STATE BOARD FOR EDUCATOR CERTIFICATION/TEXAS EDUCATION AGENCY

TEXAS EDUCATOR CERTIFICATION

TExES/ExCET | TOPT | TExMaT | TASC/TASC-ASL

TExMaT | Texas Examinations for Master Teachers

Preparation Manual

086 Master Technology Teacher EC–12

This publication has been produced for Texas Education Agency (TEA) by ETS. ETS is under contract to Texas Education Agency to administer the Texas Examinations of Educator Standards (TExES) program and the Examination for the Certification of Educators in Texas (ExCET) program. The TExES and ExCET programs are administered under the authority of Texas Education Agency; regulations and standards governing the program are subject to change at the discretion of Texas Education Agency. Texas Education Agency and ETS do not discriminate on the basis of race, color, national origin, sex, religion, age or disability in the administration of the testing program or the provision of related services.

Chapter 1

Introduction to the Master Technology Teacher Test and Suggestions for Using this Test Preparation Manual

1

OVERVIEW

The Texas Examinations for Master Teachers™ (TExMaT™) program has its origins in legislation passed in 1999 (House Bill 2307) that required the creation of the Master Reading Teacher (MRT) Certificate, the development of standards for the certificate and the development of a Master Reading Teacher test.

In 2001, the Texas legislature passed legislation that created two additional categories of Master Teacher Certificates: the Master Mathematics Teacher (MMT) Certificates (Early Childhood–Grade 4, Grades 4–8 and Grades 8–12) and the Master Technology Teacher (MTT) Certificate.

The Master Technology Teacher Certificate was created by the 77th Texas Legislature "to ensure that there are teachers with special training to work with other teachers and with students in order to increase the use of technology in each classroom. . . ." A Master Technology Teacher will be an individual who holds a Master Technology Teacher Certificate and whose primary duties include serving as a technology training mentor to other teachers.

A Master Technology Teacher Certificate May Be Obtained By Individuals Who:

- hold a Technology Applications or Technology Education certificate, complete an SBEC-approved Master Technology Teacher preparation program **AND** pass the TExMaT Master Technology Teacher certification test; **OR**
- hold a teaching certificate, have at least three years of teaching experience, complete an SBEC-approved Master Technology Teacher preparation program **AND** pass the TExMaT Master Technology Teacher certification test.

The development of the educator standards for the Master Technology Teacher Certificate was completed in November 2001. The first SBEC-approved Master Technology Teacher preparation programs became available during the summer of 2002. The TExMaT Master Technology Teacher certification examination was administered for the first time in the summer of 2003.

This manual is designed to help examinees prepare for the Master Technology Teacher test. Its purpose is to familiarize examinees with the competencies to be tested, test question formats and pertinent study resources. Educator Preparation Program (EPP) staff may also find this information useful as they help examinees prepare for careers as Texas Master Teachers.

KEY FEATURES OF THE MANUAL

- *List of competencies that will be tested*
- *Strategies for answering test questions*
- *Sample test questions and answer key*

If you have any questions after reading this preparation manual or you would like additional information about the TExMaT tests or the educator standards, please visit the SBEC website at **www.sbec.state.tx.us**.

USING THE TEST FRAMEWORK

The Texas Examinations for Master Teachers (TExMaT) test measures the content and professional knowledge required of an initially certified Master Teacher in this field. This manual is designed to guide your preparation by helping you become familiar with the material to be covered on the test, identify areas where you feel you may be weak and increase your knowledge in those areas by helping you design a study plan.

When preparing for this test, you should focus on the competencies and descriptive statements, which delineate the content that is eligible for testing. A portion of the content is represented in the sample questions that are included in this manual. These test questions represent only a sampling of questions. Thus, your test preparation should focus on the competencies and descriptive statements and not simply on the sample questions.

ORGANIZATION OF THE TExMaT TEST FRAMEWORK

The test framework is based on the educator standards for this field.

The content covered by this test is organized into broad areas of content called domains. Each domain covers one or more of the educator standards for this field. Within each domain, the content is further defined by a set of competencies. Each competency is composed of two major parts:

1. the **competency statement**, which broadly defines what an initially certified Master Teacher in this field should know and be able to do, and
2. the **descriptive statements**, which describe in greater detail the knowledge and skills eligible for testing.

The educator standards being assessed within each domain are listed for reference at the beginning of the test framework, which begins on page 12. These are followed by a complete set of the framework's competencies and descriptive statements.

An example of a competency and its accompanying descriptive statements is provided on the next page.

1

SAMPLE COMPETENCY

Master Technology Teacher

COMPETENCY 001

THE MASTER TECHNOLOGY TEACHER DEMONSTRATES KNOWLEDGE AND APPLICATION OF TECHNOLOGY-RELATED TERMINOLOGY AND CONCEPTS, HARDWARE, SOFTWARE, DATA-INPUT STRATEGIES AND ETHICAL PRACTICES AND KNOWS HOW TO ACQUIRE, ANALYZE AND EVALUATE DIGITAL INFORMATION FROM THE INTERNET AND OTHER SOURCES.

SAMPLE DESCRIPTIVE STATEMENTS

The Master Technology Teacher:

A. Knows technology-related terminology and concepts.

B. Demonstrates an understanding of the appropriate use of hardware components and software applications.

C. Knows how to use input and output devices when using selected digital technologies (e.g., text, graphics, animation, video, sound, Internet applications).

D. Identifies and demonstrates knowledge of how to create, use, manipulate and exchange digital file formats (e.g., text, image, video, audio) between applications and/or platforms.

E. Demonstrates knowledge of criteria (e.g., quality, appropriateness, effectiveness, efficiency) for evaluating productivity and authoring tools for selection, acquisition and use.

F. Knows how to facilitate the use of integrated technologies in foundation and enrichment curricular content.

G. Demonstrates knowledge and application of strategies for searching (e.g., keyword, Boolean, natural, language), locating and acquiring information from electronic resources (e.g., collaborative software, the Internet, intranets).

H. Knows how to organize, store and retrieve electronic information found in various formats (e.g., text, graphic, video, audio).

I. Knows how to identify and evaluate information acquired from primary and secondary sources for accuracy, relevancy and content validity by accessing, researching and comparing data from multiple sources (e.g., the Internet, encyclopedias, databases).

J. Demonstrates knowledge of the acceptable use of electronic information and products while in an individual classroom, lab or on the Internet or an intranet.

K. Demonstrates knowledge of copyright laws and violations, and of ethical issues (e.g., fair use, patents and trademarks; computer hacking; computer piracy; computer vandalism; intentional virus setting; invasion of privacy) when using, manipulating and/or editing electronic data.

L. Knows how to obtain and cite the source of print and digital information from a variety of resources (e.g., the Internet; encyclopedias; databases; libraries of images in a variety of formats including text, audio, video and graphics).

M. Demonstrates respect for intellectual property and understands the ethical acquisition and use of digital information (e.g., citing sources using established methods).

STUDYING FOR THE TEXMAT TEST

The following steps may be helpful in preparing for the TExMaT test.

1. Identify the information the test will cover by reading through the test competencies (see Chapter 3). Within each domain of this TExMaT test, each competency will receive approximately equal coverage.
2. Read each competency with its descriptive statements in order to get a more specific idea of the knowledge you will be required to demonstrate on the test. You may wish to use this review of the competencies to set priorities for your study time.
3. Review the "Preparation Resources" section of this manual for possible resources to consult. Also, compile key materials from your preparation coursework that are aligned with the competencies.
4. Study this manual for approaches to taking the test.
5. When using resources, concentrate on the key ideas and important abilities that are discussed in the competencies and descriptive statements.
6. Use the study plan document (Appendix A of this guide) to help you plan your study.

NOTE: This preparation manual is the only TExMaT test study material endorsed by Texas Education Agency (TEA) for this field. Other preparation materials may not accurately reflect the content of the test or the policies and procedures of the TExMaT program.

Chapter 2

Background Information on the TExMaT Testing Program

2

THE TExMaT TESTS FOR TEXAS TEACHERS

Successful performance on the TExMaT test is required for the issuance of a Texas Master Teacher certificate. Each TExMaT test is a criterion-referenced examination designed to measure the knowledge and skills delineated in the corresponding TExMaT test framework. Each test framework is based on standards that were developed by Texas educators and other education stakeholders.

Each TExMaT test is designed to measure the requisite knowledge and skills that an initially certified Texas Master Teacher in this field must possess. The Master Technology Teacher test is administered by computer only. Responses to questions are selected or entered on the computer. This test includes multiple-choice questions, a case study assignment for which candidates construct a typed response and two performance assessments for which candidates create a spreadsheet and a presentation using the software provided.

DEVELOPMENT OF THE NEW TExMaT TESTS

Committees of Texas educators and interested citizens guided the development of the TExMaT tests by participating in each stage of the test development process. These working committees were composed of Texas educators from public and charter schools, faculty from EPPs, education service center staff, representatives from professional educator organizations, content experts and members of the business community. The committees were balanced in terms of position, affiliation, years of experience, ethnicity, gender and geographical location. The committee membership was rotated during the development process so that numerous Texas stakeholders could be actively involved. The steps in the process to develop the TExMaT tests are described below.

1. **Develop Standards.** Committees were convened to recommend what an initially certified Master Teacher in this field should know and be able to do. To ensure vertical alignment of standards across the range of instructional levels, individuals with expertise in early childhood, elementary, middle or high school education met jointly to articulate the critical knowledge and skills for a particular content area. Participants began their dialogue using a "clean slate" approach with the Texas Essential Knowledge and Skills (TEKS) as the focal point. Draft standards were written to incorporate the TEKS and to expand upon that content to ensure that an initially certified Master Teacher in this field possesses the appropriate level of both knowledge and skills to instruct successfully.
2. **Review Standards.** Committees reviewed and revised the draft standards. The revised draft standards were then placed on the State Board for Educator Certification (SBEC) website for public review and comment. These comments were used to prepare a final draft of the standards that was presented to the SBEC Board for discussion, the State Board of Education (SBOE) for review and comment and the SBEC Board for approval.

3. **Develop Test Frameworks.** Committees reviewed and revised draft test frameworks that were based on the standards. These frameworks outlined the specific competencies to be measured on the new TExMaT tests. Draft frameworks were finalized after the standards were approved and the job analysis/content validation survey (see #4) was complete.
4. **Conduct Job Analysis/Content Validation Surveys.** A representative sample of Texas educators who practice in or prepare individuals for each of the fields for which a Master Teacher certificate was proposed were surveyed to determine the relative job importance of each competency outlined in the test framework for that content area. Frameworks were revised as needed following an analysis of the survey responses.
5. **Develop and Review New Test Questions.** The test contractor developed draft questions (multiple-choice, case-study assignments and performance tasks) that were designed to measure the competencies described in the test framework. Committees reviewed the newly developed test questions that were written to reflect the competencies in the new test frameworks and accepted, revised or rejected test questions. Committee members scrutinized the draft questions for appropriateness of content and difficulty; clarity; match to the competencies; and potential ethnic, gender and regional bias.
6. **Conduct Pilot Test of New Test Questions.** All of the newly developed test questions that were deemed acceptable by the question review committees were then administered to an appropriate sample of candidates for certification.
7. **Review Pilot Test Data.** Pilot test results were reviewed to ensure that the test questions were valid, reliable and free from bias.
8. **Administer TExMaT Tests.** New TExMaT tests were constructed to reflect the competencies, and the tests were administered to candidates for certification.
9. **Set Passing Standard.** A Standard Setting Committee convened to review performance data from the initial administration of each new TExMaT test and to recommend a final passing standard for that test. The SBEC Board considered this recommendation as it established a passing score on the test.

TAKING THE TEXMAT MASTER TECHNOLOGY TEACHER TEST AND RECEIVING SCORES

Please refer to the current TExMaT *Registration Bulletin* or the ETS TExES website at **www.texes.ets.org** for information on test dates, test centers, fees, registration procedures and program policies.

