



Office of Teaching and Learning

Louisiana K-12 Computer Science Education Plan

Comprehensive Action Plan

Introduction

"In Louisiana, the fastest growing industry is Professional, Scientific, and Technical Services, which is composed of much of the technology industry. Software developers and network administrators are among the ten fastest-growing occupations in the state requiring a college education, yet the state is producing fewer than half of the graduates needed to fill computer science-related jobs. Successful completion of rigorous post-secondary computer science programs requires a thorough foundation at the elementary and secondary education levels. It is in the public interest that a comprehensive computer science education initiative be undertaken to ensure Louisiana has citizens who have the expertise to perform the technology skills embedded in most professions, who can meet the ever-increasing workforce demands in the technology sector, and who can envision and grow the next generation of technological advances." (Computer Science Education Act, 2022)

[Act 541](#) of the 2022 Legislative Session, also known as the "Computer Science Education Act," created the Louisiana Computer Science Education Advisory Commission (CSEAC or Commission) and outlined the responsibilities of the Commission, including the development of a report which included recommendations for the Louisiana State Board of Elementary and Secondary Education (BESE) to consider when developing a statewide computer science plan. This [report](#), developed with input from stakeholders, outlined six recommendations that can guide our journey toward a comprehensive computer science education for Louisiana students. Through a solid vision, which serves as a foundation, and key actions, based on the Commission's recommendations, this K-12 Computer Science Education Plan will elevate students' future potential and increase the number of individuals with skills ready to meet the industry and societal needs of our technology-driven world.

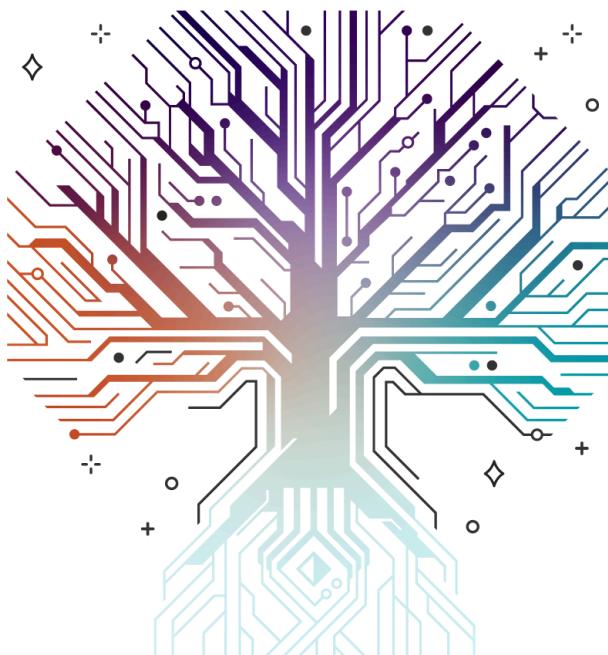
[Act 211](#) of the 2024 Legislative Session, also known as the "Computer Science Education Advancement Act," continued to build a comprehensive computer science education for Louisiana students through the creation of the Louisiana K-12 Computer Science Education Plan. This legislation also adds computer science to the required high school courses for graduation, an exploratory course in junior high schools, instruction within elementary schools, and computer science instruction within teacher education programs.

Vision

Louisiana's vision for K-12 Computer Science Education is to increase **digital literacy** skills through engagement with a **progression of computer science concepts and experiences** which prepare all students for success in society and future **career opportunities**.



