New Report from Digital Promise Highlights the Role of Computational Thinking in Education and the Workforce

Report Contends Computational Thinking Is Central to Computer Science and Modern-Day Problem Solving

December 6, 2017; Washington, D.C. – In a report released today during Computer Science Education Week, Digital Promise argues that computational thinking is both central to computer science and widely applicable throughout education and the workforce. The report, *Computational Thinking for a Computational World*, offers recommendations for integrating computational thinking across K-12 curriculum, including advocacy campaigns, curriculum and resource development, professional development for teachers and administrators, and continued research.

The report traces the history of computing in schools and lays out the overlapping domains of coding, computer science, and computational thinking. Coding can be considered a technical skill; computer science is viewed as an academic discipline; and computational thinking is a problem-solving process central to computer science that can be applied more broadly to problem solving and learning in any discipline.

"As technology advances, we must educate students of all ages to thrive in a computational world," said Digital Promise President and CEO Karen Cator. "At Digital Promise, we see computational thinking skills as critical, applicable across all disciplines, and as a process to solve complex problems. Educators can and should engage with computational thinking in their classrooms today, and this paper provides some points of entry."

Computational thinking skills are versatile approaches to problem solving that include: gathering and organizing data to investigate questions and communicate findings; expressing procedures as algorithms; creating computational models that use data and algorithms to simulate complex systems; and using and comparing computational models to develop new insights about a subject.

Digital Promise has also published 10 educator micro-credentials to support teachers as they develop the competencies to integrate computational thinking into their classrooms. Five micro-credentials are dedicated to the key elements of computational thinking, such as working with data, creating algorithms, and making simulations with computational models. The other five focus on pedagogical practices for teaching computational thinking, such as creating inclusive learning environments, integrating computational thinking into existing curriculum, and assessing computational thinking.

This work was possible by the generous support from GM. To learn more, visit http://digitalpromise.org/CTReport.

About Digital Promise

Digital Promise is a nonprofit organization authorized by Congress to spur innovation in education to improve the opportunity to learn for all Americans. Through its work with educators, entrepreneurs, researchers, and leading thinkers, Digital Promise supports a comprehensive agenda to benefit lifelong learning and provide Americans with the knowledge and skills needed to compete in the global economy. For more information, visit the Digital Promise website and follow @digitalpromise for updates.

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