

CHOOSEATL

K-12 COMPUTER SCIENCE EDUCATION

Georgia is working to ensure every student has a chance to learn computer science skills during their K-12 education. The Georgia Department of Education participated in the development of the national K-12 Computer Science Framework, a set of concepts and practices developed by industry and private organizations from over a dozen states. Amazon was a supporter of the national framework. State standards for computer science in Georgia's elementary, middle and high schools are currently under development.

High School Course Options - Computer Science

In Georgia, public high school students have access to nine computer science courses as options for satisfying the foreign language/American Sign Language/computer science graduation requirement for admissions into the University System of Georgia (USG), including:

1. Computer Science Principles
2. Programming, Games, Apps and Society
3. Web Development
4. Game Design: Animation and Simulation
5. Embedded Computing
6. IB Computer Science, Year One
7. IB Computer Science, Year Two
8. AP Computer Science A
9. AP Computer Science Principles

Students can take either two units of the same foreign language, two units of American Sign Language, or two units of computer science that have an emphasis on coding and programming. Alternatively, high school students may choose to take one approved computer science course to satisfy one of four science units required.

High School Career Pathways - IT and STEM

Georgia's Department of Education Career, Technical and Agricultural Education (CTAE) Career Clusters offer high school students more than 130 career pathways within 17 career clusters, including Information Technology and Science, Technology, Engineering, and Mathematics. Students take classes tailored to the specific cluster. Each cluster includes multiple career pathways; however, not every career pathway is available at every school. Students begin to learn about potential careers in elementary and middle school, so they are ready to choose a pathway once they reach high school. Then they are guided through high school with a plan of study (see example [here](#)) for academic, required elective, and recommended elective courses applicable to their career pathway of choice. To complete a CTAE career pathway, students must complete three or more pathway courses followed by the End of Pathway Assessment (EOPA).

Approximately 27,000 public high school students in metro Atlanta are enrolled in Georgia's Department of Education Information Technology (IT) career cluster.

Georgia's IT career cluster includes ten career pathways:

1. Computer Science – courses include Introduction to Digital Technology, Computer Science Principles or AP Computer Science Principles, AP Computer Science
2. Programming – courses include Introduction to Digital Technology, Computer Science Principles or AP Computer Science Principles, Programming, Games, Apps and Society
3. Web and Digital Design – courses include Web Design, Digital Design, Introduction to Digital Technology
4. Web Development – courses include Web Development, Computer Science Principles or AP Computer Science, Introduction to Digital Technology
5. Cybersecurity – courses include Introduction to Cybersecurity, Advanced Cybersecurity, Introduction to Digital Technology
6. Internet of Things – courses include Embedded Computing, Introduction to Digital Technology, Computer Science Principles or AP Computer Science
7. Game Design – courses include Game Design: Animation and Simulation, Introduction to Digital Technology, Computer Science Principles or AP Computer Science
8. Networking – courses include Networking Fundamentals, Networking Systems and Support, Introduction to Digital Technology
9. Information Support and Services – courses include IT Essentials, IT Support, Introduction to Digital Technology
10. Health Information Technology – courses include Introduction to Healthcare Science, Essentials of Health Information Technology, Applications of Health Information Technology

Georgia's STEM career cluster includes an Engineering and Technology career pathway. Courses include Foundations of Engineering and Technology, Engineering Concepts, and Engineering Applications.

To help businesses understand the pipeline of aspiring young talent in Georgia, Georgia's Career Pipeline online tool is [available](#). The number of enrolled students within every district and school for each career pathway can be queried.

High School AP Education - Computer Science

In 2017, more than 3,200 students in Georgia public schools took an AP Computer Science exam (Computer Science Principles or Computer Science A). More than 100 public and private high schools offered an AP Computer Science course in the 2016-2017 school year. Computer Science continues to grow each year with more schools gaining approval to teach AP.

