

## Chapter 126. Texas Essential Knowledge and Skills for Technology Applications

### Subchapter B. Middle School

*Statutory Authority: The provisions of this Subchapter B issued under the Texas Education Code, §7.102(c)(4) and §28.002, unless otherwise noted.*

#### **§126.13. Implementation of Texas Essential Knowledge and Skills for Technology Applications, Middle School, Beginning with School Year 2012-2013.**

The provisions of §§126.14-126.16 of this subchapter shall be implemented by school districts beginning with the 2012-2013 school year.

*Source: The provisions of this §126.13 adopted to be effective September 26, 2011, 36 TexReg 6263.*

#### **§126.14. Technology Applications, Grade 6, Beginning with School Year 2012-2013.**

- (a) General requirements. Districts have the flexibility of offering technology applications in a variety of settings. Districts are encouraged to offer technology applications in all content areas. This content may also be offered in a specific class while being integrated in all content areas.
- (b) Introduction.
  - (1) The technology applications curriculum has six strands based on the National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.
  - (2) Through the study of technology applications, students make informed decisions by understanding current and emerging technologies, including technology systems, appropriate digital tools, and personal learning networks. As competent researchers and responsible digital citizens, students use creative and computational thinking to solve problems while developing career and college readiness skills.
  - (3) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.
- (c) Knowledge and skills.
  - (1) Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:
    - (A) identify, create, and use files in various formats such as text, raster and vector graphics, video, and audio files;
    - (B) create original works as a means of personal or group expression;
    - (C) explore complex systems or issues using models, simulations, and new technologies to make predictions, modify input, and review results; and
    - (D) discuss trends and possible outcomes.
  - (2) Communication and collaboration. The student collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:
    - (A) participate in personal learning networks to collaborate with peers, experts, or others using digital tools such as blogs, wikis, audio/video communication, or other emerging technologies;

- (B) communicate effectively with multiple audiences using a variety of media and formats; and
  - (C) read and discuss examples of technical writing.
- (3) Research and information fluency. The student acquires, analyzes, and manages content from digital resources. The student is expected to:
- (A) create a research plan to guide inquiry;
  - (B) discuss and use various search strategies, including keyword(s) and Boolean operators;
  - (C) select and evaluate various types of digital resources for accuracy and validity; and
  - (D) process data and communicate results.
- (4) Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:
- (A) identify and define relevant problems and significant questions for investigation;
  - (B) plan and manage activities to develop a solution, design a computer program, or complete a project;
  - (C) collect and analyze data to identify solutions and make informed decisions;
  - (D) use multiple processes and diverse perspectives to explore alternative solutions;
  - (E) make informed decisions and support reasoning; and
  - (F) transfer current knowledge to the learning of newly encountered technologies.
- (5) Digital citizenship. The student practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:
- (A) understand copyright principles, including current laws, fair use guidelines, creative commons, open source, and public domain;
  - (B) practice ethical acquisition of information and standard methods for citing sources;
  - (C) practice safe and appropriate online behavior, personal security guidelines, digital identity, digital etiquette, and acceptable use of technology; and
  - (D) understand the negative impact of inappropriate technology use, including online bullying and harassment, hacking, intentional virus setting, invasion of privacy, and piracy such as software, music, video, and other media.
- (6) Technology operations and concepts. The student demonstrates a thorough understanding of technology concepts, systems, and operations. The student is expected to:
- (A) define and use current technology terminology appropriately;
  - (B) select technology tools based on licensing, application, and support;
  - (C) identify, understand, and use operating systems;
  - (D) understand and use software applications, including selecting and using software for a defined task;
  - (E) identify, understand, and use hardware systems;
  - (F) understand troubleshooting techniques such as restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;

- (G) demonstrate effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;
- (H) discuss how changes in technology throughout history have impacted various areas of study;
- (I) discuss the relevance of technology as it applies to college and career readiness, life-long learning, and daily living;
- (J) use a variety of local and remote input sources;
- (K) use keyboarding techniques and ergonomic strategies while building speed and accuracy;
- (L) create and edit files with productivity tools, including:
  - (i) a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, and list attributes;
  - (ii) a spreadsheet workbook using basic computational and graphic components such as basic formulas and functions, data types, and chart generation;
  - (iii) a database by manipulating components such as entering and searching for relevant data; and
  - (iv) a digital publication using relevant publication standards;
- (M) plan and create non-linear media projects using graphic design principles; and
- (N) integrate two or more technology tools to create a new digital product.