Your score report will be available to you in your testing account on the ETS TExES online registration system by 5 p.m. Central time on the score reporting date indicated in the *Registration Bulletin*. The report will indicate whether you have passed the test and will include:

- A total test scaled score. Scaled scores are reported to allow for the comparison of scores on the same content-area test taken on different test administration dates. The total scaled score is not the percentage of questions answered correctly and is not determined by averaging the number of questions answered correctly in each domain.
  - For all TExMaT tests, the score scale is 100–300 with a scaled score of 240 as the minimum passing score. This score represents the minimum level of competency required to be a Master Teacher in this field in Texas public schools.
- A holistic score for your response to the case study assignment.
- A holistic score for each of your responses to the performance assessments.
- Your performance in the major content domains of the test and in the specific content competencies of the test.
  - This information may be useful in identifying strengths and weaknesses in your content preparation and can be used for further study or for preparing to retake the test. However, it is important to use caution when interpreting scores reported by domain and competency as these scores are typically based on a smaller number of items than the total score and therefore may not be as reliable as the total score.
- A link to information to help you understand the score scale and interpret your results.

A score report will not be available to you if you are absent or choose to cancel your score.

For more information about scores or to access scores online, go to **www.texes.ets.org**.

EDUCATOR STANDARDS

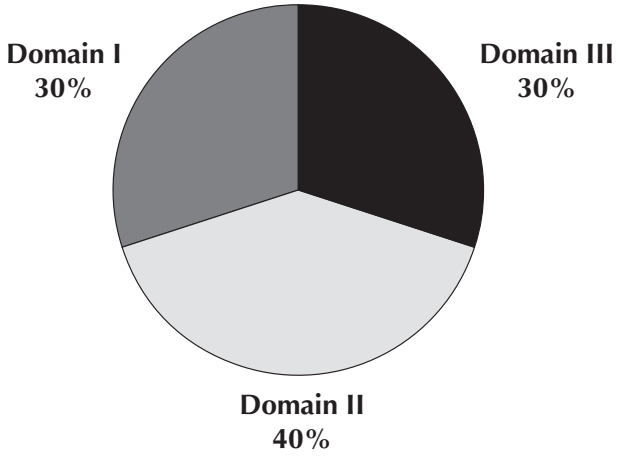
Complete, approved educator standards are posted on the SBEC website at **www.sbec.state.tx.us**.

Chapter 3

Study Topics

TEST FRAMEWORK FOR FIELD 086: MASTER TECHNOLOGY TEACHER

THE DOMAINS FOR MULTIPLE-CHOICE QUESTIONS



- **Domain I: Digital Technology Knowledge and Skills**
  Standard Assessed: III
  Test Breakdown:
  - 27 Multiple-Choice Questions
- **Domain II: Technology-Enhanced Teaching and Learning**
  Standards Assessed: I, II, III and IV
  Test Breakdown:
  - 36 Multiple-Choice Questions
- **Domain III: Collaborating and Mentoring**
  Standard Assessed: V
  Test Breakdown:
  - 27 Multiple-Choice Questions

TOTAL TEST BREAKDOWN

- 90 Multiple-Choice Questions (80 Scored Questions*)
- 1 Case Study Assignment
- 2 Performance Assessments

Note: The case study assignment and performance assessments do not fall under a single domain and may require content knowledge from each of the three domains.

*Your final scaled score will be based only on scored questions.

THE STANDARDS

STANDARD I:
The Master Technology Teacher effectively models and applies classroom teaching methodology and curriculum models that promote active student learning through the integration of technology and addresses the varied learning needs of all students.

STANDARD II:
The Master Technology Teacher selects and administers appropriate technology-related assessments on an ongoing basis and uses the results to design and improve instruction.

STANDARD III:
The Master Technology Teacher applies knowledge of digital learning competencies including Internet research, graphics, animation, website mastering and video technology.

STANDARD IV:
The Master Technology Teacher serves as a resource regarding the integration of assistive technologies and accessible design concepts to meet the needs of all students.

STANDARD V:
The Master Technology Teacher facilitates appropriate, research-based technology instruction by communicating and collaborating with educational stakeholders; mentoring, coaching and consulting with colleagues; providing professional development opportunities for faculty; and making decisions based on converging evidence from research.

COMPETENCIES

DOMAIN I—DIGITAL TECHNOLOGY KNOWLEDGE AND SKILLS

COMPETENCY 001

THE MASTER TECHNOLOGY TEACHER DEMONSTRATES KNOWLEDGE AND APPLICATION OF TECHNOLOGY-RELATED TERMINOLOGY AND CONCEPTS, HARDWARE, SOFTWARE, DATA-INPUT STRATEGIES AND ETHICAL PRACTICES, AND KNOWS HOW TO ACQUIRE, ANALYZE AND EVALUATE DIGITAL INFORMATION FROM THE INTERNET AND OTHER SOURCES.

The Master Technology Teacher:

A. Knows technology-related terminology and concepts.

B. Demonstrates an understanding of the appropriate use of hardware components and software applications.

C. Knows how to use input and output devices when using selected digital technologies (e.g., text, graphics, animation, video, sound, Internet applications).

D. Identifies and demonstrates knowledge of how to create, use, manipulate and exchange digital file formats (e.g., text, image, video, audio) between applications and/or platforms.

E. Demonstrates knowledge of criteria (e.g., quality, appropriateness, effectiveness, efficiency) for evaluating productivity and authoring tools for selection, acquisition and use.

F. Knows how to facilitate the use of integrated technologies in foundation and enrichment curricular content.

G. Demonstrates knowledge and application of strategies for searching (e.g., keyword, Boolean, natural, language), locating and acquiring information from electronic resources (e.g., collaborative software, the Internet, intranets).

H. Knows how to organize, store and retrieve electronic information found in various formats (e.g., text, graphic, video, audio).

I. Knows how to identify and evaluate information acquired from primary and secondary sources for accuracy, relevancy and content validity by accessing, researching and comparing data from multiple sources (e.g., the Internet, encyclopedias, databases).

J. Demonstrates knowledge of the acceptable use of electronic information and products while in an individual classroom, lab or on the Internet or an intranet.

K. Demonstrates knowledge of copyright laws and violations, and of ethical issues (e.g., fair use, patents and trademarks; computer hacking; computer piracy; computer vandalism; intentional virus setting; invasion of privacy) when using, manipulating and/or editing electronic data.

L. Knows how to obtain and cite the source of print and digital information from a variety of resources (e.g., the Internet; encyclopedias; databases; libraries of images in a variety of formats including text, audio, video and graphics).

M. Demonstrates respect for intellectual property and understands the ethical acquisition and use of digital information (e.g., citing sources using established methods).

COMPETENCY 002

THE MASTER TECHNOLOGY TEACHER KNOWS AND APPLIES BASIC STRATEGIES AND TECHNIQUES FOR USING GRAPHICS AND ANIMATION.

The Master Technology Teacher:

A. Knows basic elements of graphic design (e.g., proportion, balance, color, variety, emphasis, harmony, symmetry, unity) and how to apply these concepts to communicate effectively and assist students and educators in the creation of products.

B. Demonstrates knowledge of basic concepts related to computer animation (e.g., storyboarding, timeline, color depth, layers, animated GIFs, frames, keyframes, tweening, object behaviors).

C. Knows techniques for editing, manipulating and changing sounds that have been captured from a variety of sources (e.g., audio CD, tape, microphone).

D. Uses appropriate digital editing tools and design principles to import and edit images from a variety of sources (e.g., encyclopedias, databases, image libraries).

E. Knows how to define the design attributes and requirements of products created for a variety of purposes (e.g., posters, stationery, brochures, slide shows, Web pages, multimedia presentations).

COMPETENCY 003

THE MASTER TECHNOLOGY TEACHER KNOWS AND APPLIES BASIC STRATEGIES AND TECHNIQUES RELATED TO WEBSITE MASTERING.

The Master Technology Teacher:

A. Demonstrates knowledge of mechanisms for navigating, accessing, transferring, sharing and storing Web-based information across networks (e.g., the Internet, intranets).

B. Knows how to create and edit Web pages using appropriate tools, design principles (e.g., size and type of graphic files, font size and color, backgrounds) and page elements (e.g., hyperlinks, HTML tags, alt tags for accessibility).

C. Knows how to establish and access a folder/directory hierarchy for the management of a website and its related files.

D. Demonstrates knowledge of network security and access issues (e.g., firewalls, password controls) related to the maintenance of a website.

COMPETENCY 004

THE MASTER TECHNOLOGY TEACHER KNOWS AND APPLIES BASIC STRATEGIES AND TECHNIQUES FOR USING DIGITAL VIDEO TECHNOLOGY.

The Master Technology Teacher:

A. Demonstrates knowledge of basic concepts relating to video technology (e.g., analog, digital) and understands differences and similarities between linear and nonlinear editing.

B. Demonstrates knowledge of basic concepts of video filming (e.g., composition, ratio of image to frame, position in frame, line of gaze, pans/tilts, movement, perspective).

C. Knows a variety of basic video techniques (e.g., zoom, focus, filters) and lighting techniques (e.g., key, fill, backlight) and how to use incident/reflected light, color temperatures and filters.

D. Demonstrates knowledge of compression schemes for a variety of file types (e.g., photographs, animation, audio, video, graphics) and knows compression strategies, programs and techniques to conserve memory and retain image integrity when digitally capturing files.

E. Knows how to use techniques for capturing and editing audio components during the video production process.

F. Demonstrates knowledge of techniques used in postproduction (e.g., editing and creating control and/or time coded tracks; creating transitions, captions and titles; applying 2-D and 3-D animation effects).

G. Knows how to convert between analog video and digital video.

DOMAIN II—TECHNOLOGY-ENHANCED TEACHING AND LEARNING

COMPETENCY 005

THE MASTER TECHNOLOGY TEACHER DEMONSTRATES KNOWLEDGE OF HOW TO USE TASK-APPROPRIATE TOOLS TO SYNTHESIZE KNOWLEDGE, CREATE AND MODIFY SOLUTIONS AND EVALUATE RESULTS TO SUPPORT THE WORK OF INDIVIDUALS AND GROUPS IN PROBLEM-SOLVING SITUATIONS.

The Master Technology Teacher:

A. Knows how to use and integrate appropriate technology-based productivity tools (e.g., word processor; database; spreadsheet; telecommunications; draw, paint and utility programs) into teaching and learning.

B. Knows how to facilitate the use of appropriate digital editing tools and design principles for classroom use (e.g., consistency; repetition; alignment; proximity; ratio of text to white space; image file size; color use; font type, size and style).

C. Knows how to use research skills and electronic resources and communication to synthesize information.

D. Applies methods for extending the learning environment beyond the classroom through the creation and sharing of electronically formatted and published documents via electronic networks.

E. Knows how to accomplish tasks through technological collaboration to include participation with electronic communities as student, initiator, contributor and teacher/mentor.

F. Knows how to create specifications and instructions (e.g., hardware/software requirements, instructions for use) for technology-based tasks.

G. Knows how to use technology applications to facilitate the evaluation of work, including both process and product.

H. Knows how to create rubrics to evaluate technology-based processes and products against established criteria.

COMPETENCY 006

THE MASTER TECHNOLOGY TEACHER DEMONSTRATES KNOWLEDGE OF HOW TO COMMUNICATE IN DIFFERENT FORMATS FOR DIVERSE AUDIENCES.

The Master Technology Teacher:

A. Knows how to select, format and present media activities and projects appropriate for the content, purpose, audience and environment.

B. Demonstrates knowledge of criteria for evaluating the design and functionality of interactive media (e.g., intended audience, content delivery, ease of navigation and interaction).

C. Knows how to use productivity tools (e.g., spreadsheets, databases, word processors, graphics applications) to communicate effectively.

D. Knows how to select and use various presentation formats (e.g., slide shows, posters, multimedia presentations, newsletters, brochures, reports) to communicate effectively.

