# Computer Science (CS)

Based on Computer Science Teachers Association (CSTA) [Standards for Computer Science Teachers](https://csteachers.org/page/standards-for-cs-teachers-interactive)

## 1. KNOWLEDGE AND SKILLS

Effective CS teachers demonstrate and continuously develop thorough knowledge of CS content. They demonstrate proficiency with the CS concepts of the grade bands they teach, and they integrate these concepts with CS practices, including computational thinking. They also understand the progression of content before and after the grade bands they teach. The current content expectations are maintained in student standards aligned to the K-12 CS Framework.

| Effective CS teachers: | Meets | Does Not Meet | Reviewer Feedback |
| --- | --- | --- | --- |
| 1a. Apply CS and computational thinking practices in flexible and appropriate ways. Practices include: Fostering an Inclusive Computing Culture, Collaborating Around Computing, Communicating About Computing, Recognizing and Defining Computational Problems, Developing and Using Abstractions, Creating Computational Artifacts, and Testing and Refining Computational Artifacts. | ☐ | ☐ |  |
| 1b. Apply knowledge of how hardware and software function to input, process, store, and output information within computing systems by analyzing interactions, designing projects, and troubleshooting problems. | ☐ | ☐ |  |
| 1c. Model how computing devices connect via networks and the Internet to facilitate communication and explain tradeoffs between usability and security. | ☐ | ☐ |  |
| 1d. Collect, store, transform, and analyze digital data to better understand the world and make more accurate predictions. | ☐ | ☐ |  |
| 1e. Design, implement, debug, and review programs in an iterative process using appropriate CS tools and technologies. Interpret algorithms, and explain tradeoffs associated with different algorithms. | ☐ | ☐ |  |
| 1f. Analyze how people influence computing through their behaviors, cultural norms,  and social interactions, as well as how computing impacts society in both positive and negative ways. | ☐ | ☐ |  |

## 2. EQUITY AND INCLUSION

Effective CS teachers proactively advocate for equity and inclusion in the CS classroom. They work towards an intentional, equity-focused vision to improve access, engagement, and achievement for all of their students in CS.

| Effective CS teachers: | Meets | Does Not Meet | Reviewer Feedback |
| --- | --- | --- | --- |
| 2a. Examine how systemic barriers and social and psychological factors contribute to inequitable access, engagement, and achievement in CS among marginalized groups. Reflect on how issues of equity manifest in their own CS teaching context. | ☐ | ☐ |  |
| 2b. Develop purposeful strategies to proactively challenge unconscious bias and minimize stereotype threat in CS. | ☐ | ☐ |  |
| 2c. Incorporate diverse perspectives and experiences of individuals from marginalized groups in curricular materials and instruction. | ☐ | ☐ |  |
| 2d. Create and implement a plan to improve access, engagement, and full participation  in CS using classroom data to inform decision-making. | ☐ | ☐ |  |
| 2e. Evaluate tools and curricula and leverage resources to improve accessibility for  all students. | ☐ | ☐ |  |

## 3. PROFESSIONAL GROWTH AND IDENTITY

Effective CS teachers continuously develop their knowledge, practice, and professional identity to keep pace with the rapidly evolving discipline. They participate in the larger CS education community and collaborate with others to develop the skills that enable all students to succeed in their classes.

| Effective CS teachers: | Meets | Does Not Meet | Reviewer Feedback |
| --- | --- | --- | --- |
| 3a. Develop and implement a plan for targeted professional development to continuously deepen their CS content and pedagogical knowledge and skills. | ☐ | ☐ |  |
| 3b. Model willingness to learn from others and to continuously develop new skills. Demonstrate comfort in problem solving and perseverance when encountering new or challenging content. | ☐ | ☐ |  |
| 3c. Examine how their personal perspective, privilege, and power impact student success and classroom culture and continuously work to counteract biases. | ☐ | ☐ |  |
| 3d. Develop a personal teaching philosophy reflecting that all students can and should learn CS. | ☐ | ☐ |  |
| 3e. Identify and connect resources in the local community and broader CS ecosystem to support student learning in CS. | ☐ | ☐ |  |
| 3f. Participate in CS professional learning communities (PLCs) to collaborate with peers, celebrate successes, share lessons learned, and address challenges. | ☐ | ☐ |  |

## 4. INSTRUCTIONAL DESIGN

Effective CS teachers design learning experiences that engage students in problem solving and creative expression through CS, using pedagogical content knowledge (PCK). They plan to meet the varied learning, cultural, linguistic, and motivational needs of individual students in order to build student self-efficacy and capacity in CS.

| Effective CS teachers: | Meets | Does Not Meet | Reviewer Feedback |
| --- | --- | --- | --- |
| 4a. Analyze CS curricula for implementation in their classrooms in terms of CS standards alignment, accuracy, completeness of content, cultural relevance, and accessibility. | ☐ | ☐ |  |
| 4b. Design and adapt learning experiences that align to comprehensive K-12 CS standards. | ☐ | ☐ |  |
| 4c. Use Universal Design for Learning (UDL), Culturally Relevant Pedagogy (CRP), and other techniques to support all students in successfully accessing and engaging with content. | ☐ | ☐ |  |
| 4d. Design learning experiences that make connections to other disciplines and real-world contexts. | ☐ | ☐ |  |
| 4e. Plan opportunities for students to create and share open-ended and personally meaningful projects. | ☐ | ☐ |  |
| 4f. Plan activities that use evidence-based, CS-specific teaching strategies to develop students’ conceptual understanding and proactively address student misconceptions in CS. | ☐ | ☐ |  |
| 4g. Develop multiple forms and modalities of assessment to provide feedback and support. Use resulting data for instructional decision-making and differentiation. | ☐ | ☐ |  |

## 5. CLASSROOM PRACTICE

Effective CS teachers are responsive classroom practitioners who implement evidence-based pedagogy to facilitate meaningful experiences and produce empowered learners of CS.

| Effective CS teachers: | Meets | Does Not Meet | Reviewer Feedback |
| --- | --- | --- | --- |
| 5a. Use inquiry-based learning to enhance student understanding of CS content. | ☐ | ☐ |  |
| 5b. Cultivate a positive classroom climate that values and amplifies varied perspectives, abilities, approaches, and solutions. | ☐ | ☐ |  |
| 5c. Promote student self-efficacy by facilitating student creativity, choice in product and process, and self-directed learning. | ☐ | ☐ |  |
| 5d. Provide structured opportunities for students to collaborate in CS. Develop students’ ability to provide, receive, and respond to constructive feedback in the design, implementation, and review of computational artifacts. | ☐ | ☐ |  |
| 5e. Create and scaffold meaningful opportunities for students to discuss, read, and write about CS concepts and how they integrate  CS practices. | ☐ | ☐ |  |
| 5f. Use formative assessments to provide timely, specific, and actionable feedback to students and to adjust instruction. Develop students’ ability to interpret and use feedback from computers, teachers, peers, and community. | ☐ | ☐ |  |

## APPLICABLE STIPULATIONS:

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