# K-12 Computer Science Course Opportunities in Virginia

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Computer Science skills are essential in today’s society. The development of these skills in grades K-12 is a critical component of preparing graduates for entry into the workforce or to pursue higher education coursework. In order to prepare students with these skills, the Virginia Department of Education has a variety of different coursework options that students may choose in preparation for careers and higher education.

K-8 Computer Science: The 2017 *Computer Science Standards of Learning* and *Curriculum Framework* provide foundational skills and practices for all students. The expectation is that these standards are taught at all grade levels and integrated into other discipline content as appropriate.

Middle School Computer Science Elective: Provides middle school students the opportunity to engage in computer science at greater depth than the integrated course content provided to all students through the K-8 *Computer Science Standards* *of Learning.*

## High School Computer Science

Students have the opportunity to take different pathways in order to explore computer science concepts at a greater depth and in order to prepare them for the workforce or higher education.

|  | Career and Technical | Computer Science Course Electives |
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| Intent of the programs | The Career and Technical Education (CTE) Pathways allow students the opportunity to complete a sequence of courses within a career pathway and take an industry credential examinationwith the goal of gaining a certification in the area. | Computer Science electives provide a broader overview of computer science content. |
| Program distinction | These courses are composed of competencies that align to expectations within specific career and academic fields. The competencies include an emphasis on workplace readiness and application of content to tasks that are affiliated with the intended career field. | These programs provide content aligned to the 2017 Computer Science Standards of Learning and Advanced Placement. Instructors use the expectations in the 2017 Computer Science Curriculum Framework and the College Board to design tasks that allow students to demonstrate mastery of the intended content. |
| Outcome | Industry Certification in Specific Area | Advanced Placement test at the completion of AP coursework. It is up to institutes of higher education to determine credit awarded for performance on an Advanced Placement test. |
| Course Sequence Completion | Successful completion of course pathways meets course sequence graduation requirements. A pathway may consist of both CTE courses and Computer Science Elective courses.  | Successful completion of any two Computer Science elective courses meets course sequence graduation requirements.  |

## Computer Science and World Language

[**SB 323**](https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+SB323) (Barker) **Board of Education; high school graduation requirements; certain substitutions.**Requires the Board of Education, in establishing high school graduation requirements, to permit a student who is pursuing an advanced diploma and whose individualized education program specifies a credit accommodation for world language to substitute two standard units of credit in computer science for two standard units of credit in a world language. The bill provides that for any student electing to substitute a credit in computer science for credit in world language, his school counselor shall provide notice to the student and parent or guardian of possible impacts related to college entrance requirements.

## Computer Science Sequences

Two courses of any of the courses below would count towards a computer science sequence needed for graduation credit.

**§ 22.1-253.13:4. Standard 4. Student achievement and graduation requirements**.

5. Require students to complete at least one course in fine or performing arts or career and technical education, one course in United States and Virginia history, and two sequential elective courses chosen from a concentration of courses selected from a variety of options that may be planned to ensure the completion of a focused sequence of elective courses that provides a foundation for further education or training or preparation for employment.

AP Computer Science A (10157)

AP Computer Science AB (10158: Course discontinued 2017)

AP Computer Science Principles (10019)

Computer Science Principles (10011)

Computer Science Foundations (10020)

Computer Science Programming (10021)

IB Computer Science (10159)

*Career and Technical courses*

Programming (10152)

Advanced Programming (10152)

Game Design and Development (10205)

Game Design and Development, Advanced (10205)

Software Engineering Essentials -PLTW (10015)

Software Engineering -PLTW (10015)