E. Knows how to publish information in a variety of formats (e.g., printed copy, monitor displays, Internet documents, video).

F. Knows the characteristics, purposes and protocols for using a variety of electronic communication tools (e.g., e-mail, Internet browsers, videoconferencing, distance-learning tools, discussion forums).

G. Demonstrates knowledge of strategies for evaluating the effectiveness of communication in terms of both process and product.

COMPETENCY 007

THE MASTER TECHNOLOGY TEACHER DEMONSTRATES KNOWLEDGE OF INSTRUCTIONAL DESIGN, DEVELOPMENT AND ASSESSMENT IN A TECHNOLOGY-ENHANCED ENVIRONMENT.

The Master Technology Teacher:

A. Knows components of effective instructional design (e.g., eliciting and using prior knowledge, synthesizing prior and new knowledge, integrating knowledge and skills, applying accessibility concepts, providing scaffolded instruction, planning reviews) in a technology-enhanced environment.

B. Knows characteristics and uses of technology-related assessments (e.g., performance-based, in-depth, continuous progress monitoring, summative evaluation) and how to facilitate the evaluation of students' knowledge and skills using technology-related assessment methods.

C. Knows how to use formal and informal assessments to evaluate students' technology proficiencies.

D. Knows fundamental characteristics of quantitative and qualitative assessments and understands how to use these assessments appropriately to plan and develop instruction.

E. Demonstrates knowledge of fundamental assessment-related issues, such as those related to bias, reliability and validity.

F. Demonstrates knowledge of the benefits and limitations of technology as applied to the assessment process.

G. Demonstrates knowledge of the reciprocal nature of assessment, planning and instruction.

H. Knows how to facilitate ongoing student self-assessment in the use of technology, including both process and product.

I. Demonstrates knowledge of appropriate research-based strategies and instructional methods for addressing the various technology knowledge and skill levels of students.

J. Demonstrates knowledge of effective methods for incorporating technology into various instructional strategies (e.g., direct instruction, cooperative, project-based) to maximize student learning and teacher effectiveness.

K. Demonstrates knowledge of theories and factors that affect learning in technology-enhanced environments (e.g., students' developmental stages and characteristics).

L. Demonstrates knowledge of current research on and strategies for planning and designing classroom learning environments that effectively integrate technology, including available assistive technologies and accessible design concepts for electronic media development.

M. Identifies and critically reviews sources of information about convergent research on integrating technology into the curriculum.

N. Knows how to facilitate the use of integrated technologies in foundation and enrichment curricular content.

O. Knows how to facilitate the preproduction, production, distribution and use of student and educator products.

P. Knows how to analyze and apply current convergent research on teaching and learning with technology to plan and design developmentally appropriate learning experiences that use technology-enhanced instructional strategies.

Q. Knows how to use technology to develop student collaboration skills to propose, assess, implement and communicate solutions to real-world problems.

R. Knows and applies effective classroom-management strategies in technology-enhanced environments.

COMPETENCY 008

THE MASTER TECHNOLOGY TEACHER KNOWS HOW TO IMPLEMENT AND ASSESS TECHNOLOGY-ENHANCED INSTRUCTION TO MEET THE DIVERSE NEEDS AND ABILITIES OF ALL STUDENTS.

The Master Technology Teacher:

A. Identifies appropriate information resources and current research to support student-centered decisions about technology-based solutions and current research.

B. Knows how to collaborate with classroom teachers and other staff to link student needs and abilities with appropriate technologies.

C. Demonstrates familiarity with issues and resources relating to equity and access.

D. Demonstrates knowledge of a variety of technology-based tools, including assistive and instructional technologies that promote learning for all students.

E. Demonstrates knowledge of assistive technology as defined by state and federal regulations.

F. Recognizes that technology may be assistive, instructional or both, depending on a student's instructional and developmental needs.

G. Knows that decisions about assistive technology for students are required by law to be made by the admission, review and dismissal (ARD) committee or Section 504 Committee and identifies personnel who are responsible for assistive-technology decisions.

H. Knows how to facilitate the implementation of developmentally appropriate learning experiences that use technology-enhanced instructional strategies to support the diverse needs and abilities of all students.

I. Knows how to plan and design activities and products that are accessible to students with diverse needs and abilities.

DOMAIN III—COLLABORATING AND MENTORING

COMPETENCY 009

THE MASTER TECHNOLOGY TEACHER KNOWS HOW TO COLLABORATE WITH COLLEAGUES TO FACILITATE THE IMPLEMENTATION OF APPROPRIATE, RESEARCH-BASED, TECHNOLOGY-ENHANCED INSTRUCTION.

The Master Technology Teacher:

A. Knows the roles of the Master Technology Teacher as teacher, collaborator and mentor in the school community.

B. Demonstrates an understanding of the leadership, communication and facilitation skills and strategies necessary for effecting positive change in the school technology program and technology instruction.

C. Knows and understands principles, guidelines and ethical standards regarding collegial and professional collaborations, including issues related to confidentiality.

D. Collaborates with administrators, colleagues, parents/guardians and other members of the school community to ensure ongoing communication related to technology-enhanced teaching and learning.

E. Collaborates with colleagues who have varying levels of skill, experience and/or diverse philosophical approaches related to technology integration.

F. Collaborates with colleagues to develop strategies for integrating technology-enhanced instruction into diverse learning environments and for implementing a system for monitoring the effectiveness of integration efforts.

G. Promotes interest, inquiry, analysis, collaboration and creativity for integrating evolving technologies that transform teaching and learning processes.

H. Collaborates with members of the school community to evaluate, negotiate and establish priorities regarding the use of technology in the schools.

I. Selects and applies strategies to facilitate the growth of the learning community in technology-enhanced instruction (e.g., current and emerging technologies, instructional strategies, educational issues).

COMPETENCY 010

THE MASTER TECHNOLOGY TEACHER KNOWS HOW TO PROVIDE PROFESSIONAL DEVELOPMENT AND SUPPORT THROUGH MENTORING, MODELING, COACHING AND CONSULTING.

The Master Technology Teacher:

A. Knows how to use formal and informal methods to assess educators' technology proficiencies and instructional strategies.

B. Addresses the various technology knowledge and skill levels of educators by applying appropriate research-based strategies and instructional methods.

C. Knows learning processes and procedures for facilitating adult learning.

D. Demonstrates knowledge of the ways in which technology-enhanced, student-centered learning affects the role of the teacher (e.g., as mentor, facilitator, collaborator).

E. Knows how to support educators' assessment of technology-enhanced learning.

F. Selects and applies strategies to maximize effectiveness as a Master Technology Teacher, such as applying principles of time management and engaging in continuous self-assessment.

G. Knows how to support ongoing educator self-assessment in the use of technology-enhanced instruction, including both process and product.

H. Knows strategies for facilitating classroom teachers' acquisition and implementation of the knowledge and skills specified in the Technology Applications Standards I–V for all beginning teachers.

I. Understands how to use mentoring, coaching and consulting skills and strategies to facilitate team building for promoting student and educator use of technology in the teaching and learning environment.

J. Uses mentoring, coaching and consulting skills and strategies (e.g., observing, negotiating, providing feedback, problem solving) to support the use of technology in the teaching and learning environment.

K. Uses consultation to engage in systematic problem solving for supporting effective student and educator use of technology.

L. Promotes awareness of and support for technology-enhanced instruction in the learning community.

M. Works with teachers, administrators and others to identify professional development needs, promote support for professional-development programs and advocate professional-development opportunities.

N. Knows features of effective professional development that promote sustained application of technology-enhanced instruction in classroom practice (e.g., demonstration, modeling, guided practice, feedback, coaching, follow-up).

Chapter 4

Succeeding on Multiple-Choice Questions

APPROACHES TO ANSWERING MULTIPLE-CHOICE QUESTIONS

The purpose of this section is to describe multiple-choice question formats that you will see on the TExMaT Master Technology Teacher (MTT) test and to suggest possible ways to approach thinking about and answering the multiple-choice questions. However, these approaches are not intended to replace familiar test-taking strategies with which you are already comfortable and that work for you.

The Master Technology Teacher test is designed to include a total of 90 multiple-choice questions, out of which 80 are scored. Your final scaled score will be based only on scored questions. The questions that are not scored are being pilot tested by including them in the test in order to collect information about how these questions will perform under actual testing conditions. These test questions are not considered in calculating your score, and they are not identified on the test.

All multiple-choice questions on this test are designed to assess your knowledge of the content described in the test framework. The multiple-choice questions assess your ability to recall factual information **and** to think critically about the information, analyze it, consider it carefully, compare it with other knowledge you have or make a judgment about it.

When you are ready to respond to a multiple-choice question, you must choose one of four answer options. Leave no questions unanswered. Nothing is subtracted from a score if you answer a question incorrectly. Your score will be determined by the number of questions for which you select the best answer.

In addition to the multiple-choice questions, the MTT test will include one case study assignment and two performance assessments (spreadsheet and presentation). Please see Chapters 6 and 7 for the Case Study Assignment and Chapters 8 and 9 for the Performance Assessments.

QUESTION FORMATS

You may see the following types of multiple-choice questions on the test:

— Single Questions

— Questions with Stimulus Materials

— Clustered Questions

On the following pages, you will find descriptions of these commonly used question formats, along with suggested approaches for answering each type of question. In the actual testing situation, you may use the scratch paper provided, **but your final response must be selected on the computer**.

SINGLE QUESTIONS

In the single question format, a problem is presented as a direct question or an incomplete statement, and four answer options appear below the question. The following question is an example of this type. It tests knowledge of Master Technology Teacher Competency 006: *The Master Technology Teacher demonstrates knowledge of how to communicate in different formats for diverse audiences.*

EXAMPLE

A debate team wants to use a graphics program to create a team logo. In which of the following situations would it be most important to create the logo using vector graphics rather than bitmapped graphics?

A. The logo will be enlarged to appear on a poster

B. The logo will be used in a video production

C. The logo will include a large number of custom-defined colors

D. The logo will be produced in both black-and-white and color versions

SUGGESTED APPROACH

Read the question carefully and critically. Think about what it is asking and the situation it is describing. Eliminate any obviously wrong answers and select the correct answer option.

In this situation, a debate team wants to use a graphics program to create a team logo. Now look at the answer options and consider which of them describes the advantage of using vector graphics rather than bitmapped graphics in this situation.

Option A suggests that vector graphics would have an advantage over bitmapped graphics if the logo will need to be enlarged to appear on a poster. An important difference between vector graphics and bitmapped graphics is that vector graphics can be scaled without loss of final resolution. Thus, option A describes a situation in which it would be important to use vector graphics rather than bitmapped graphics.

Option B suggests that vector graphics would have an advantage if the final graphic will be used in a video production. In this situation, vector graphics and bitmapped graphics would perform similarly. Therefore, option B does not describe a situation in which vector graphics would have an advantage over bitmapped graphics.

Option C suggests that vector graphics would have an advantage if the final graphic will include a large number of custom-defined colors. The number of colors available and the answer choices available in defining custom colors is the same for vector graphics and bitmapped graphics. Therefore, option C does not describe a situation in which vector graphics would have an advantage over bitmapped graphics.

Option D suggests that vector graphics would have an advantage if the final graphic will be produced in both black-and-white and color versions. There are no differences between vector graphics and bitmapped graphics in their ability to produce both black-and-white and color graphics from the same image. Therefore, option D does not describe a situation in which vector graphics would have an advantage over bitmapped graphics.

Of the four options offered, only the situation in which the graphic will be enlarged to appear on a poster is better suited to vector graphics than to bitmapped graphics. Therefore, **the correct response is option A**.

QUESTIONS WITH STIMULUS MATERIAL

Some questions on this test are preceded by stimulus material that relates to the question. Some examples of stimulus material included on the test are reading passages, graphics, tables or a combination of these. In such cases, you will generally be given information followed by an event to analyze, a problem to solve or a decision to make.