AP Computer Science Exam Participation at Georgia Public Schools, 2017

AP Exam	Number of AP Exams
Computer Science Principles	1,696
Computer Science A	1,555

Total: 3,251

Source: The College Board, September 22, 2017

Metro Atlanta Public and Private High Schools Offering AP Computer Science, 2016-2017

High School	AP Course	City
Allatoona High School	AP Computer Science Principles	Acworth
Alpharetta High School	AP Computer Science A; AP Computer Science Principles	Alpharetta
Chattahoochee High School	AP Computer Science A; AP Computer Science Principles	Alpharetta
Fulton Science Academy	AP Computer Science Principles	Alpharetta
Kings Ridge Christian School	AP Computer Science A	Alpharetta
Saint Francis High School	AP Computer Science Principles	Alpharetta
Ben Franklin Academy	AP Computer Science A	Atlanta
Coretta Scott King Young Women's Leadership Academy	AP Computer Science Principles	Atlanta
Georgia Virtual School	AP Computer Science A; AP Computer Science Principles	Atlanta
Henry W Grady High School	AP Computer Science A; AP Computer Science Principles	Atlanta
Holy Innocents Episcopal School	AP Computer Science A	Atlanta
Lovett School	AP Computer Science A	Atlanta
Marist School	AP Computer Science A	Atlanta
Pace Academy	AP Computer Science A	Atlanta
Saint Pius X Catholic High School	AP Computer Science A; AP Computer Science Principles	Atlanta
The Weber School	AP Computer Science A	Atlanta

The Westminster Schools	AP Computer Science A; AP Computer Science Principles	Atlanta
Bowdon High School	AP Computer Science Principles	Bowdon
Bremen High School	AP Computer Science A	Bremen
Cherokee High School	AP Computer Science A; AP Computer Science Principles	Canton
Sequoyah High School	AP Computer Science A	Canton
Carrollton High School	AP Computer Science A	Carrollton
Mount Zion High School	AP Computer Science Principles	Carrollton
Chamblee Charter High School	AP Computer Science A	Chamblee
Woodward Academy	AP Computer Science A; AP Computer Science Principles	College Park
Rockdale Career Academy	AP Computer Science A; AP Computer Science Principles	Conyers
Rockdale County High School	AP Computer Science Principles	Conyers
Covenant Christian Academy	AP Computer Science A	Cumming
Forsyth Central High School	AP Computer Science A; AP Computer Science Principles	Cumming
North Forsyth High School	AP Computer Science A; AP Computer Science Principles	Cumming
South Forsyth High School	AP Computer Science A; AP Computer Science Principles	Cumming
West Forsyth High School	AP Computer Science A; AP Computer Science Principles	Cumming
Decatur High School	AP Computer Science Principles	Decatur
DeKalb High School of Technology - South	AP Computer Science A	Decatur
Chapel Hill High School	AP Computer Science Principles	Douglasville
Douglas County High School	AP Computer Science Principles	Douglasville
Duluth High School	AP Computer Science A	Duluth
Georgia Connections Academy	AP Computer Science A	Duluth
Northview High School	AP Computer Science A	Duluth
Dunwoody High School	AP Computer Science A	Dunwoody
Tri-Cities High School	AP Computer Science Principles	East Point
Landmark Christian School	AP Computer Science A	Fairburn
Our Lady of Mercy Catholic High School	AP Computer Science A	Fayetteville
Starr's Mill High School	AP Computer Science A	Fayetteville
Whitewater High School	AP Computer Science A	Fayetteville
Forest Park High School	AP Computer Science Principles	Forest Park
Johns Creek High School	AP Computer Science A; AP Computer Science Principles	Johns Creek
Mount Pisgah Christian School	AP Computer Science A	Johns Creek
Kennesaw Mountain High School	AP Computer Science A; AP Computer Science Principles	Kennesaw

