

Your Question:

You were interested in 50-state information on:

- Number of math credits required for high school graduation.
- Number of science credits required for high school graduation
- Whether any computer science (CS) coursework is required.
- Whether CS credits can count toward a math, science, or other (elective/CTE) requirement.

Our Response:

The table below provides details in response to the questions above.

Summary of Findings

Math requirements

- Two states: two credits.
- 26 states: three credits.
- 16 states: four credits
- One state: No standard diploma pathway. Math credit requirements vary by pathway.
- Six states do not specify the number of math credits students must complete to graduate (locally determined or competency-based model)

Science requirements

- Seven states: two credits.
- 33 states: three credits.
- Three states: four credits.
- Two states: No standard diploma pathway. Science credit requirements vary by diploma pathway.
- Six states do not specify the number of science credits students must complete to graduate (locally determined or competency-based model)

Any computer science coursework required

- One state – West Virginia – may require all high school students to complete a computer science course. Further research is necessary to confirm this.
- One state – Virginia – requires each district’s locally adopted K-12 program of instruction to include computer science. Students are not required to complete a computer science course, however, to graduate from high school.

Allowing computer science courses to fulfill credit requirements in another subject

- 29 states: Computer science coursework must be allowed to fulfill math credit requirements.
- 13 states: Computer science coursework must be allowed to fulfill science credit requirements.

Additional data & links

[Computer Science in High School Graduation](#)

[Requirements](#) (Education Commission of the States, updated Sept. 2016) Identifies specifics of how computer science may apply toward graduation requirements.

[State of the States Landscape Report: State-Level Policies](#)

[Supporting Equitable K-12 Computer Science Education](#) (Education Commission of the States and other organizations, April 2017) Provides insights into emerging best practices and issues to be addressed when allowing computer science to substitute for a core graduation credit.

- Five states: Computer science coursework to be allowed to fulfill other credit requirements (CTE, foreign language).
- Four states: Course substitutions at district discretions.
- One state: Course substitution conversations underway.

“Any CS coursework required” below does not include states that require computer applications or similar coursework that is not computer science content.

The information below is for the standard diploma. Some states allow students to earn (1) a standard diploma by completing requirements below these requirements, and/or (2) an advanced diploma or one or more endorsements to the standard diploma. Additional information on these options available upon request.

State	Math credits required	Science credits required	Any CS coursework required	Can CS count toward another requirement	Sources
Alabama	4	4	No	Yes – math	Ala. Admin. Code r. 290-3-1-.02(8); “Additional Mathematics Courses”
Alaska	3	2	No	No	
Arizona	4	3	No	At district discretion: math	A.A.C. R7-2-302(1)(c), (d); A.R.S. § 15-701.01(B)(2)
Arkansas	4 ¹	3 ²	No	Yes – math or science	Ark. Admin. Code 005.15.2-14.02
California	2	2	No	At district discretion: math, if a district requires more than two units of math for HS graduation	West’s Ann. Cal. Educ. Code § 51225.3(a)(B), (C), 51225.35
Colorado	Credit requirements set by districts			At district discretion: math or science	C.R.S.A. § 22-32-133.5(3)
Connecticut	3 ³	2 ⁴	No	No	C.G.S.A. § 10-221a(b), (c)
Delaware	4	3	No	Yes – math	14 Del. C. § 4138; 14 Del. Admin. Code 505(4.1)
District of Columbia	4	4	No	Yes – math	5-A DCMR § 2203.3
Florida	4	3		Yes – math or science	West’s F.S.A. § 1003.4282(3)(b), (c), § 1007.2616(3)(a)
Georgia	4	4	No	Yes – math or science	Ga Comp. R. & Regs. 160-4-2-.48(3)(b)(3); “Fourth Science Options”; 2018-2019 State-Funded List of K-8 Subjects and 9-12 Courses
Hawaii	3	3	No	No	Board Policy 102-15

¹ Either four units of math or three units of math and one unit of CS.

² Either three units of science or two units of science and one unit of CS.

³ Effective Class of 2023, students must complete a minimum of nine credits in science, technology, engineering and math (no specific minimum number of math credits required).

