



Field 013: Computer Education

REPA Educator Standards

Standard 1: Operations and Concepts Related to Computers and Technology

Computer education teachers have a broad and comprehensive understanding of operations and concepts related to computers and technology, including:

- 1.1** terminology and concepts related to computers and technology
- 1.2** the operation of multimedia computer systems
- 1.3** the use of peripherals, imaging devices, and other electronic devices
- 1.4** the uses of computers and technology in the home, education, business, and industry
- 1.5** terminology and concepts related to computer networks

Standard 2: Hardware and Software Resources

Computer education teachers have a broad and comprehensive understanding of the management of hardware and software resources, including:

- 2.1** types of software used in educational and administrative settings, including open source software
- 2.2** criteria for evaluating technology systems and software for use in classroom and laboratory settings
- 2.3** the installation, configuration, and troubleshooting of hardware and software
- 2.4** the organization, management, and security of technology resources
- 2.5** types and uses of adaptive assistive technology resources used in classroom and laboratory settings
- 2.6** policies, procedures, and practices related to the management of technology resources

Standard 3: Use of Technology Resources

Computer education teachers have a broad and comprehensive understanding of concepts and skills related to the use of technology resources, including:

- 3.1** word processing and desktop publishing software, including formatting and page layout
- 3.2** spreadsheet and database software
- 3.3** multimedia content and multimedia and hypermedia authoring software, including presentation software
- 3.4** the manipulation of audio, video, text, and graphics
- 3.5** utility and classroom management software
- 3.6** telecommunications tools for communicating, sharing, accessing, retrieving, and publishing information
- 3.7** the integration of productivity applications and technology to produce products and support problem solving
- 3.8** appropriate technology tools for conducting research, solving problems, and presenting information and concepts
- 3.9** techniques for researching and evaluating online information

Standard 4: Computer-Based Learning Environments

Computer education teachers have a broad and comprehensive understanding of the design, development, and uses of computer-based learning resources, tools, and environments, including:

- 4.1** Internet concepts and terminology
- 4.2** security issues related to Internet technology
- 4.3** current and emerging electronic devices and learning resources
- 4.4** current and emerging strategies, tools, and environments for creating digital content
- 4.5** basic principles of instructional design associated with developing digital learning materials
- 4.6** principles of graphic and Web page design
- 4.7** Web page formatting and elements
- 4.8** Web servers, client/server interactions, and scripting

Standard 5: Computer Programming

Computer education teachers have a broad and comprehensive understanding of concepts and skills related to computer programming, including:

- 5.1** characteristics and functions of computer hardware and operating systems
- 5.2** characteristics and evolution of programming language paradigms
- 5.3** concepts related to the software development process, including principles and patterns of software design, object-oriented design, and strategies for testing software
- 5.4** computational thinking, including abstraction, iteration, and debugging, and its application in design and problem solving in real-world contexts
- 5.5** integrated software development environments
- 5.6** file management and principles of data input/output and data manipulation
- 5.7** syntax, semantics, control structures, and data representations in high-level programming languages
- 5.8** abstraction mechanisms and principles of modularization
- 5.9** fundamental algorithms, such as sorts and searches, and algorithm design techniques

Standard 6: Social, Ethical, Legal, and Human Issues

Computer education teachers have a broad and comprehensive understanding of the appropriate use of computer technology and the interrelationships between technology and society, including:

- 6.1** historical development and important trends affecting the evolution of technology
- 6.2** important trends and evolving roles of technology in society
- 6.3** the effects of technology on society and on student development and learning
- 6.4** the ethical, legal, safe, appropriate, and healthy use of technology resources
- 6.5** the ethical and appropriate use of digital information, including issues related to copyright, intellectual property, and source documentation
- 6.6** equitable use of digital information and technology for all students
- 6.7** ethical, legal, and equity issues related to purchasing and policy decisions
- 6.8** activities, resources, and professional organizations and groups that support professional growth in the field of computer education

Standard 7: Instruction and Assessment

Computer education teachers have a broad and comprehensive understanding of content-specific instruction and assessment in computer education, including:

- 7.1** the Indiana Academic Standards for Computer Applications, Desktop Publishing, Web Design, and Computer Programming
- 7.2** the NCATE Program Standards for Educational Computing and Technology and the ISTE National Educational Technology Standards
- 7.3** strategies for designing instruction that meets content and technology standards
- 7.4** instructional strategies related to computer education that meet the needs of diverse student populations
- 7.5** instructional strategies for using technology-based learning experiences that develop students' higher-order thinking and problem-solving skills
- 7.6** strategies for actively engaging students in using technology to support their own learning
- 7.7** strategies for planning classroom and laboratory learning environments and for managing student learning and resources in technology-enhanced environments
- 7.8** strategies for effectively assessing students' understanding and mastery of skills and concepts related to computer education
- 7.9** instructional strategies for teaching concepts and skills related to the programming process
- 7.10** strategies for facilitating individual and collaborative projects and investigations involving technology and virtual environments
- 7.11** guidance roles and enrichment activities related to computers and technology
- 7.12** the use of documentation and other help resources to support technology instruction