Mount Paran Christian School	AP Computer Science A	Kennesaw
North Cobb High School	AP Computer Science A; AP Computer Science Principles	Kennesaw
Central Gwinnett High School	AP Computer Science A; AP Computer Science Principles	Lawrenceville
Discovery High School	AP Computer Science A; AP Computer Science Principles	Lawrenceville
Gwinnett School of Mathematics Science and Technology	AP Computer Science A; AP Computer Science Principles	Lawrenceville
Al-Falah Academy	AP Computer Science A; AP Computer Science Principles	Lilburn
Berkmar High School	AP Computer Science A; AP Computer Science Principles	Lilburn
Killian Hill Christian School	AP Computer Science A	Lilburn
Lithia Springs High School	AP Computer Science A; AP Computer Science Principles	Lithia Springs
Arabia Mountain High School	AP Computer Science Principles	Lithonia
Lithonia High School	AP Computer Science A	Lithonia
Martin Luther King Junior High School	AP Computer Science Principles	Lithonia
Luella High School	AP Computer Science A	Locust Grove
Grayson High School	AP Computer Science A	Loganville
Loganville Christian Academy	AP Computer Science A	Loganville
Loganville High School	AP Computer Science A	Loganville
Scholars Guild Academy	AP Computer Science Principles	Loganville
Walnut Grove High School	AP Computer Science A	Loganville
Whitefield Academy	AP Computer Science A	Mableton
Morgan County High School	AP Computer Science Principles	Madison
Lassiter High School	AP Computer Science A	Marietta
Marietta High School	AP Computer Science Principles	Marietta
Pope High School	AP Computer Science A; AP Computer Science Principles	Marietta
Walker School	AP Computer Science A; AP Computer Science Principles	Marietta
Walton High School	AP Computer Science A; AP Computer Science Principles	Marietta
Wheeler High School	AP Computer Science A; AP Computer Science Principles	Marietta
Cambridge High School	AP Computer Science A; AP Computer Science Principles	Milton
Milton High School	AP Computer Science A; AP Computer Science Principles	Milton
George Walton Academy	AP Computer Science A	Monroe
Jasper County High School	AP Computer Science Principles	Monticello
The Heritage School	AP Computer Science Principles	Newnan

Greater Atlanta Christian School	AP Computer Science A; AP Computer Science Principles	Norcross
Meadowcreek High School	AP Computer Science A; AP Computer Science Principles	Norcross
Norcross High School	AP Computer Science Principles	Norcross
Wesleyan School	AP Computer Science A	Norcross
McIntosh High School	AP Computer Science A	Peachtree City
Hillgrove High School	AP Computer Science A	Powder Springs
McEachern High School	AP Computer Science Principles	Powder Springs
Blessed Trinity Catholic High School	AP Computer Science Principles	Roswell
Centennial High School	AP Computer Science A; AP Computer Science Principles	Roswell
Fellowship Christian School	AP Computer Science A	Roswell
Roswell High School	AP Computer Science A; AP Computer Science Principles	Roswell
North Springs High School	AP Computer Science Principles	Sandy Springs
Riverwood International High School	AP Computer Science A	Sandy Springs
Brookwood High School	AP Computer Science A	Snellville
South Gwinnett High School	AP Computer Science A	Snellville
Community Christian School	AP Computer Science Principles	Stockbridge
Woodland High School	AP Computer Science Principles	Stockbridge
Lanier High School	AP Computer Science A; AP Computer Science Principles	Sugar Hill
Collins Hill High School	AP Computer Science A; AP Computer Science Principles	Suwanee
Lambert High School	AP Computer Science A; AP Computer Science Principles	Suwanee
North Gwinnett High School	AP Computer Science A	Suwanee
Peachtree Ridge High School	AP Computer Science A; AP Computer Science Principles	Suwanee
Sandy Creek High School	AP Computer Science A; AP Computer Science Principles	Tyrone
Villa Rica High School	AP Computer Science A; AP Computer Science Principles	Villa Rica
Apalachee High School	AP Computer Science A	Winder
Winder-Barrow High School	AP Computer Science A	Winder
Etowah High School	AP Computer Science A; AP Computer Science Principles	Woodstock