Digital Literacy



Progression of Computer Science
Concepts & Experiences



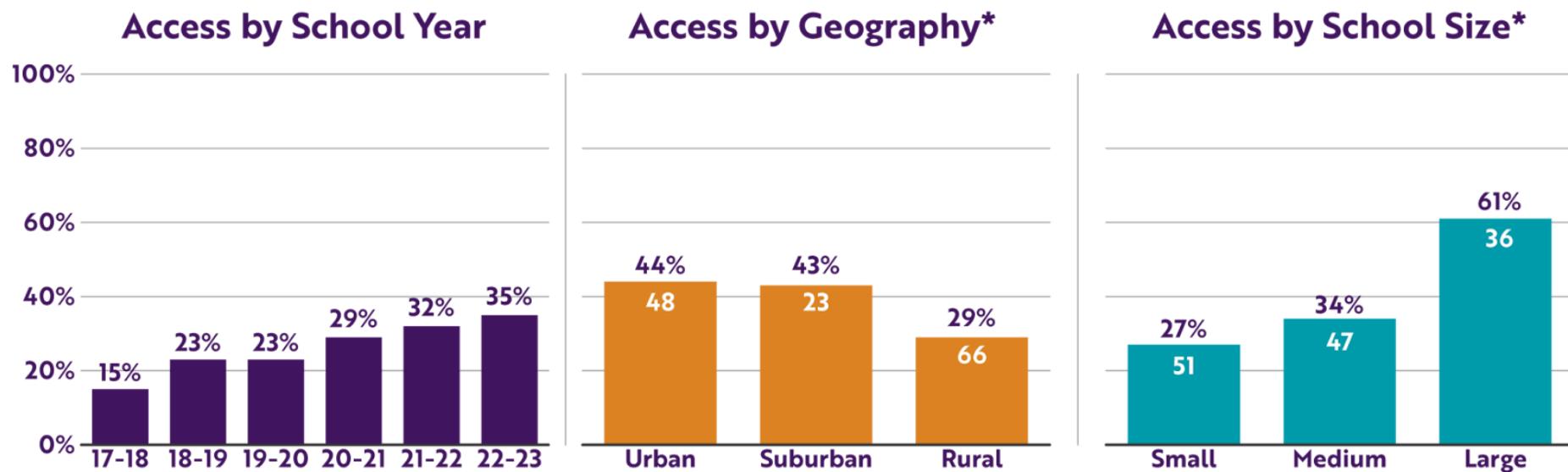
Career Opportunities

Built upon these foundations, Louisiana students will have access to a comprehensive computer science education offering a seamless transition from the K-12 setting to post-secondary pathways and careers.

Current Landscape

According to the annual report on K-12 computer science education provided by Code.org, 35% of Louisiana high schools offered a foundational computer science course, compared to the national average of 57.5%. This percentage has increased over the last five years from 15% in 2017. Rural (29%) and small schools (27%), by comparison, offer fewer courses than urban (44%) and large schools (61%). In 2023, Louisiana had an average of 4,605 open computing jobs monthly with an average salary of \$82,545. The need for students with computer science competencies and skills is growing, yet most students currently do not have access to computer science course offerings in high school.

Percentage of Public High Schools Offering Foundational Computer Science



*Data is from the most recent data school year 2022-2023

Key Actions to Achieve the Vision

Key Action 1	State Actions and Supports	System Actions
Establish state content standards in computer science for grades kindergarten through twelve.	<p>Establish the K-12 Computer Science Standards Writing Committee, composed of educators, experts, and business and industry leaders, to develop the K-12 Louisiana Student Standards for Computer Science. Through this set of comprehensive standards, our graduates will:</p> <ul style="list-style-type: none">• apply analytical and critical thinking skills to real-world situations;• demonstrate digital literacy and digital citizenship; and• utilize technology skills as employable citizens to meet present and future workforce needs.	Develop a system-level team to address the implementation of the K-12 Louisiana Student Standards for Computer Science .
	<p>Develop and offer regional training sessions and webinars overviewing the new standards and timelines for implementation.</p> <p>K-12 Louisiana Student Standards for Computer Science Introductory Webinar</p>	<p>Have members of the system-level team, such as school and system curriculum leaders, attend a training session.</p> <p>Redeliver training sessions throughout the system to assist in implementation within timelines specific to the system.</p>
	<p>Develop and publish Computer Science Frameworks for Standards Implementation, which show the overlap in existing mathematics and science standards.</p>	Utilize the system-level team to support school sites during the implementation of the

Key Action 1	State Actions and Supports	System Actions
		frameworks through teacher collaboration and leadership structures such as Instructional Leadership Teams (ILT).
	<p>Develop and offer regional training sessions and webinars overviewing the Computer Science Frameworks for Standards Implementation and best practices for implementation.</p> <p><u>K-12 Louisiana Student Standards for Computer Science Implementation Webinar</u></p>	<p>Identify instructional staff, such as instructional leaders, mentor teachers, or teacher leaders, to attend a training session.</p> <p>Redeliver training sessions to school sites and model best practices through teacher collaboration and common planning time.</p>