⁴ Effective Class of 2023, students must complete a minimum of nine credits in science, technology, engineering and math (no specific minimum number of science credits required).

State	Math credits required	Science credits required	Any CS coursework required	Can CS count toward another requirement	Sources
Idaho	3	3	No	Yes – math or science	IDAPA 08.02.03.105.01
Illinois	3	2	No	Yes – math	105 ILCS 5/27-22(e)(3), (4)
Indiana ⁵	3	3	No	No	511 IAC 6-7.1-5
Iowa	3	3	No	Yes – math or science ⁶	Iowa Admin. Code 281-12.5(5)
Kansas	3	3	No	No	K.A.R. 91-31-35(a)(3), (4)
Kentucky	3	3	No	Yes – math	704 Ky. Admin. Regs. 3:305; Ky. Dept. of Ed. Graduation Requirements: Frequently Asked Questions
Louisiana	4	⁷	No	Yes – math	La. Admin Code. tit. 28, Pt CXV, § 2318(C)(3), § 2319
Maine	Students must demonstrate proficiency in math, science each year of high school. ⁸		No	In progress. ⁹	20-A M.R.S.A. § 4722-A(1)(E), (B-2)
Maryland	3	3	No	Yes – math and technology education	COMAR 13A.04.12.01(A)(2)(g), (j), 13A.03.02.03((B)(3), (6); Maryland State Department of Education 2015 memo, “ Expanding Technology Education Choices for Students ”
Massachusetts	Credit requirements set by districts			No	
Michigan	4	3	No	Yes – math and science	M.C.L.A. 380.1278a(1)(a)(i), 380.1278b(1)(b)
Minnesota	3	3	No	Yes – math	M.S.A. § 120B.024, Subd. 1(2), (4), Subd. 2(e)

⁵ For Core 40 diploma, currently the default high school diploma. Effective with the Class of 2023, [Graduation Pathway Requirements](#) adopted by State Board of Education December 2017 are new graduation requirements.

⁶ [2017 S.F. 274](#) charges Computer Science Education Work Group with developing recommendations by July 2019 on “how one or more high-quality computer science courses can satisfy high school graduation requirements for mathematics or science.”

⁷ Four for University Diploma, two for Jump Start TOPS Tech Diploma (also known as Career Diploma).

⁸ Effective Class of 2021, students must demonstrate proficiency in meeting the state content standards in math, English and social studies; in each year Class of 2022 through 2024, students must demonstrate proficiency in one additional content area of the student’s choosing (Class of 2024 students must meet content standards in English, math and social studies and at least three additional content areas of the student’s choosing).

⁹ [2017 H.P. 289 - L.D. 398](#) directs the Science, Technology, Engineering and Mathematics Council to convene a Computer Science Task Force. One of the duties of the task force is to “Identify the key elements of computer science education that provide mathematics or science competencies needed to attain a proficiency-based diploma[.]”

State	Math credits required	Science credits required	Any CS coursework required	Can CS count toward another requirement	Sources
Mississippi	Varies by diploma pathway ¹⁰		No ¹¹	No	Mississippi 2017 Public School Accountability Standards, Appendix A-1 through A-4, A-6
Missouri	3	3	No	No	5 Mo. Code of State Regulations 20-100.190(1)
Montana	2	2	No	No	Mont. Admin. R. 10.55.905
Nebraska	3	3	No	No	Neb. Admin. R. & Regs. Tit. 92, Ch. 10, §003.05
Nevada	3	2	No	Yes – math or science	NAC 389.664(1); 2017 S.B. 200
New Hampshire	Competency-based graduation requirements ¹²		No	No	N.H. Code Admin. R. 306.27(e), (f), (t), (u)
New Jersey	3	3	No	Yes - math	N.J.A.C. 6A:8-5.1; N.J.S.A. 18A:7C-2.1
New Mexico	4	3	No	Yes – math or science	N. M. S. A. 1978, § 22-13-1.1(J)(2), (3), 2017 SB 134
New York	3	3	No	At district discretion: math or science	8 NYCRR 100.5; New York State Education Department Memo, “Using Courses in Computer Science to Meet the Requirements for a Regents or Local Diploma,” October 2014
North Carolina	4	3	No	Yes – math	North Carolina State Board of Education Policy GRAD-004 , GRAD-008 ; North Carolina Dept. of Public Instruction Math Options Chart
North Dakota	3	3	No	Yes – math	NDCC, 15.1-21-02.2(2)
Ohio	4	3	No	Yes – math or science	R.C. § 3313.603(C)(3), (5)
Oklahoma	3	3	No	Yes – math and foreign language	70 Okl. St. Ann. § 11-103.6(B)(2), (3), (5), (C)(2)
Oregon	3	3	No	No	OAR 581-022-2000(6)