River Ridge High School	AP Computer Science A; AP Computer Science Principles	Woodstock
Woodstock High School	AP Computer Science A; AP Computer Science Principles	Woodstock

Source: The College Board, September 29, 2017

K-12 Plans - Computer Science for All

In 2017, Douglas County Schools announced it will be the first district in Georgia to offer computer science classes at all grade levels. Douglas County will phase in the Computer Science for All initiative, in partnership with Code.org, Google, Georgia Tech Center for Education Integrating Science, Mathematics and Computing (CEISMC), and the Georgia Department of Education. The curriculum is expected for the 2019-2020 school year.

The Georgia Department of Education and key stakeholders for local computer science education are in the planning phase for a Computer Science for Georgia initiative. The current goal is to expand teacher professional development opportunities and raise public awareness for access to computer science courses. With a recent grant awarded from the National Science Foundation, five districts in Georgia, including Atlanta Public Schools (APS) and Douglas County Schools, will be a test ground for advancements in K-12 computer science education.

K-12 STEM Certified Schools

The Georgia Department of Education is dedicated to preparing students for 21st century careers by providing high-quality educational opportunities in science, technology, engineering, and mathematics (STEM) fields. There are 31 K-12 schools in metro Atlanta that are STEM-certified by the Georgia Department of Education.

Metro Atlanta STEM Certified Schools by the Georgia Department of Education

School	District	Level
Carrollton Elementary School	Carrollton City	Elementary
Clark Creek Elementary School	Cherokee County	Elementary
Rex Mill Middle School	Clayton County	Middle
Ford Elementary School School	Cobb County	Elementary
Tritt Elementary School	Cobb County	Elementary
Cooper Middle School	Cobb County	Middle
Kennesaw Mountain High School Academy of Mathematics, Science and Technology	Cobb County	High
Wheeler Center for Advanced Studies (STEAM certified)	Cobb County	High
Dunwoody Elementary School	DeKalb County	Elementary

Henderson Mill Elementary School (STEAM certified)	DeKalb County	Elementary
Hightower Elementary School	DeKalb County	Elementary
Sagamore Hills Elementary School	DeKalb County	Elementary
Tucker Middle School	DeKalb County	Middle
Lithia Springs High School	Douglas County	High
Forsyth Central High School	Forsyth County	High
Amana Academy-Elementary School	Fulton County	Elementary
River Eves Elementary School	Fulton County	Elementary
Woodland Elementary School	Fulton County	Elementary
Amana Academy-Middle School	Fulton County	Middle
Cowan Road Elementary School	Griffin-Spalding County	Elementary
White Oak Elementary School	Gwinnett County	Elementary
Peachtree Ridge High School	Gwinnett County	High
Gwinnett School of Mathematics, Science and Technology	Gwinnett County	High
Lanier High School	Gwinnett County	High
Pleasant Grove Elementary School	Henry County	Elementary
Marietta Center for Advanced Academics	Marietta City	Elementary
Marietta 6th Grade Academy	Marietta City	Middle
Marietta Middle School	Marietta City	Middle
Newton College and Career Academy	Newton County	High
Memorial Middle School	Rockdale County	Middle
Rockdale Magnet School for Math and Science	Rockdale County	High

Source: Georgia Department of Education, January 11, 2017

Several Atlanta Public Schools (APS) are in the process of pursuing STEM certification and have selected career themes, including Coretta Scott King Young Women’s Academy (Computer Science and Engineering), Washington High School (Computer Science), BEST Academy (Engineering), Douglass High School (Engineering), and South Atlanta High School (Engineering).

