

TITLE 6 PRIMARY AND SECONDARY EDUCATION
CHAPTER 64 SCHOOL PERSONNEL – COMPETENCIES FOR LICENSURE
PART 20 COMPETENCIES FOR SECONDARY COMPUTER SCIENCE TEACHERS

6.64.20.1 ISSUING AGENCY: Public Education Department, hereinafter the department.
[6.64.20.1 NMAC – N, 12/28/2021]

6.64.20.2 SCOPE: This rule applies to all institutions of higher education in New Mexico that establish or maintain a curriculum for persons seeking a secondary computer science endorsement to a state educator license.
[6.64.20.2 NMAC – N, 12/28/2021]

6.64.20.3 STATUTORY AUTHORITY: Sections 22-2-1, 22-2-2, and 22-10A-6 NMSA 1978.
[6.64.20.3 NMAC – N, 12/28/2021]

6.64.20.4 DURATION: Permanent.
[6.64.20.4 NMAC – N, 12/28/2021]

6.64.20.5 EFFECTIVE DATE: December 28, 2021, unless a later date is cited at the end of a section.
[6.64.20.5 NMAC – N, 12/28/2021]

6.64.20.6 OBJECTIVE: This rule establishes pathways and competencies for secondary teachers to earn an endorsement in computer science, supporting effective computer science instruction in seventh through 12th grade. The competencies align with the New Mexico content standards and benchmarks for computer science and the national standards of the computer science teachers’ association
[6.64.20.6 NMAC – N, 12/28/2021]

6.64.20.7 DEFINITIONS:

A. “Professional development” means training held by the department or another instructional support provider designed to improve participants’ understanding of computer science content and pedagogy.

B. “Culturally and linguistically responsive learning experiences” means learning environments, instructional materials, curriculum, support services, activities, and professional development that inform culturally and linguistically responsive pedagogy; reflect the cultures, languages, and lived experiences of a multicultural society; address multiple ethnic descriptions, interpretations, or perspectives of events and experiences; and encourage critical pedagogy.

[6.64.20.7 NMAC – N, 12/28/2021]

6.64.20.8 PATHWAYS FOR ENDORSEMENT: Teachers seeking a secondary computer science endorsement shall:

A. Hold a teaching license in secondary education as provided by 6.61.4 NMAC; and

B. Complete one of the following pathways:

(1) earn 15 postsecondary course credit hours in computer science coursework;

(2) pass the department-approved teacher licensure exam for computer science or an approved comparable licensure test from another state;

(3) possess a minimum of two years of work experience in an industry related to computer science, which the applicant must validate using a verifiable list of references;

(4) possess an industry certification in a field related to computer science, which the applicant must validate using official documentation of the industry certification;

(5) prior to January 1, 2025, have completed 60 hours of professional development within the three years immediately prior to applying for a computer science endorsement, which the applicant must validate using documentation from the organization that provided the professional development, including the number of hours of each training; or

(6) prior to January 1, 2025, possess three or more years of computer science teaching experience including computer coding program structure in one or more languages, debugging computer programs, computer modeling and skills relevant to applications such as data management, graphics and text processing, which the applicant must validate with a letter signed by a school district administrator, charter school administrator, or secondary school principal.

6.64.20.9 COMPETENCIES FOR COMPUTER SCIENCE TEACHERS: Secondary computer science teachers shall demonstrate mastery of:

A. Computer science knowledge and skills.

(1) Computer science teachers apply computer science and computational thinking in appropriate and flexible ways, which includes demonstrating and continuously developing a knowledge of core concepts and practices in computer science, including the following:

(a) designing, implementing, debugging, and reviewing programs in an iterative process using appropriate computer science tools and technologies;

(b) interpreting algorithms and explaining tradeoffs associated with different algorithms; and

(c) fostering a computing culture of inclusivity;

(d) collaborating around computing;

(e) modeling how computing devices connect through networks and the internet to facilitate communication;

(f) collecting, storing, and analyzing data;

(g) creating, combining, and modifying artifact-based products.

(2) Computer science teachers apply knowledge of how hardware and software function within computing systems, including:

(a) hardware components;

(b) operating systems and programs;

(c) computer networks; and

(d) mobile computing devices.

(3) Computer science teachers model how computing devices connect via networks and the internet to facilitate communication and explain tradeoffs between usability and security.

(4) Computer science teachers demonstrate learning and modeling the collection, storage, transformation, and analysis of digital data to better understand the world and make more accurate predictions to advance solutions.

(5) Computer science teachers design, implement, debug, and review programs in an iterative process using appropriate computer science tools and technologies.

(6) Computer science teachers interpret algorithms and explain tradeoffs associated with different algorithms.

(7) Computer science teachers analyze how people influence computing through their behaviors, cultural norms, and social interactions, and how computing impacts society in positive and negative ways.

B. Equitable and inclusive learning environment. Computer science teachers proactively advocate for equity and inclusion in the computer science classroom, making an intentional commitment to improve access, engagement, and achievement for all students by:

(1) examining equity issues, including the contributions of systemic barriers, social factors, and psychological factors to inequitable access, engagement, and achievement in computer science among marginalized groups;

(2) reflecting on how equity issues manifest in the teachers' own context;

(3) developing purposeful, proactive strategies that minimize threats to inclusion and challenge stereotypes and unconscious bias;

(4) representing and incorporating diverse perspectives and experiences of individuals from underrepresented groups in instructional materials and instruction;

(5) using tools to evaluate accessible instructional materials and leverage those resources to improve accessibility for all students; and

(6) creating and implementing a plan that uses classroom data to make informed instructional decisions.

C. Personal growth and identity. Computer science teachers take an active role in their personal growth and understanding of computer science content and pedagogy and commit to continuously improving their computer science skills, including:

(1) pursuing targeted professional development to continuously deepen pedagogical knowledge, content knowledge, and skills;

- (2) modeling continuous improvement by demonstrating perseverance as it pertains to the problem-solving process;
- (3) leveraging professional and community resources to support student learning in computer science, such as mentors, colleagues, and local industry professionals; and
- (4) collaborating through professional learning communities.

D. Designing learning experiences. Computer science teachers model evidence-based pedagogy to facilitate equitable and meaningful learning experiences for students, including:

- (1) analyzing whether computer science curriculum enables effective pedagogy for student learning, with a focus on the following characteristics: inquiry-based learning, alignment to standards, problem-solving opportunities, and application of computational and critical thinking skills;
- (2) designing inclusive culturally and linguistically relevant learning experiences that support student engagement; and
- (3) building connections between computer science, other disciplines, and the real-world contexts in which students will engage.

[6.64.20.9 NMAC – N, 12/28/2021]

HISTORY OF 6.64.20 NMAC: [RESERVED]