One or more questions may be related to a single stimulus. You can use several different approaches to answer these types of questions. Some commonly used strategies are listed below.

Strategy 1	Skim the stimulus material to understand its purpose, its arrangement and/or its content. Then read the question and refer again to the stimulus material to verify the correct answer.
Strategy 2	Read the question *before* considering the stimulus material. The theory behind this strategy is that the content of the question will help you identify the purpose of the stimulus material and locate the information you need to answer the question.
Strategy 3	Use a combination of both strategies; apply the "read the stimulus first" strategy with shorter, more familiar stimuli and the "read the question first" strategy with longer, more complex or less familiar stimuli. You can experiment with the sample questions in this manual and then use the strategy with which you are most comfortable when you take the actual test.

Whether you read the stimulus before or after you read the question, you should read it carefully and critically.

As you consider questions set in educational contexts, try to enter into the identified teacher's frame of mind and use that teacher's point of view to answer the questions that accompany the stimulus. Be sure to consider the questions in terms of only the information provided in the stimulus—not in terms of your own class experiences or individual students you may have known.

SUGGESTED APPROACH

First read the stimulus (a sixth-grade teacher's request for help from a Master Technology Teacher).

Read the information below to answer the questions that follow.

> A sixth-grade teacher asks the Master Technology Teacher (MTT) to observe his class as he begins a unit in which his students are to work individually using word processing software to write, edit and publish poems.

Now you are prepared to address the first of the two questions associated with this stimulus. The first question measures Competency 009: *The Master Technology Teacher knows how to collaborate with colleagues to facilitate the implementation of appropriate, research-based, technology-enhanced instruction.*

> After the classroom observation, the sixth-grade teacher and the Master Technology Teacher (MTT) meet to discuss the MTT's observations. In order to set the tone for the conversation, the MTT could best begin the conversation by
>
> A. providing the teacher with positive reinforcement about the aspects of the lesson that were successful.
>
> B. asking the teacher to discuss his own perceptions about how well the lesson was presented.
>
> C. giving a brief summary of the strengths and weaknesses noted during the classroom observation.
>
> D. offering feedback about how the teacher could enhance his use of technology in the classroom.

Carefully consider the information presented in the stimulus regarding the teacher's request for help from the MTT. Then read the first question, which asks you to identify an appropriate approach for beginning the conversation with the sixth-grade teacher. Recall that an MTT is expected to facilitate the incorporation of educational technology into the curriculum and assist teachers in becoming comfortable and competent with these technologies. Now look at the answer options to consider the most appropriate approach for the MTT to take.

Option A suggests that the MTT provide the teacher with positive reinforcement about the aspects of the lesson that were successful. In presenting a critique of another person's performance in a way that both offers constructive criticism but also offers encouragement for further efforts, it is generally best to set the tone of the conversation by commenting on the positive aspects of the person's performance. Beginning the discussion by offering the teacher positive reinforcement for any successes represents this approach. Thus, option A offers an appropriate approach to the given situation.

Option B suggests that the MTT ask the teacher to begin the conversation by discussing his own perceptions about how well the lesson was presented. This approach not only allows the teacher to set the tone of the meeting, but also provides no useful information to the teacher. Thus, option B is not an appropriate way for the MTT to begin the discussion with the teacher.

Option C suggests that the MTT begin by giving the teacher a brief summary of the strengths and weaknesses noted during the classroom observation. In presenting a critique of another person's performance, beginning with a brief summary may create false initial perceptions. Each observation is better presented individually in a way that allows the MTT to elaborate and qualify the observation. Therefore, option C may be eliminated.

Option D suggests that the MTT begin by offering feedback about how the teacher could enhance his use of technology in the classroom. Although this might lead to a worthwhile discussion, this does not address the teacher's need for feedback about the classroom lesson. Option D is therefore not the best response to this question.

Of the four options offered, **only option A can be expected to set a desirable tone for the meeting**.

Now you are ready to answer the next question. The second question measures Competency 010: *The Master Technology Teacher knows how to provide professional development and support through mentoring, modeling, coaching and consulting*.

> Which of the following strategies would likely be most successful in helping the teacher assess the effectiveness of his lesson?
>
> A. Helping the teacher explore alternative ways to present the material that was covered in the lesson
>
> B. Suggesting that the teacher determine the degree to which the instructional objectives were met
>
> C. Emphasizing the positive aspects of the classroom performance and reserving criticism for another time
>
> D. Focusing the teacher's attention on those aspects of the lesson that were unsuccessful

Carefully consider the information presented in the stimulus. Then read and reflect on the second question, which asks for a strategy for helping the teacher assess the effectiveness of the lesson.

Option A suggests that the MTT help the teacher explore alternative ways to present the material that was covered in the lesson. This does not address the effectiveness of the lesson in the stimulus, but rather suggests strategies for modifying the lesson. Option A is not the best response to this question.

Option B suggests that the teacher determine the degree to which the instructional objectives were met. An important reason for integrating educational technology into the classroom is to support the curriculum. Therefore, an important criterion in assessing the effectiveness of a lesson is to determine whether the lesson met instructional objectives. Option B is a strategy that would likely be successful in helping the teacher assess the effectiveness of the lesson.

Option C suggests that the MTT emphasize the positive aspects of the classroom performance and reserve criticism for another time. To assess the effectiveness of the lesson, both positive and negative aspects need to be discussed and considered. The strategy proposed in option C focuses exclusively on the positive aspects of the lesson and therefore does not offer a complete assessment of the lesson. Option C can therefore be eliminated.

Option D suggests that the MTT focus the teacher's attention on those aspects of the lesson that were unsuccessful. To assess the effectiveness of the lesson, both positive and negative aspects need to be discussed and considered. The strategy proposed in option D focuses exclusively on the negative aspects of the lesson and therefore does not offer a complete assessment of the lesson. Option D can therefore be eliminated.

Of the four options offered, **option B would likely be most successful in helping the teacher assess the effectiveness of this lesson**.

CLUSTERED QUESTIONS

You may have one or more questions related to a single stimulus. When you have at least two questions related to a single stimulus, the group of questions is called a cluster.

Chapter 5

Multiple-Choice Practice Questions

SAMPLE MULTIPLE-CHOICE QUESTIONS

This section presents some sample multiple-choice questions for you to review as part of your preparation for the test. To demonstrate how each competency may be assessed, each sample question is accompanied by the competency that it measures. While studying, you may wish to read the competency before and after you consider each sample question. Please note that the competency statements will not appear on the actual test.

An answer key follows the sample questions. The answer key lists the question number and correct answer for each sample test question. Please note that the answer key also lists the competency assessed by each question and that the sample questions are not necessarily presented in competency order.

The sample questions are included to illustrate the formats and types of questions you will see on the test; however, your performance on the sample questions should not be viewed as a predictor of your performance on the actual test.

COMPETENCY 001

1. A teacher decides to copy an installed, single-user licensed software application so that a student can complete a computer-based assignment at home. Which of the following best describes this action with regard to copyright law?

   A. This action is likely to be considered a violation of copyright law only if the teacher makes more than one copy of the application

   B. Since the application is being used for educational purposes, this action is not likely to be considered a violation of copyright law

   C. This action is likely to be considered a violation of copyright law because it breaches the application's license agreement

   D. This action is not likely to be considered a violation of copyright law if the software is the teacher's personal property

COMPETENCY 001

2. A teacher has created a multimedia project to use for curriculum-based instruction in the classroom. The teacher has complied with "Fair Use Guidelines for Educational Multimedia," which allows the use of limited portions of copyrighted material without requesting permission. If the teacher plans to use this project as a standard part of the curriculum from year to year, it is most important to remember that

   A. the teacher may use copyrighted material in the project for a limited amount of time only, after which permission must be requested for the use of each portion of copyrighted material.

   B. after three consecutive years of using the multimedia project in the classroom, the work contained therein is considered to be in the public domain.

   C. the teacher may use the multimedia project for a limited amount of time only, after which the entire original work must be copyrighted in order to continue using it.

   D. after five consecutive years of using the multimedia project, the teacher must request permission on a yearly basis to use each portion of copyrighted material.

COMPETENCY 001

3. A Boolean search is most likely to rely on

   A. the syntax of the language in which the search is performed.

   B. the individual terms representing the concepts that the user wishes to retrieve.

   C. the logical relationship among the search terms used.

   D. the application of concept processing to determine the probable intent of a search.

COMPETENCY 001

4. Use the spreadsheet below to answer the question that follows.

	A	B	C	D	E	F	G	H
1								
2								
3								
4		1	3	3	5	6	12	11
5		5	10	2	6	8	9	12
6		3	7	7	9	10	6	2

In this spreadsheet, what value would result from entering the formula SUM (F6:H6)/(C5-D6) in an empty cell?

A. 6

B. 9

C. 21

D. 54

COMPETENCY 002

5. A student is using keyframing and a two-dimensional animation program to create an animated scene in which a dog walks along a sidewalk. Each element of the image is a separate layer and has a transparent background. As the dog walks, it passes behind a line of trees. The student would like to change the scene so that the dog passes in front of the trees. A change to which of the following characteristics would be most appropriate for making this change?

   A. Number of keyframes

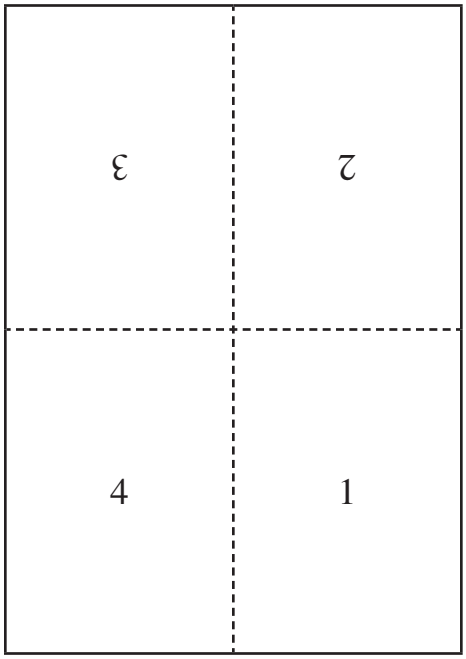
   B. Frame rate

   C. Order of layers

   D. Transparency percentage

COMPETENCY 002

6. Use the diagram below to answer the question that follows.



An 8.5" x 11" piece of paper is to be printed in the format shown in the diagram. Which of the following is the most likely application for the finished product?

A. An informational brochure describing an upcoming mathematics fair

B. A newsletter for the school district's elementary and middle school teachers

C. A note thanking the mayor for a recent visit to an elementary school classroom

D. An order form for publications available from the school district's business office

COMPETENCY 002

7. In capturing sound for digital editing, one advantage of MIDI files over files captured from audio CDs is that MIDI files

A. can be transmitted electronically over the Internet.

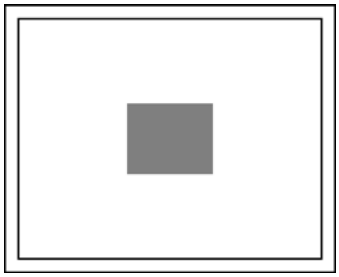
B. are compatible with most audio and video editing software.

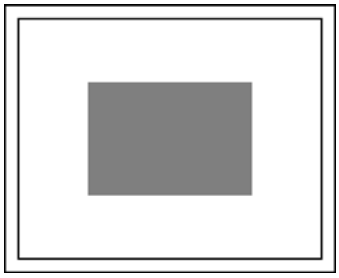
C. offer superior sound quality reproduction.

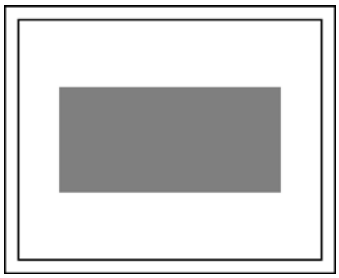
D. allow for editing of musical instruments individually.

