consulted by the district in the development of CS education plans. Curricular selection and enrichment activities are designed to not only prepare students for college but also for potential career readiness opportunities locally. Local industry is engaged in opportunities to support district efforts through employee volunteer programs, support for events or initiatives, and engagement in district plans.
- ○ Individual teachers may connect to local workforce efforts, but there is little to no alignment between community workforce development and CS education programs. There may be connections to local industry for one-time events or gifts, but little connection between these interactions and the larger goals or plans of the district.
- ○ Local workforce efforts are not engaged or connected to the CS education efforts of the district.

Section 7. Implementation of Computer Science Infrastructure

This section of the survey is an assessment of the extent that different elements of district infrastructure for computer science have been implemented in your district.

19. To what extent have these strategies and goals been established in your district? (Select a single response that reflects your assessment of the current status in your district)

	Not at all (Nothing is planned or underway)	A little (Planning is underway but few or no actions have been taken)	Somewhat (Steps have been taken and are continuing)	To a great extent (Goals have been reached and strategies are well-established)
All middle grades students receive CS instruction.	○	○	○	○
Equity strategies are employed to support interest and persistence in CS among traditionally underrepresented student groups.	○	○	○	○
Implementation of inclusive CS pathway planning.	○	○	○	○
CS is provided in sequential middle-school years at a minimum of 75 instructional hours per year.	○	○	○	○
There is a district-level CS taskforce that includes representation from major stakeholder groups.	○	○	○	○
CS pathways are integrated with district strategic plan.	○	○	○	○
Information/ technology specialists support CS teachers.	○	○	○	○