Atlanta-based, non-profit AdvancED, a world leader in school improvement and accreditation, is an international K-12 STEM certification provider. AdvancED’s STEM certification provides a research-based framework and criteria for continuous improvement of the quality, rigor, and substance of each school’s STEM programs. There are 32 K-12 schools in metro Atlanta that are STEM certified by AdvancED.

Metro Atlanta STEM Certified Schools by AdvancED

School	District	Level
Carrollton High School	Carroll County	High
Brumby Elementary School	Cobb County	Elementary
Cooper Middle School	Cobb County	Middle

Ford Elementary School	Cobb County	Elementary
Kennesaw Mountain High School	Cobb County	High
Lassiter High School	Cobb County	High
Mabry Middle School	Cobb County	Middle
Shallowford Falls Elementary School	Cobb County	Elementary
Tritt Elementary School	Cobb County	Elementary
Ashford Park Elementary School	DeKalb County	Elementary
Austin Elementary School	DeKalb County	Elementary
Briarlake Elementary School	DeKalb County	Elementary
Chapel Hill Elementary School	DeKalb County	Elementary
Chestnut Charter Elementary School	DeKalb County	Elementary
DeKalb Academy of Technology and Environment (D.A.T.E.)	DeKalb County	Elementary, Middle
Evansdale Elementary School	DeKalb County	Elementary
Hawthorne Elementary School	DeKalb County	Elementary
Huntley Hills Elementary School	DeKalb County	Elementary
Laurel Ridge Elementary School	DeKalb County	Elementary
Midvale Elementary School	DeKalb County	Elementary
Montgomery Elementary School	DeKalb County	Elementary
Oakcliff Theme School	DeKalb County	Elementary
Peachtree Charter Middle School	DeKalb County	Middle
R.E. McNair Discovery Learning Academy	DeKalb County	Elementary
Sagamore Hills Elementary School	DeKalb County	Elementary
Stone Mountain Middle School	DeKalb County	Middle
Vanderlyn Elementary School	DeKalb County	Elementary
Wadsworth Magnet School for High Achievers	DeKalb County	Elementary
Lithia Springs High School	Douglas County	High
Whitlow Elementary School	Forsyth County	Elementary
Peachtree Ridge High School	Gwinnett County	High
Marietta Center for Advanced Academics	Marietta City	Elementary
Marietta Center for Advanced Academics	Marietta City	Elementary

Source: AdvancED, October 3, 2017

Examples of Teacher Professional Development (computer science/coding)

Code.org

Seattle-based, non-profit Code.org, its regional partner Georgia Tech Center for Education Integrating Science, Mathematics, and Computing (CEISMC), and eight facilitators have provided professional learning in Georgia for 3,059 teachers in Computer Science Fundamentals (K-5), 27 teachers in Exploring Computer Science and 46 teachers in Computer Science Principles. Code.org's Computer Science Fundamentals workshops are free for K-5 teachers interested in teaching computer science. There are 12,019 teacher accounts and 469,972 student accounts on Code.org in Georgia.

Georgia Tech Center for Education Integrating Science, Mathematics and Computing (CEISMC)

Georgia Tech's CEISMC enhances PreK-12 and post-secondary STEM education by drawing upon the Georgia Tech community to stimulate interest in STEM among students and teachers. CEISMC is a Code.org professional learning partner for training teachers throughout Georgia to teach computer science at all grade levels. CEISMC, which began in 1990, also partners with various local school districts and/or schools to implement programs as well as advocate for systemic changes to improve K-12 performance, with an emphasis serving those underrepresented in STEM education.

honorCode

Atlanta-based non-profit honorCode won first place in the not-for-profit class at the 2016 \$1 Million Change the World Competition at the Forbes Under 30 Summit held in Boston, taking home \$50,000 in cash from the Charles and Lynn Schusterman Family Foundation and \$375,000 in media grants from Forbes. Founder Jeffrey Martín's organization provides K-12 project-based coding curriculum to teachers and school partners as well as after-school programming and emotional support. Atlanta native Martín aspires to make coding an economic empowerment tool for students, especially in the Black and Latino communities. More than 1,400 Atlanta students and 40 teachers were impacted at the end of honorCode's first year of operation.