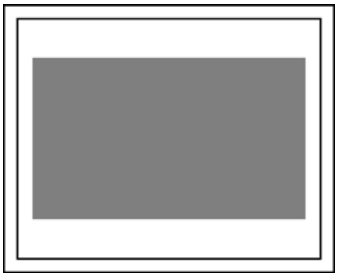
COMPETENCY 002

8. A teacher is using presentation software to create a slide show. The resolution of the LCD monitor on which the slides will be shown is 1024 x 768 pixels. One of the slides will contain an image scanned at 200 dots per inch (dpi) from a photograph that is 5 inches wide and 3 inches tall. If the scanned image is inserted without change, which of the following best represents the size of the image in relation to the monitor's screen?

A. 

C. 

B. 

D. 

COMPETENCY 003

9. A Master Technology Teacher is transferring new and modified Web pages from a school's computer to the school's website, which is hosted by a local Internet service provider (ISP). Which of the following conditions is necessary for the files to be transferred correctly?

   A. The operating systems on the school's computer and the Web server must be compatible

   B. A copy of the program used to create and update the school's Web pages must be installed on the Web server

   C. The files being updated on the Web server must not be in use while the transfer is in process

   D. The school's computer and the Web server must be using the same set of communication protocols

COMPETENCY 003

10. When a graphic is to be used on a Web page, the graphics file should be saved in GIF format if

    A. the image contains more than 256 colors.

    B. the background of the image will be transparent.

    C. the graphic contains an image that has been scanned.

    D. the user wants to control the amount of compression used.

COMPETENCY 003

11. Which of the following best describes the advantage of interlacing a GIF image file for use on a website?

    A. Gradually displaying an image that viewers do not need to see completely before they make a selection

    B. Specifying the image's clickable regions and corresponding hyperlinks for use as an image map

    C. Compressing the image for quick transmittal and display after its capture by a Webcam

    D. Identifying the sequence and file names of the image files that together form an animated GIF file

COMPETENCY 003

12. Web designers commonly use Java applets in Web pages for which of the following purposes?

    A. Providing interactivity for visitors

    B. Increasing the number of colors that can be displayed

    C. Reducing the size of image files

    D. Increasing the transmission speed of data

COMPETENCY 003

13. FTP programs are commonly used for which of the following purposes?

    A. Viewing a video clip on a Web page

    B. Posting a message to a discussion group

    C. Sending an e-mail message with a file attached

    D. Transferring a Web page to an Internet Web server

COMPETENCY 004

14. Students in a physics class are studying the acceleration of objects in free fall. They wish to conduct an experiment by using a digital camera to take pictures of a falling object at equal time intervals. For each picture taken, the distance that the object has fallen will be determined based on the object's position in the picture. Which of the following could best help the students conduct this experiment?

A. stop-motion photography

B. slow-motion photography

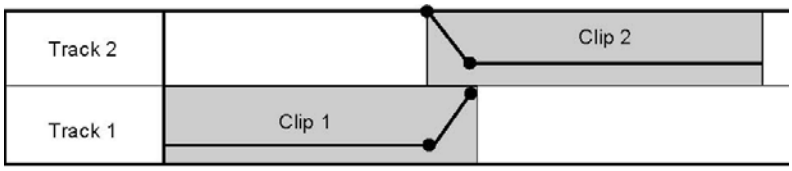
C. triggered flash photography

D. stop gap timing

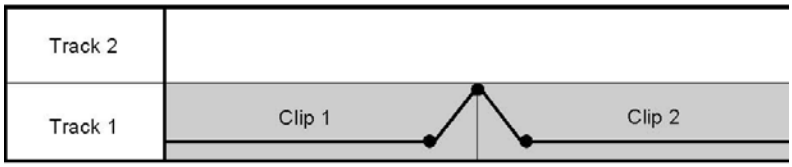
COMPETENCY 004

15. A student is using a video editing program. The horizontal lines in each clip represent the clip's transparency. Clips are transparent when the line is at the bottom of the clip. Which of the following arrangements would create a short fade-to-black between Clip 1 and Clip 2?

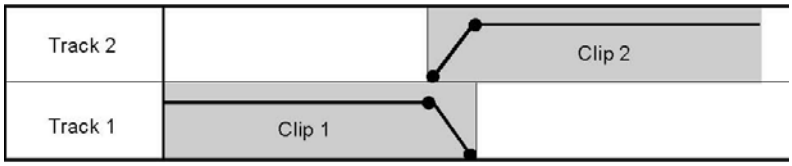
A.



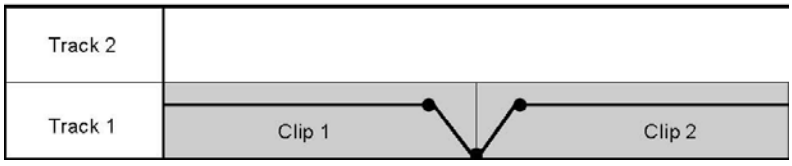
B.



C.



D.



COMPETENCY 005

16. In which of the following situations is instant messaging software most appropriate for classroom use?

A. A scientist who has been in the news recently is participating in an online interview with a middle school science class

B. A well-known artist has recently joined an online discussion group on a topic currently being studied by a middle school art class

C. Two middle school classes are exchanging data from similar science experiments conducted by the two classes

D. A group of middle school mathematics teachers are responding to invitations to a statewide mathematics fair

COMPETENCY 005

17. A music teacher has asked each student to produce a short musical theme that can be used later as the basis for a longer musical composition. The students compose using electronic keyboards and are to submit their themes in written form on staff paper. Which of the following technologies would be most helpful in allowing the teacher to evaluate the students' themes?

A. Software that translates between musical notation and MIDI files

B. Software that records audio files in digital format

C. Software that displays MP3 files in the form of musical notation

D. Software that plays digital audio files through the keyboard's speaker

COMPETENCY 005

18. Use the information below to answer the question that follows.

PROJECT ORGANIZATION

1. The class will be divided into three teams, with each team working on a separate part of the project.
2. The teams will be working independently but must track each other's progress closely.
3. Each team has tasks that require work by other teams to be completed before they can begin.
4. The teacher and the students will designate project milestones and will assign responsibilities to team members.

High school students in a business class are working together on a semester-long assignment to create a business plan for a proposed student-run enterprise. The students will work together as described above. Which of the following would be the most effective method for achieving these tasks?

A. Use project management software to report and track each team's progress

B. Create and publish a weekly written report to submit to the teacher and other students

C. Use an electronic bulletin board to post messages about each team's progress

D. Use e-mail to keep the teacher and other teams informed about progress made on the project

COMPETENCY 005

19. A fourth-grade class wants to document a recent field trip to a zoo. Using photographs taken by some of the students, they plan to use the classroom computer and software to produce an album that will include the photographs and captions as well as a summary written by one of the students. An important advantage of using desktop publishing software instead of word processing software in this situation is that desktop publishing software is more efficient for

    A. importing graphics.

    B. arranging page elements.

    C. reproducing colors.

    D. specifying text attributes.

COMPETENCY 005

20. A teacher of a third-grade class is preparing a unit on South America. The unit will integrate lessons on geography, history, art, science, music and physical education. The Master Technology Teacher (MTT) has been asked by the classroom teacher for suggestions on how the school's technology resources might be applied in presenting the lessons. The MTT's first step should be to

    A. assess the classroom teacher's technology skills and abilities.

    B. discuss with the classroom teacher her ideas and goals for the unit.

    C. research Internet resources to create a directory for the classroom teacher.

    D. determine appropriate instructional strategies that take advantage of available technology.

COMPETENCY 006

21. Before beginning a computer-based slide show presentation it is necessary to appropriately configure the computer. Which of the following computer attributes must be true in order to assure that the presentation be projected?

    A. The computer's power management system is enabled

    B. The computer is sending the video signal to the port connecting the computer and the projector

    C. The computer has a networking card

    D. The computer's video controls are set to their maximum brightness and contrast levels

COMPETENCY 006

22. A teacher has been researching national trends in homework assignments and would like to create a multimedia presentation of her research and conclusions. She asks the Master Technology Teacher (MTT) for assistance in choosing appropriate technologies and formats for the presentation. In this situation, the MTT should first determine the

    A. intended audience.

    B. conclusions reached by the teacher.

    C. availability of equipment.

    D. available storage space for the files.

COMPETENCY 006

23. A teacher has a text file of tabular data that needs to be imported into a spreadsheet file. Which of the following attributes would be most helpful to know before assessing the difficulty of this task?

    A. Does each line have text have the same length?

    B. How many lines of text are contained in the text file?

    C. Is there a consistent number of delimiters in each line of text?

    D. Does each blank field in the text file contain a zero?

COMPETENCY 006

24. A physical education teacher has produced a short video program showing high school students having fun while being physically active. The teacher wants to adapt the program for use in elementary schools by replacing the high school students with elementary school students and replacing some activities with more age-appropriate activities. Which of the following additional changes would most likely make the video program more appealing to young children?

    A. Incorporating more titles and text to explain any activities that might be unfamiliar to students

    B. Reducing the number of different transitions used between individual video clips

    C. Using video clips that are shorter in duration to create more frequent scene changes

    D. Decreasing the total number of clips and lengthening the duration of each clip

COMPETENCY 007

25. The content validity of a test is determined by how well the test

    A. measures what it is intended to measure.

    B. rank orders students by ability level.

    C. discriminates between low and high achievers.

    D. produces consistent scores over multiple administrations.

COMPETENCY 007

26. A Master Technology Teacher (MTT) has a weekly class introducing spreadsheet skills to 30 sixth graders. During the portion of the hour when students are working on their assignments, the MTT often has trouble providing individualized instruction to everyone who needs help. Which of the following strategies would be most helpful in managing the classroom?

    A. Setting aside time after school for providing personal instruction to students who need extra help

    B. Establishing project-based learning groups to support instruction

    C. Keeping a list to ensure that each student is given personal instruction at least once a month

    D. Requesting that students ask questions only after going through a trouble-shooting guide

COMPETENCY 007

27. A Master Technology Teacher plans to modify a workshop that she presents annually for teachers on the use of the Internet as a research tool. Which of the following would provide the most important input for improving her workshop?

    A. A review of previous participant evaluations

    B. A review of changes to the Internet over the past year

    C. A report on how students at the school have been using the Internet

    D. A performance-based assessment of teachers' Internet research skills

COMPETENCY 007

28. When developing a performance assessment to measure students' technology skills, which of the following questions should be answered first?

    A. What specific skills are to be assessed?

    B. How complex is the task being assessed?

    C. Does the task involve multiple components?

    D. What are the alternatives to performance assessment?

COMPETENCY 007

29. A science teacher asks a Master Technology Teacher (MTT) for help preparing a slide show for other science teachers that describes how to create a schoolyard wildflower garden. In this situation, the MTT should suggest that the science teacher first create

    A. a list of all the available slides related to this project.

    B. a possible slide sequence that can be used as a starting point for discussions.

    C. an outline of the information that is to be presented.

    D. a template and style sheet that will be used for each slide in the presentation.

COMPETENCY 008

30. A student with a motor impairment is having trouble using the computer keyboard. The teacher describes the problem to the school's Master Technology Teacher (MTT) and asks for suggestions on how to help the student. Which of the following steps should the MTT take first?

    A. Provide the teacher with a catalog of assistive technology devices and software

    B. Ask the teacher for the lesson plans that require the student to use the computer

    C. Schedule a time to observe the student in the classroom during a computer activity

    D. Request an opportunity to view the student's medical and academic records

COMPETENCY 008

31. The decision to provide a student with a laptop computer as an assistive technology device would be made by

A. the school's Master Technology Teacher.

B. the student's admission, review and dismissal (ARD) committee.

C. an educational technology consultant.

D. the members of the local school board.

COMPETENCY 008

32. An art teacher is designing a project requiring students to create a slide show presentation of their artwork. Which of the following homework tasks related to this project is most appropriate for the teacher to assign?