Key Action 2	State Actions and Supports	School System Actions
Provide a K-12 Computer Science education pathway to postsecondary education institutions and the workforce.	Develop and utilize a structured process to review computer science curriculum, leveraging Teacher Leader Advisors (TLAs) to evaluate materials. Publish a list of recommended materials for classroom use.	Conduct a <u>landscape analysis</u> of each school's current computer science offerings and ensure that schools are using recommended materials.
	Coordinate with existing and new curriculum providers to align existing <u>STEM Pathway</u> and computer science courses in grades	Identify teachers who may need refresher training to

Key Action 2	State Actions and Supports	School System Actions
	9-12 to the standards and state-wide Industry-Based Credentials (IBC).	offer updated 9-12 STEM Pathway or computer science courses and support schools through the transition of materials.
	Support school systems through guidance and information about programs offered to students, such as Fast Forward , Jumpstart Pathways , and registered apprenticeships .	Explore opportunities to benefit students by leveraging existing staff and capacity, such as Fast Forward , Jumpstart Pathways , and registered apprenticeships .

Key Action 3	State Actions and Supports	School System Actions
Provide guidance for a computer science course sequence for high school students, ensuring alignment to postsecondary entrance and eligibility for the Taylor Opportunity Program (T.O.P.S) for students.	Provide and support relevant Jump Start 2.0 Pathways, such as Information Technology and STEM Renaissance Computing & Cybersecurity Pathway , which offer a variety of computer science courses.	Analyze the landscape analysis and consider current course offerings and additions that may lead towards a pathway.
	Recommend guidance in reference to LA Act 502 to identify quality curricula that align with Industry-based certifications in programming languages.	Create a strategic staffing plan or modify the existing staffing plans to ensure that students have access to

Key Action 3	State Actions and Supports	School System Actions
		high-quality 9-12 computer science course options, educators, and high-quality virtual learning experiences.

Key Action 4	State Actions and Supports	School System Actions
Support computer science teacher professional development and additional certification pathways.	<p>Recommend additional certification mechanisms for teachers in grades 6-12 to add computer science to their teaching certificate (Bulletin 746 §1315), which currently includes:</p> <p>earn a passing score on the Computer Science (5652) Praxis Content exam, OR earn 21 credit hours in computer science.</p>	Utilize the data from the landscape mapping to identify current and potential staff members certified in Computer Science for grades 6-12.
	<p>Offer professional development to teachers:</p> <ul style="list-style-type: none"> • In grades K-5, on the fundamentals of computational thinking and computer science; and • In grades 6-12, to prepare for the Computer Science (5652) Praxis Content exam. 	Identify and support teachers to attend training through flexibility in release time or incentives. At a minimum, each school should aim to have at least one trained teacher.
	<p>Maintain a list of approved providers for the STEM Renaissance Computing & Cybersecurity Pathway, which offers training to 9-12 grade teachers in specific Pathway courses.</p>	Identify and support teachers to attend training through flexibility in release time or incentives as needed.

Key Action 4	State Actions and Supports	School System Actions
	<p>Collaborate with the Board of Regents to ensure that the appropriate guidance related to computer science courses and standards is embedded within pre-service and alternative teacher certification programs.</p>	<p>Leverage and strategically place new teachers entering the field with computer science knowledge to support school and system implementation of the standards.</p>

Key Action 5	State Actions and Supports	School System Actions
<p>Develop technical assistance grants to public schools for the creation and expansion of computer science courses.</p>	<p>Offer competitive funding in the form of Technical Assistance Grants to school systems for the creation and expansion of computer science courses.</p>	<p>Apply for Technical Assistance Grants to create or expand computer science courses and complete all necessary reporting requirements for such grants.</p>

Key Action 6	State Actions and Supports	School System Actions
<p>Identify funding strategies to support and maintain computer science teacher training and course offerings for students.</p>	<p>Maintain the LDOE computer science webpage with upcoming and potential grant opportunities.</p>	<p>Identify potential grant opportunities and partnership opportunities by working with state colleges and universities,</p>

Key Action 6	State Actions and Supports	School System Actions
		<u>LASTEM Centers</u> , and their school system's grant coordinator.
	Update and maintain guidance in relation to current funding mechanisms for <u>Jumpstart</u> programs and training opportunities.	Identify relevant programs and funding streams utilizing current guidance to support computer science initiatives and standards implementation.
	Offer <u>Jumpstart Enhancement Request</u> in October to school systems.	Utilize the <u>Jumpstart Enhancement Request</u> to request changes to Jumpstart pathways that meet local industry needs in computer science.