Georgia Innovation in K-12 Computer Science/Coding Professional Learning Grants

The State of Georgia has a competitive grant program that supports education agencies and individual schools that improve instruction in computer science/coding. Each grant winner receives up to \$150,000 to support innovative professional learning programs that promote student achievement or expand student access to computer science/coding programs. Grant winners from the last two years include Georgia Tech Research Institute and Sandy Creek High School in Fayette County.

Integrating Computer Science Project at Centennial Academy

Georgia Tech, Georgia State University, and the International Society for Technology in Education (ISTE) support teachers in grades 3-5 at Centennial Academy to integrate computer science into lessons through project-based learning. The three-year program is funded by a \$1.2 million grant to Georgia State University from the National Science Foundation. Centennial Academy, in the heart of downtown Atlanta, is a K-8 conversion charter school with a STEAM focus that was built on the site formerly occupied by Techwood Homes, the nation's first public housing project.

Examples of Student Development/Free Programs (computer science/coding)

Georgia Day of Code

In partnership with Code.org, the Technology Association of Georgia (TAG) and TAG Education Collaborative (TAG-Ed) developed Georgia Day of Code as an opportunity for teachers, students and individuals of all ages to get exposed to coding skills. Georgia Day of Code occurs annually during Computer Science Week in conjunction with Code.org's Hour of Code initiative.

ChickTech Atlanta

ChickTech Atlanta's ChickTech High School is a year-long series of STEM-related opportunities for 100 select high school girls in the Atlanta area, particularly focused on girls with no technology creation experience. The free program is meant to supplement education by providing mentoring, workshops, and internships during the summer. The program begins with a two-day weekend event in November for girls to work together building STEM projects to be presented at a tech fair open to the community. Girls may attend additional workshops throughout the school year.

Atlanta BridgeCommunity Coding and Entrepreneur Camp

In partnership with the Coca-Cola Company and STEAMSport Inc., the Technology Association of Georgia (TAG) and TAG Education Collaborative (TAG-Ed) held a free, four-week summer camp for 30 select students from Title 1 Atlanta public high schools. The camp is part of Coca-Cola's High School Future Entrepreneurs Program (HS-FEP) that works to prepare the next generation of entrepreneurs.

Tino J. Mantella Coding Camp

In partnership with STEAMSport, Inc., the Technology Association of Georgia (TAG) and TAG Education Collaborative (TAG-Ed) held the inaugural Tino J. Mantella Coding Camp. This free, four-week program was provided to 30 select high school students in

TAG-Ed's Exploring STEM Careers Pipeline program.

Girls Who Code Atlanta Summer Immersion Program

Five major employers in metro Atlanta participate in the Girls Who Code Summer Immersion Program: Accenture, AT&T, First Data, GE and Turner. The free, seven-week program for 10th and 11th grade girls covers computer science projects, guest speakers, and connections with female engineers and entrepreneurs, workshops, and field trips. Participants conclude the program by building a final project and presenting to their class.

International Baccalaureate Programs

The International Baccalaureate (IB) offers a continuum of international education. The programs encourage both personal and academic achievement, challenging students to excel in their studies and in their personal development. Schools with such programs are known as IB World Schools.

There are a number of IB World Schools across metro Atlanta. The following list includes a sampling of IB World Schools in the region:

- Campbell High School
- Carrollton High School
- Decatur High School
- Douglas County High School
- Druid Hills High School
- Lovejoy High School
- Marietta High School
- Martin Luther King Jr. High School
- Maynard Holbrook Jackson High School
- Norcross High School
- North Atlanta High School
- Notre Dame Academy
- Riverwood International Charter School
- Shiloh High School
- South Forsyth High School
- Tucker High School
- Westlake High School