A. Using a word processing program to write captions for their presentations

B. Creating storyboards

C. Searching the Internet for sample layouts for their presentations

D. Creating slides

COMPETENCY 008

33. A Master Technology Teacher is working with an admission, review and dismissal (ARD) committee to match a sixth-grade student's needs and abilities with appropriate technologies. The student has a learning disability that results in his needing significant extra time to complete written assignments. His written assignments often include three or four different misspellings of the same word. Which of the following assistive technology solutions would most likely help the student complete written assignments in a timely manner?

A. Handheld spell checker with auditory output

B. Communication board

C. Portable word processor

D. Screen-reading software

COMPETENCY 008

34. A teacher is designing a lesson to introduce kindergartners to the school's computers. Which of the following skills should be taught earliest in the lesson?

A. Using a mouse

B. Saving a document

C. Shutting down the computer

D. Printing an image that is on the screen

COMPETENCY 009

35. Which of the following would be the best way to promote the use of newly acquired educational technology equipment in the classroom?

    A. Allow individual teachers to decide when and how to use the equipment in their classrooms

    B. Communicate to faculty the rationale for bringing the equipment into the classroom

    C. Provide faculty with regular updates about the status of the initiative and the benefits of helping students use and appreciate the equipment

    D. Ensure that teachers have the resources and professional preparation needed for them to use the equipment successfully

COMPETENCY 009

36. A high school Master Technology Teacher would like to expand opportunities for faculty to use educational technology in their classrooms. Which of the following would be the most appropriate first step to take toward addressing this goal?

    A. Schedule co-teaching sessions with teachers at every grade level

    B. Offer to host a series of in-service workshops for teachers on current issues in educational technology

    C. Invite regional experts to lead a series of workshops for teachers about educational technology

    D. Collaborate with teachers to prepare a plan for focused training about educational technology

COMPETENCY 009

37. A Master Technology Teacher (MTT) has been approached by a classroom teacher who is excited about the possibilities of educational technology but is having difficulty deciding how to begin. To help this teacher begin exploring the use of educational technology in the classroom, it would be most appropriate for the MTT to

    A. help the teacher determine what kind of technology the teacher would like to use.

    B. supply the teacher with articles on educational technology from current research journals on the subject.

    C. help the teacher begin by selecting a lesson that would be enhanced by the integration of technology.

    D. caution the teacher against overly ambitious projects and propose starting with very simple technologies.

COMPETENCY 009

38. Which of the following best describes the role of the Master Technology Teacher as a mentor to teachers who are new to the use of technology-enhanced instruction?

A. Providing information, support and feedback for the teachers as they try out different methods of using technology-enhanced instruction in their classrooms

B. Co-teaching with the teachers for several months to help them gain confidence in their ability to use technology-enhanced instruction in their classrooms

C. Observing the teachers in the classroom and informally evaluating their ability to use technology-enhanced instruction in their classrooms

D. Serving as a liaison between the teachers and administrators to ensure that the teachers receive appropriate training in using technology-enhanced instruction

COMPETENCY 009

39. A Master Technology Teacher (MTT) is initiating an effort to fully integrate technology into classroom instruction. Of the following, which step should the MTT take first to facilitate this integration?

A. Obtain support for enhanced integration of technology into classroom instruction from the principal and from department heads

B. Compile a list of references on integrating technology into classroom instruction

C. Advise teachers that future funding for technology equipment may depend on integration of technology into classroom instruction

D. Document deficiencies in the way teachers are currently using technology in the classroom

COMPETENCY 009

40. Which of the following best describes a Master Technology Teacher's primary responsibility with regard to integrating technology into the school environment?

A. Ensuring that the school has consistent policies toward integrating technology into the classroom

B. Counseling individual students about how to enhance their technology literacy

C. Providing strategies for teachers and students to improve their use of technology in the classroom

D. Helping teachers design their classrooms to ensure that students have maximum access to technology

COMPETENCY 009

41. A Master Technology Teacher (MTT) has been asked by the school principal to participate in a forum on the implementation of a new educational technology initiative. Other participants will be teachers, parents, members of the school board and local business leaders. Before attending the forum, it is most important that the MTT determine

    A. the forum's purpose and the MTT's role in it.

    B. the technology credentials of the forum's other participants.

    C. the response of the community and the press to the initiative.

    D. the level of acceptance of the initiative among teachers.

COMPETENCY 010

42. Four third-grade teachers want to learn current best practices for using technology in the classroom. Which of the following would most effectively address the teachers' professional-development needs?

    A. Helping the four teachers select targeted resources about current best practices for applying technology and meeting regularly to discuss the readings

    B. Observing the four teachers in their classrooms and providing constructive criticism on how they use technology in their instruction

    C. Reviewing the literature on current best practices for using technology in the classroom and making copies of relevant articles for the teachers

    D. Having the four teachers share with each other their experiences of using technology in the classroom

COMPETENCY 010

43. In planning ongoing activities to support the development of teachers' use of technology, the Master Technology Teacher is most likely to support teachers as they make which of the following changes in their classrooms?

    A. A shift from being the source of information to facilitating the development of knowledge

    B. A shift from presenting content knowledge to fostering technology literacy

    C. A shift from using technology in instruction to using technology in classroom management

    D. A shift from group learning activities to individual learning activities

COMPETENCY 010

44. During a staff development session, guided practice would be the most effective approach for teaching which of the following?

    A. How to select technology appropriate to achieving lesson objectives

    B. How to assist students who are not proficient in using a computer

    C. How to integrate technology into the existing curriculum

    D. How to access student data using a database program

COMPETENCY 010

45. Teachers at a high school are concerned that the school's new Master Technology Teacher (MTT) might restrict their autonomy in choosing and implementing technology in their classrooms. Which of the following would be the best way for the MTT to address this issue during an upcoming faculty meeting?

    A. Offer to meet privately with any teacher who has specific questions or concerns about the role of an MTT

    B. Explain that the role of an MTT is to serve as a resource and mentor and not as a supervisor of teachers

    C. Explain that an MTT focuses on technical support

    D. Explain that an MTT's primary role is to provide professional development on technology

COMPETENCY 010

46. A teacher with many years of experience is feeling overwhelmed by the new technology tools he is expected to use in his classroom. He expresses to a Master Technology Teacher (MTT) that many students are able to use the technology with greater ease than he can. In response to this concern, it would be most useful for the MTT to

    A. suggest that the teacher select a student with an advanced understanding of technology to help other students in the classroom become proficient.

    B. encourage the teacher to use this experience as an opportunity to involve students in facilitating the learning process.

    C. reassure the teacher that learning to use technology takes time and suggest that he use other instructional methods until he feels comfortable with technology.

    D. remind the teacher that technology proficiency is absolutely essential and suggest further technology training.

COMPETENCY 010

47. Which of the following resources would be most useful for a Master Technology Teacher to consult first when selecting skills on which to focus during general educational technology skills workshops for teachers?

    A. Private-sector research on technology use in schools

    B. Leading computer magazines and information technology journals

    C. Texas Technology Applications Educator Standards

    D. Education Resources Information Center (ERIC) database

ANSWER KEY

Question Number	Correct Answer	Competency
1	**C**	001
2	**A**	001
3	**C**	001
4	**A**	001
5	**C**	002
6	**C**	002
7	**D**	002
8	**D**	002
9	**D**	003
10	**B**	003
11	**A**	003
12	**A**	003
13	**D**	003
14	**A**	004
15	**D**	004
16	**A**	005
17	**A**	005
18	**A**	005
19	**B**	005
20	**B**	005
21	**B**	006
22	**A**	006
23	**C**	006
24	**C**	006

Question Number	Correct Answer	Competency
25	**A**	007
26	**B**	007
27	**A**	007
28	**A**	007
29	**C**	007
30	**C**	008
31	**B**	008
32	**B**	008
33	**C**	008
34	**A**	008
35	**D**	009
36	**D**	009
37	**C**	009
38	**A**	009
39	**A**	009
40	**C**	009
41	**A**	009
42	**A**	010
43	**A**	010
44	**D**	010
45	**B**	010
46	**B**	010
47	**C**	010

Chapter 6

Succeeding on the Case Study Assignment

CASE STUDY ASSIGNMENT

In addition to the multiple-choice section, the Master Technology Teacher (MTT) test includes one case study assignment that requires a typed response and two performance assessments. The multiple-choice score is combined with the case study written-response score and the performance assessment scores to produce a total test scaled score.

Included in this section are a description of the case study assignment and an explanation of the way case study assignment responses are scored.

PREPARING FOR THE CASE STUDY ASSIGNMENT

Chapter 7 contains one sample case study assignment that represents the type of question you will see on the MTT test.

In preparing for the case study assignment component of the test, you may wish to type a draft response to the question by reading the case study and planning, writing and revising your essay. You should plan to use about 90 minutes to respond to the sample case study assignment. Also, since no reference materials will be available during the test, it is recommended that you refrain from using a dictionary, a thesaurus or textbooks while writing your practice response.

After you have written your practice response, review your response in light of the score point descriptions provided later in this chapter. You may also wish to review your response and the score scale with staff in your MTT preparation program.

Please note: Since the MTT test is administered via computer, you may wish to practice preparing and editing your written response to the case study using a computer and word processing program.

HOW CASE STUDY ASSIGNMENT RESPONSES ARE SCORED

Responses will be scored on a four-point scale (see page 54). Each point on the scale represents the degree to which the evaluation criteria (see page 53) are demonstrated in the response.

The score point descriptions reflect typical responses at each score point. Although the score assigned corresponds to one of the score points, individual responses may include attributes of more than one score point.

EVALUATION CRITERIA

APPROPRIATENESS OF TECHNOLOGY	The extent to which the candidate chooses and defends the selection of the required number of available technologies and demonstrates an understanding of how they can be effectively used to strengthen the lesson.
PLANNING	The extent to which the candidate appropriately addresses relevant aspects of planning an effective lesson and evaluating student performance to meet the diverse needs of all students.
IMPLEMENTATION	The extent to which the candidate effectively addresses the relevant aspects of supporting and guiding the teacher in implementing the integration of technology into the lesson.
INSTRUCTIONAL SUPPORT AND GUIDANCE	Quality and relevance of supporting details the candidate provides to illustrate appropriate feedback and mentoring to the teacher, both before and after the lesson.
ADAPTATION OF TECHNOLOGY	The extent to which the candidate is able to describe how a technology used in the lesson could effectively be adapted for use in another learning situation.

SCORE SCALE

Score	Score Point Description
4	**The "4" response reflects thorough knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response identifies three available technologies, **AND** the response includes an effective justification for their integration into the lesson. There are few, if any, minor inaccuracies. • The response thoroughly describes appropriate support and guidance to be given to assist the teacher in planning an effective lesson and evaluating student performance, **AND** the response takes into account the diverse needs of students. • The response thoroughly describes appropriate support and guidance to be given to assist the teacher in implementing the integration of technology into the lesson. • The response demonstrates a thorough understanding of how to effectively mentor and give feedback to the teacher in the evaluation of the lesson. • The response selects a technology used in the lesson, **AND** the response includes a thorough justification for the appropriate adaptation of the technology for use in the specified alternate learning situation.
3	**The "3" response reflects sufficient, but not complete, knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response identifies three available technologies, **AND** the response includes a partial justification for their incorporation into the lesson. The justifications may be incomplete, but there are no major inaccuracies. • The response thoroughly describes appropriate support and guidance to be given to assist the teacher in planning an effective lesson, but does not adequately take into account the diverse needs of students, **OR** the response describes some of the appropriate support and guidance to be given to assist the teacher in planning an effective lesson, and also takes into account the diverse needs of students. • The response describes some of the appropriate support and guidance to be given to assist the teacher in implementing the integration of technology into the lesson. There are no major inaccuracies. • The response demonstrates a general understanding of how to mentor and give feedback to the teacher in the evaluation of the lesson. There are no major inaccuracies. • The response selects a technology used in the lesson, **AND** the response includes an acceptable justification for the adaptation of the technology for use in the specified alternate learning situation. The justification, although accurate, may be incomplete.

