Appendix C

Single Subject Assessments for Teaching®
Content Specifications

FIELD 30: PRELIMINARY EDUCATIONAL TECHNOLOGY

BASIC COMPUTER OPERATIONS, CONCEPTS, AND ISSUES

1 Demonstrate knowledge of current basic computer hardware and software terminology and functions.
   Includes demonstrating knowledge of various kinds of hardware and software and their functions; demonstrating knowledge of basic hardware and software terminology (e.g., peripherals, peripheral connectivity, memory, applications, operating systems, network services); and demonstrating familiarity with the language used to articulate information relating to hardware and software.

2 Understand the basic operation and care of computer-related hardware.
   Includes demonstrating knowledge of proper startup and shutdown sequences and network login procedures; demonstrating knowledge of how to clean input and output devices and care for information storage devices and removable media (e.g., avoiding extreme heat, scratching, and proximity to magnets); demonstrating knowledge about virus scanning, formatting information storage media, opening and closing files, saving files in multiple formats, and using shared files; and demonstrating knowledge of how to replace printer cartridges.

3 Implement basic troubleshooting techniques for computer systems and related peripheral devices.
   Includes recognizing appropriate methods for isolating problems and checking connections; demonstrating knowledge of common printer problems; accessing appropriate technical support and demonstrating knowledge of how to communicate problems to appropriate technical support staff.

4 Understand the legal and ethical issues associated with the use of computer-based technology.
   Includes understanding and complying with acceptable use policies and laws; demonstrating familiarity with rights and responsibilities regarding Internet and e-mail use as defined in an acceptable use policy; understanding liability issues related to software piracy, plagiarism, and unauthorized access and/or vandalism; recognizing appropriate and inappropriate uses of school-owned resources; demonstrating knowledge of how to comply with copyright law when reproducing and distributing copyrighted materials; and demonstrating knowledge of how to use appropriate source citations.

5 Demonstrate knowledge of privacy, security, and safety issues.
   Includes recognizing the importance of maintaining confidentiality of records, including graded student work; demonstrating knowledge of how to protect students from inappropriate information and interactions; recognizing the importance of obtaining proper consent in compliance with local policies for publishing the names and photographs of minors; understanding the appropriate use of chat rooms; and understanding health issues related to the use of computers (e.g., repetitive stress injuries, eye strain, radiation).
PROFESSIONAL APPLICATIONS OF COMPUTER TECHNOLOGY

6 Understand the uses of computer applications for managing records.

Includes demonstrating familiarity with the use of spreadsheet and database applications to collect and organize data such as grades, attendance, and assessment records, and demonstrating knowledge of how to use computers to access and use data collection tools.

7 Understand the use of computers to communicate through printed media.

Includes demonstrating knowledge of how to use word-processing software to create and publish documents (e.g., reports, tests, correspondence, newsletters that incorporate graphics and charts), and demonstrating knowledge of how to produce effective teaching tools using computer applications.

8 Understand the use of e-mail to communicate with others.

Includes identifying the components of e-mail addresses; demonstrating knowledge of how to compose and send e-mail messages within and outside of tile school system, and demonstrating knowledge of how to open documents, set up address books, and use attachments.

9 Demonstrate familiarity with a variety of computer-based collaborative tools.

Includes demonstrating knowledge of how to participate in online collaborative environments (e.g., synchronous and asynchronous computer-mediated conversations, online bulletin boards, newsgroups, list servers, online chats, and audio/video conferences).

10 Demonstrate competence in the use of electronic research tools.

Includes demonstrating knowledge of how to access the Internet to search for and retrieve information; demonstrating familiarity with the functions of search engines, Web directories, Web browsers, and educational databases (e.g., ERIC); and demonstrating knowledge of how to download, store, and print information.

11 Demonstrate the ability to assess the authenticity, reliability, and bias of data gathered from electronic information sources.

Includes determining the source of information (e.g., academic groups, special interest groups, advertisements); recognizing the purpose of the information presented (e.g. to inform, persuade, entertain); recognizing propaganda techniques (e.g., bandwagon, glittering generality, testimonial), recognizing the importance of verifying primary sources; and recognizing biases contained in information and social biases (based on gender, race, nationality, ethnicity, religion, age, disability, or cultural, economic, or geographic background).

EDUCATIONAL APPLICATIONS OF COMPUTER TECHNOLOGY

12 Understand the appropriate use of computer-based technology in teaching and learning.

Includes demonstrating knowledge of ways to use computer-based technology to facilitate instruction and learning, and demonstrating an understanding of how to design, deliver, and assess student learning activities that integrate computer-based technology.
13 Analyze a variety of educational digital media and use established selection criteria to evaluate materials.

   Includes demonstrating familiarity with the characteristics of multimedia, Internet resources, telecommunications, computer-assisted instruction, and productivity and presentation tools, and demonstrating an understanding of criteria against which materials can be evaluated (e.g., alignment with content standards, student needs, ease of use, presentation features, authoring capability, ease of navigation, media integration, search strategies, instructional support).

14 Apply criteria for choosing software for its relevance, effectiveness, alignment with content standards, and value added to student learning.

   Includes demonstrating an understanding of criteria against which educational software can be evaluated (e.g., support of content standards and instructional design, clarity of objectives, scope and scale, quantity of useful information, logical development and organization, appropriate reading and vocabulary levels, identification of bias or distortion of information), and matching software applications to student needs.

15 Identify student learning modalities and determine appropriate technological resources to facilitate individual learning.

   Includes demonstrating knowledge of how to plan learning activities to include technology resources that are appropriate, based on students' prior knowledge and cultural and linguistic backgrounds; demonstrating familiarity with adaptive techniques and assistive devices for Students; and demonstrating knowledge of how to adapt or modify computer-based presentations to meet individual needs.

16 Demonstrate an understanding of content-area knowledge and select the best technology resources to support, manage, and facilitate learning.

   Includes demonstrating an understanding of how to select technological resources appropriate to content standards, instructional objectives, and grade level and how to manage technological resources in the classroom to keep all students actively engaged.

17 Demonstrate an understanding of best practices and research findings on the use of technology and design lessons accordingly.

   Includes demonstrating an understanding of the importance of actively engaging in the review of professional research on effective uses of technology; and using research findings to improve instruction.

18 Demonstrate an ability to create and maintain effective learning environments using computer-based technology.

   Includes demonstrating knowledge of how to design and arrange integration of technology into teaching and learning; demonstrating familiarity with methods for developing and adapting lessons to fit the classroom and the available technology (e.g., one versus multiple computers in the classroom, network versus stand-alone computers); demonstrating knowledge of how to manage computer technology activities along with other classroom activities; and demonstrating knowledge of how to manage learning in virtual environments.