¹⁰ Mississippi offers multiple pathways to the standard diploma. District Option: four units of math, three units of science. Standard Option: four units of math, four units of science. Career Pathway Option: three units of math, three units of science. Mississippi Early Exit Diploma Option: 3 units math, 2 units science.

¹¹ Students in the current Diploma Option pathway (last available to incoming ninth graders in 2017-18) must complete one unit of technology or one unit of computer science. However, effective Class of 2021, all students will complete one unit of technology or one unit of computer science.

¹² While regulation specifies three units of math and two units of science, graduation must be based on mastery of required graduation competencies as demonstrated through the accumulation of credits. Credits shall be based on the demonstration of district and/or graduation competencies, not on time spent achieving these competencies. The credit shall equate to the level of rigor and achievement necessary to master competencies that have been designed to demonstrate the knowledge and skills necessary to progress toward college level and career work.

State	Math credits required	Science credits required	Any CS coursework required	Can CS count toward another requirement	Sources
Pennsylvania	Credit requirements set by districts			Yes – math or science	22 Pa. Code § 4.24; 24 P.S. § 16-1605(c)(1)
Rhode Island	4	3	No	No	204-RICR-20-00-06.3.1(C)
South Carolina	4	3	No	No	S.C. Code of Regulations R. 43-234(I)(A)
South Dakota	3	3	No	No	ARSD 24:43:11:02(3), (4)
Tennessee	4	3	No	Yes – math and elective focus requirement	Tenn. Comp. R. & Regs. 0520-01-03-.06(1)(b)(1); T. C. A. § 49-6-6004; Tennessee Dept. of Ed. Correlation of Course Codes
Texas	3	3	No	Yes – math, language other than English	V.T.C.A., Education Code § 28.025(b-1); 19 TAC § 74.12
Utah	3	3	No	Yes – math and science	U.A.C. R277-700-6(5), (10); Utah State Board of Education, Current Graduation Courses
Vermont	Vermont is transitioning to proficiency-based graduation requirements, eff. with the Class of 2020. ¹³			No	Vermont State Board of Education Quality Standards, 2120.7
Virginia	3	3	¹⁴	Yes – math, science, career and technical education	8 VAC 20-131-50
Washington	3	¹⁵	No	Yes – math or science	WAC 180-51-067(2), (3), 180-51-168(2), (3); West's RCWA 28A.230.097(1)
West Virginia	4	3	Yes? ¹⁶	Yes – math or science	W. Va. Code St. R. § 126-44N-5, W. Va. Code St. R. § 126-42-5
Wisconsin	3	3	No	Yes – math	W.S.A. 118.33(1)(a)1.c.
Wyoming	3	3	No	No	W.S.1977 § 21-2-304(a)(iii)

¹³ Specifically, 2120.7 provides: “A student meets the requirements for graduation when the student demonstrates evidence of proficiency in the curriculum outlined in 2120.5, and completion of any other requirements specified by the local board of the school attended by the student.”

¹⁴ While students are not required to complete a computer science credit, local boards must implement a K-12 program of instruction aligned to state standards that includes “computer science and computational thinking, including coding” (8 VAC 20-131-70(A))

¹⁵ Increases to three units effective Class of 2019.

¹⁶ “Computer Science in the Modern World is a course designed for all students in grades 9-12 and includes the essential skills that all high school students should have upon graduation.”