Score	Score Point Description
2	**The "2" response reflects a partial knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response identifies only two of required appropriate available technologies, **AND** the response includes at least a partial justification for their incorporation in the lesson. No more than one of the technologies chosen is inappropriate or at least partially justified. There may also be minor inaccuracies. • The response describes some of the appropriate support and guidance to be given to assist the teacher in planning an effective lesson, but does not include the diverse needs of students, **OR** the response weakly describes some of the appropriate support and guidance to be given to assist the teacher in planning an effective lesson, but it also includes an attempt to take into account the diverse needs of students. Some inaccuracies may be evident. • The response weakly or incompletely describes some of the appropriate support and guidance to be given to assist the teacher in implementing the integration of technology into the lesson. Some inaccuracies may be evident. • The response demonstrates a partial understanding of how to mentor and give feedback to the teacher in the evaluation of the lesson. Some inaccuracies may be evident. • The response selects a technology used in the lesson, **AND** the response includes only a partial or weak justification for the adaptation of the technology for use in the specified alternate learning situation.
1	**The "1" response reflects little or no knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response does not identify at least two of the required appropriate available technologies, **OR** the response does not include at least a partial justification for their incorporation in the lesson. • The response may weakly describe some of the appropriate support and guidance to be given to assist the teacher in planning an effective lesson, but does not include the diverse needs of students, **OR** the response describes few, if any, of the appropriate support and guidance to be given to assist the teacher in planning an effective lesson; the diverse needs of students may or may not be addressed. Many inaccuracies may be evident. • The response describes few, if any, of the aspects necessary to assist the teacher in implementing the integration of technology into the lesson. Many inaccuracies may be evident. • The response does not address or demonstrates a lack of understanding of how to mentor and give feedback to the teacher in the evaluation of the lesson. Many inaccuracies may be evident. • The response does not select a technology used in the lesson, **OR** the response does not include at least a partial justification for the adaptation of the technology into the appropriate curriculum, **OR** the response gives a justification for the adaptation of the technology into an inappropriate curriculum.
U	**The "U" (Unscorable) will be assigned to responses that are off-topic/off-task, unreadable, primarily in a language other than English or are too short or do not contain a sufficient amount of original work to score.**
B	**The "B" (Blank) will be assigned to responses that are completely blank or in cases where the file was not submitted correctly.**

SCORING PROCESS

Case study assignment responses are scored on a scale of 1 to 4. Each response is evaluated by a minimum of two scorers with expertise in technology education. All scorers have successfully completed standardized orientation and are calibrated to the scoring criteria throughout the scoring session.

ANALYTIC NOTATION

Examinees who do not pass the test and do not perform satisfactorily on the case study assignment will receive information concerning specific aspects of the written response that show a need for improvement. This information will be provided for examinees to use in preparing to retake the test.

If you do not pass the test or perform satisfactorily on the case study assignment, your score report will indicate one or more of the following areas for improvement in your written response. These areas are based on the evaluation criteria in the score scale.

- Appropriateness of Technology
- Planning
- Implementation
- Instructional Support and Guidance
- Adaptation of Technology

Chapter 7

Sample Case Study Assignment

GENERAL DIRECTIONS FOR RESPONDING TO THE CASE STUDY ASSIGNMENT

DIRECTIONS FOR CASE STUDY ASSIGNMENT
Master Technology Teacher

General Directions:

This section of the test consists of one case study assignment. The case study presents a hypothetical classroom equipped with a variety of technologies. For this assignment, you are to prepare a typed response in the word processing application and submit it according to the test instructions.

Read the case study assignment carefully before you begin to write. Think about how you will organize what you plan to write. You may use the scratch paper provided to make notes, create an outline or otherwise prepare your response. ***Your final response, however, must be typed in the word processing application and submitted according to the test instructions. Only what is typed in the word processing application will be scored.***

Evaluation Criteria:

Your written response will be evaluated based on the extent to which it demonstrates the knowledge and skills required to perform the roles of the Master Technology Teacher. You may draw from research and from your professional experience. (Citing specific research is not required.)

Read the assignment carefully to ensure that you address all components. Your response to the assignment will be evaluated based on the following criteria:

- **APPROPRIATENESS OF TECHNOLOGY:** The extent to which you choose and defend the selection of the required number of available technologies and demonstrate an understanding of how they can be effectively used to strengthen the lesson.
- **PLANNING:** The extent to which you appropriately address relevant aspects of planning an effective lesson and evaluating student performance to meet the diverse needs of all students.
- **IMPLEMENTATION:** The extent to which you effectively address the relevant aspects of supporting and guiding the teacher in implementing the integration of technology into the lesson.
- **INSTRUCTIONAL SUPPORT AND GUIDANCE:** Quality and relevance of supporting details you provide to illustrate appropriate feedback and mentoring to the teacher, both before and after the lesson.
- **ADAPTATION OF TECHNOLOGY:** The extent to which you are able to describe how a technology used in the lesson could effectively be adapted for use in another learning situation.

The assignment is intended to assess knowledge and skills required to perform the roles of the Master Technology Teacher. It is not intended to assess nor does it require knowledge of the content being presented by the classroom teacher.

The assignment is not intended to assess writing ability. Your response, however, must be communicated clearly enough to permit a valid judgment about your knowledge and skills. Your response should be written for an audience of educators knowledgeable about the roles of the Master Technology Teacher.

The final version of your response should conform to the conventions of edited American English. Your response should be your original work, written in your own words and not copied or paraphrased from some other work. You may, however, use citations when appropriate.

SAMPLE CASE STUDY ASSIGNMENT

Classroom Context: This case study focuses on a sixth-grade teacher, Mr. Haddad, who is preparing a lesson on matter and energy. The class consists of 22 students; one of these students has a hearing impairment.

Background: Mr. Haddad has presented this lesson to his sixth-grade students in past years, but this year he would like to take advantage of the school's available technology to teach this topic to all his students more effectively, including the students with diverse needs. He plans to have students work in pairs. Each pair will build a simple outdoor solar greenhouse from a shoe box and other materials. Students will measure the temperature in the green house over time, collect the temperature data, analyze the data, prepare a report and present their data to the class. Mr. Haddad's goal is to increase students' awareness of interactions between matter and energy and to introduce them to methods of observation, recording, analysis and communication in science. Mr. Haddad would like the Master Technology Teacher (MTT) to suggest ways for his students to work collaboratively on the lesson and provide information to their classmates.

Appropriate drivers, plug-ins, interfaces, Web browsers and operating software for available hardware are already correctly installed on all classroom computers. A computer lab with Internet accessibility and networked printers are available. Also, 30 wireless notebook computers with Internet access are available for check out.

Additional Available Technology List:

Hardware: 2 networked scanners • Interactive whiteboard • 4 wireless microphones • 2 digital video cameras • 2 digital cameras • Projection device • 4 Webcams • 26 graphing calculators • 12 temperature probes that interface with the graphing calculators • Document camera • Braille printer • Switch with scanning capability • 12 microphone headsets • 12 portable media players • 2 handheld Global Positioning Units • Portable audience response system for 30 students

Software: Video editing • Web page authoring • Presentation • Database • Concept mapping • Spreadsheet • Word processing • Optical character recognition • Graphics/photo editing • DVD/CD writing software • Digital storytelling software • Audio editing software • Web 2.0 technology • Screen reader software • Variety of collaborative online applications

Task: Mr. Haddad has asked you, in your role as MTT, for assistance in incorporating technology into the lesson to strengthen it. Describe the actions you would advise Mr. Haddad to take to accomplish his goals. In your response:

- Identify three technologies from the **additional available technology list** that would be appropriate for enhancing this lesson while addressing the diverse needs of all students. Explain why the technologies you identified are appropriate.

- Describe how you would support and guide Mr. Haddad in planning the lesson then evaluating student performance. Explain how your support and guidance would assist Mr. Haddad in achieving the goals of the lesson for all 22 students in the class.

- Describe how you would support and guide Mr. Haddad in implementing the integration of technology into the lesson.
- Describe how you would support and guide Mr. Haddad in evaluating the applications of technology in order to meet the goals of the lesson.
- Describe how a technology you identified might be used to enhance a lesson of your choosing in English or social studies.

Chapter 8

Succeeding on the Performance Assessments

PERFORMANCE ASSESSMENTS

In addition to the multiple-choice section, the Master Technology Teacher (MTT) test includes one case study assignment that requires a typed response and two performance assessments.

The multiple-choice score is combined with the case study written-response score and the performance assessment scores to produce a total test scaled score.

Included in this section are a description of the performance assessments and an explanation of the way responses are scored.

PREPARING FOR THE PERFORMANCE ASSESSMENTS

Chapter 9 contains two sample performance assessments that represent the type of tasks you will see on the MTT test.

Each performance assessment will give you the classroom context and background of a task. You will be required to create one spreadsheet and one presentation from specifications and files provided. For the actual test, you will be given the path to locate the files (e.g., C:\branches\text1 .doc) and you will also need to name your finished document and save it in the appropriate folder. The actual test will use Microsoft® Windows®, Microsoft® Excel® version 2003, and Microsoft® PowerPoint® version 2003. This preparation manual indicates where to find the sample files necessary to complete the performance tasks. Microsoft® Excel® and PowerPoint® software are not provided in this manual. These programs will be provided on the actual test.

You should plan to use 15–20 minutes for each task, for a total of 30–45 minutes to respond to both of the sample performance assessments in Chapter 9.

After you have completed your practice response, review your response in light of the score point descriptions (see page 63). You may also wish to review your response and the score scale with staff in your MTT preparation program.

HOW PERFORMANCE ASSESSMENT RESPONSES ARE SCORED

Responses are scored on a three-point scale (see page 63). Each point on the scale represents the degree to which the performance characteristics (see page 63) are demonstrated in the response. The score point descriptions reflect typical responses at each score point. Although the score assigned corresponds to one of the score points, individual responses may include attributes of more than one score point.

PERFORMANCE CHARACTERISTICS

PURPOSE	The extent to which the candidate responds to the components of the assignment in relation to relevant competencies in the Master Technology Teacher test framework.
APPLICATION OF KNOWLEDGE	Accuracy and effectiveness in the application of knowledge as described in relevant competencies in the Master Technology Teacher test framework.

SCORE SCALE

Score	Score Point Description
3	**The "3" response reflects thorough knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response addresses all components of the assignment and fully completes the assigned task. • The response demonstrates an accurate and very effective application of relevant knowledge.
2	**The "2" response reflects general knowledge and understanding of relevant competencies in the Master Technology Teacher test framework.** • The response addresses most components of the assignment and/or generally completes the assigned task. • The response demonstrates a generally accurate and effective application of relevant knowledge; minor problems in accuracy or effectiveness may be evident.
1	**The "1" response reflects little or no knowledge or understanding of relevant competencies in the Master Technology Teacher test framework.** • The response addresses few components of the assignment and/or fails to complete the assigned task. • The response demonstrates a largely inaccurate and/or ineffective application of relevant knowledge.
U	**The "U" (Unscorable) will be assigned to responses that are off topic/off task, unreadable, primarily in a language other than English, or are too incomplete or do not contain a sufficient amount of original work to score.**
B	**The "B" (Blank) will be assigned to folders that contain no files produced by the examinee.**

SCORING PROCESS

Responses to each software performance task are scored on a scale of 1 to 3. Each response is evaluated by a minimum of two scorers with expertise in technology education. All scorers have successfully completed standardized orientation and are calibrated to the scoring criteria throughout the scoring session.

Chapter 9

Sample Performance Assessments

GENERAL DIRECTIONS FOR RESPONDING TO THE PERFORMANCE ASSESSMENTS

DIRECTIONS FOR PERFORMANCE ASSESSMENTS

Master Technology Teacher

General Directions:

This section of the test consists of two performance assessments. For this section of the test, you are to create one spreadsheet using the provided Microsoft® Excel® software and one presentation using the provided Microsoft® PowerPoint® software. Use the files provided to you to create the spreadsheet and presentation. *Note: While these directions are similar to the actual test directions, they are not the actual test directions.*

Read each performance assessment carefully before you begin. You will be asked to locate and use files. Then you will be asked to create a file (one for each task). ***Only the final document saved according to the test directions will be retrieved for scoring.***

Evaluation Criteria:

Each performance assessment will be evaluated based on the extent to which it demonstrates the knowledge and skills required to perform the roles of the Master Technology Teacher.

Read each task carefully to ensure that you address all components. Your response to each task will be evaluated based on the following criteria:

- **PURPOSE:** The extent to which you respond to the components of the assignment in relation to relevant competencies in the Master Technology Teacher test framework.
- **APPLICATION OF KNOWLEDGE:** Accuracy and effectiveness in the application of knowledge as described in relevant competencies in the Master Technology Teacher test framework.

Each task is intended to assess knowledge and skills required to perform the roles of the Master Technology Teacher. The tasks are not intended to assess nor do they require knowledge of the content being presented by the classroom teacher.

SAMPLE PERFORMANCE ASSESSMENT

SPREADSHEET TASK

Classroom Context: This performance assessment focuses on a fifth-grade teacher, Mr. Tedesco, who is preparing a unit on space exploration.

Background: As part of the study on space exploration, Mr. Tedesco would like his students to consider how the weights of different familiar objects would change if those objects were transported to different planets. He began by researching the conversion factors to convert the weights on Earth to four other planets as shown in the following table.

	Mars	Jupiter	Uranus	Neptune
Conversion Factor From Weight on Earth	0.38	2.54	0.91	1.13

He used this table to create a conversion table to display the weights of three objects on five planets.

Weights of Objects on Five Planets (pounds)

Object	Earth	Mars	Jupiter	Uranus	Neptune
Dog	78.00				
Teacher	175.00				
Bicycle	33.00				

These two tables were created in a single word-processing document. Mr. Tedesco would like to use these tables in a spreadsheet so that the formula features automatically update the weights displayed in the conversion table when any of the weights entered in the Earth column are changed or if a conversion is modified in the table of factors.

During class, Mr. Tedesco will ask a student to add an additional object of his or her choosing to the table's empty row. After the class agrees on an estimated weight for this object, in Earth pounds, that value will be entered into the appropriate cell. The weight for this object on four other planets will be displayed automatically for the class.

Mr. Tedesco would also like a chart on a separate worksheet that shows the weight of the student's selected object on each of the five planets.

Available File

Copy the following file from the Preparation Materials section of the ETS TExES website at **www.texes.ets.org**. Look for the Master Technology Teacher Preparation Manual under TExMaT. *Please note: For the actual test, you will be given instructions to locate the file.*

- **table.doc**

The Task: Mr. Tedesco has asked the Master Technology Teacher for help in creating the spreadsheet. Using your knowledge of spreadsheets, create a table reflecting Mr. Tedesco's specifications. Appropriate use of relative/absolute addressing should be used throughout the spreadsheet. In creating this spreadsheet, you should:

- Use the following formatting:
    - Include a column header for each of the five planets
        - center justified
        - bold
    - Include a row header for each of the four objects
        - left justified
        - bold
    - Include borders and shading
        - Single-rule borders for interior cells
        - Double-rule borders for column and row headers
        - 20% gray shading for the column headers
    - Include additional formatting
        - Express all weights to two decimal places
        - Center the title "Weights of Objects on Five Planets (pounds)" across cells A1 through F1
        - Adjust widths as necessary so that all text is displayed
- Apply the following directions to create the formulas:
    - Ensure that any change to the table of conversion factors results in an automatic update of the conversion table
    - Use relative and absolute cell addressing
    - Ensure that an update to the weight of any object on Earth is automatically reflected in the weights of the object on the other planets
- Create a chart on a separate worksheet that displays the weight of the student's object on each of the five planets. Apply the following formatting to the chart:
    - Add an appropriate title for the chart
    - Provide a one- to three-sentence explanation defending your chart selection in the footer of the worksheet

PRESENTATION TASK

Classroom Context: This performance assessment focuses on a fifth-grade teacher, Ms. Hernandez, who is preparing a unit on the branches of the United States government.

Background: As part of the study of the U.S. government, Ms. Hernandez would like to present to her students a brief slide show presentation outlining the three branches. She would like the presentation to consist of one introduction slide, one overview slide of the government and one slide on each of the three branches of government. She would like to have each slide in the presentation advance manually. Ms. Hernandez has provided a text file and graphics files for four of the five slides to go into the slide show.

Available Files

Copy the following files from the Preparation Materials section of the ETS TExES website at **www.texes.ets.org**. Look for the Master Technology Teacher Preparation Manual under TExMaT. *Please note: For the actual test, you will be given instructions to locate the files.*

- **branches.doc** (text for four slides)
- **branches1.jpg** (graphic image for slide #2)
- **branches2.jpg** (graphic image for slide #3)
- **branches3.jpg** (graphic image for slide #4)
- **branches4.jpg** (graphic image for slide #5)

The Task: Ms. Hernandez has asked the Master Technology Teacher for assistance in creating the presentation.

Using your knowledge of presentation software, create a model slide show presentation to Ms. Hernandez's specifications. In creating this presentation, you should:

- Create an introduction slide that provides the subject, date and teacher's name.
- Create slides 2 through 5 using the five files provided by Ms. Hernandez. Each slide should contain a title, an appropriate graphic image and text provided displayed as a bulleted list.
    - Animate the entry of the text of slides 2 and 4 (the animations should occur automatically and not require a mouse or keyboard click).
    - Animate the entry of the graphics in slides 3 and 5 (the animations should occur automatically and not require a mouse or keyboard click).

- Formatting:
  - Use appropriate transitions to communicate effectively without distracting from the content of the presentation.
  - Use a color scheme appropriate for audience members including those who may be color-blind.
  - Use the principles of design to format the text and graphics to communicate to the intended audience.
  - Provide a brief explanation defending your selections above in the notes section of the introduction slide.

Chapter 10

Are You Ready? — Last Minute Tips

CHECKLIST

Complete this checklist to determine if you are ready to take your test.

- ✓ Do you know the testing requirements for your teaching field?
- ✓ Have you followed the test registration procedures?
- ✓ Have you reviewed the test center identification document requirements in the *Registration Bulletin* or on the ETS TExES website at **www.texes.ets.org**?
- ✓ Do you know the test frameworks that will be covered in each of the tests you plan to take?
- ✓ Have you used the study plan sheet at the end of this booklet to identify what content you already know well and what content you will need to focus on in your studying?
- ✓ Have you reviewed any textbooks, class notes and course readings that relate to the frameworks covered?
- ✓ Do you know how long the test will take and the number of questions it contains? Have you considered how you will pace your work?
- ✓ Are you familiar with the test directions and the types of questions for your test?
- ✓ Are you familiar with the recommended test-taking strategies and tips?
- ✓ Have you practiced by working through the sample test questions at a pace similar to that of an actual test?
- ✓ If constructed-response questions are part of your test, do you understand the scoring criteria for these questions?
- ✓ If you are repeating a test, have you analyzed your previous score report to determine areas where additional study and test preparation could be useful?

THE DAY OF THE TEST

You should have ended your review a day or two before the actual test date. Many clichés you may have heard about the day of the test are true. You should:

- ✓ Be well rested.
- ✓ Take the appropriate identification document(s) with you to the test center (identification requirements are listed in the *Registration Bulletin* and on the ETS TExES website at **www.texes.ets.org**).
- ✓ Take 3 or 4 well-sharpened soft-lead (No. 2 or HD) pencils with good erasers.
- ✓ Eat before you take the test.
- ✓ Be prepared to stand in line to check in or to wait while other test takers are being checked in.
- ✓ Stay calm. You can't control the testing situation, but you can control yourself. The test administrators are well trained and make every effort to provide uniform testing conditions, but don't let it bother you if a test doesn't start exactly on time. You will have the necessary amount of time once it does start. Using the *Reducing Test Anxiety* booklet in the days before you test may be helpful in mentally and emotionally preparing yourself to test. It is available free at **www.texes.ets.org**.

You can think of preparing for this test as training for an athletic event. Once you have trained, prepared and rested, give it everything you've got. Good luck.

Appendix A

STUDY PLAN

Content covered on test	How well do I know the content?	What material do I have for studying this content?	What material do I need for studying this content?	Where can I find the materials I need?	Dates planned for study of content	Date completed

Appendix B

PREPARATION RESOURCES

The resources listed below may help you prepare for the TExMaT test in this field. These preparation resources have been identified by content experts in the field to provide up-to-date information that relates to the field in general. You may wish to use current issues or editions to obtain information on specific topics for study and review.

JOURNALS

Learning and Leading with Technology, International Society for Technology in Education.

OTHER SOURCES

Boreen, J., Johnson, M. K., Niday, D., and Potts, J. (2000). *Mentoring Beginning Teachers: Guiding, Reflecting, Coaching*. Portland, ME: Stenhouse Publishers.

Brody, P. J. (1995). *Technology Planning and Management Handbook: A Guide for School District Educational Technology Leaders.* Englewood Cliffs, NJ: Educational Technology Publications.

Caruso, J. R., and Arthur, M. E. (1992). *Video Editing and Post Production.* Upper Saddle River, NJ: Prentice-Hall.

Castro, E. (2000). *HTML for the World Wide Web,* Fourth Edition. Berkeley, CA: Peachpit Press.

Cook, A. M., and Hussey, S. M. (2002). *Assistive Technologies: Principles and Practice,* Second Edition. St. Louis, MO: Mosby.

Grabe, M., and Grabe, C. (2001). *Integrating Technology for Meaningful Learning,* Third Edition. Boston, MA: Houghton Mifflin Company.

Hackbarth, S. (1996). *The Educational Technology Handbook: A Comprehensive Guide.* Englewood Cliffs, NJ: Educational Technology Publications.

Heinich, R., Molenda, M., Russell, J. D., and Smaldino, S. E. (1999). *Instructional Media and Technologies for Learning,* Sixth Edition. Upper Saddle River, NJ: Prentice-Hall.

International Society for Technology in Education. (2000). *National Educational Technology Standards for Students: Connecting Curriculum and Technology.* Eugene, OR: International Society for Technology in Education.

Lehnert, W. G. (1998). *Internet 101: A Beginner's Guide to the Internet and the World Wide Web.* Reading, MA: Addison-Wesley.

Newby, T. J., Stepich, D. A., Lehman, J. D., and Russell, J. D. (2000). *Instructional Technology for Teaching and Learning: Designing Instruction, Integrating Computers, and Using Media,* Second Edition. Upper Saddle River, NJ: Prentice-Hall.

Roblyer, M. D., and Edwards, J. (2000). *Integrating Educational Technology into Teaching,* Second Edition. Upper Saddle River, NJ: Prentice-Hall.

Siegal, L. M. (2000). *The Complete IEP Guide: How to Advocate for Your Special Ed Child,* Second Edition. Berkeley, CA: NOLO.

Texas Education Agency. (1997). *Texas Essential Knowledge and Skills (TEKS).*

Willard, N. E. (2002). *Computer Ethics, Etiquette, and Safety for the 21st-Century Student.* Eugene, OR: International Society for Technology in Education.

ONLINE RESOURCES

Association for the Advancement of Computing in Education — www.aace.org

Department of Education Office of Educational Technology — www.ed.gov/Technology

International Society for Technology in Education — www.iste.org

National Educational Technology Standards Project — www.iste.org/NETS

Texas Center for Educational Technology — www.tcet.unt.edu

81038-55103 • UNLWEB129

751121