*Source: The provisions of this §126.14 adopted to be effective September 26, 2011, 36 TexReg 6263.*

**§126.15. Technology Applications, Grade 7, Beginning with School Year 2012-2013.**

- (a) General requirements. Districts have the flexibility of offering technology applications in a variety of settings. Districts are encouraged to offer technology applications in all content areas. This content may also be offered in a specific class while being integrated in all content areas.
- (b) Introduction.
  - (1) The technology applications curriculum has six strands based on the National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.
  - (2) Through the study of technology applications, students make informed decisions by understanding current and emerging technologies, including technology systems, appropriate digital tools, and personal learning networks. As competent researchers and responsible digital citizens, students use creative and computational thinking to solve problems while developing career and college readiness skills.
  - (3) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.
- (c) Knowledge and skills.
  - (1) Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:
    - (A) identify, create, and use files in various formats such as text, raster and vector graphics, video, and audio files;
    - (B) create and present original works as a means of personal or group expression;

- (C) explore complex systems or issues using models, simulations, and new technologies to make predictions, modify input, and review results; and
  - (D) discuss trends and make predictions.
- (2) Communication and collaboration. The student collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:
- (A) create personal learning networks to collaborate and publish with peers, experts, or others using digital tools such as blogs, wikis, audio/video communication, or other emerging technologies;
  - (B) communicate effectively with multiple audiences using a variety of media and formats; and
  - (C) create products using technical writing strategies.
- (3) Research and information fluency. The student acquires, analyzes, and manages content from digital resources. The student is expected to:
- (A) create a research plan to guide inquiry;
  - (B) use and evaluate various search strategies, including keyword(s) and Boolean operators;
  - (C) select and evaluate various types of digital resources for accuracy and validity; and
  - (D) process data and communicate results.
- (4) Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:
- (A) identify and define relevant problems and significant questions for investigation;
  - (B) plan and manage activities to develop a solution, design a computer program, or complete a project;
  - (C) collect and analyze data to identify solutions and make informed decisions;
  - (D) use multiple processes and diverse perspectives to explore alternative solutions;
  - (E) make informed decisions and support reasoning; and
  - (F) transfer current knowledge to the learning of newly encountered technologies.
- (5) Digital citizenship. The student practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:
- (A) understand and practice copyright principles, including current laws, fair use guidelines, creative commons, open source, and public domain;
  - (B) practice ethical acquisition of information and standard methods for citing sources;
  - (C) practice and explain safe and appropriate online behavior, personal security guidelines, digital identity, digital etiquette, and acceptable use of technology; and
  - (D) understand the negative impact of inappropriate technology use, including online bullying and harassment, hacking, intentional virus setting, invasion of privacy, and piracy such as software, music, video, and other media.
- (6) Technology operations and concepts. The student demonstrates a thorough understanding of technology concepts, systems, and operations. The student is expected to:
- (A) define and use current technology terminology appropriately;
  - (B) select and apply technology tools based on licensing, application, and support;
  - (C) identify, understand, and use operating systems;

- (D) understand and use software applications, including selecting and using software for a defined task;
- (E) identify, understand, and use hardware systems;
- (F) understand troubleshooting techniques such as restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;
- (G) implement effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;
- (H) explain how changes in technology throughout history have impacted various areas of study;
- (I) explain the relevance of technology as it applies to college and career readiness, life-long learning, and daily living;
- (J) use a variety of local and remote input sources;
- (K) use keyboarding techniques and ergonomic strategies while building speed and accuracy;
- (L) create and edit files with productivity tools, including:
  - (i) a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, and list attributes;
  - (ii) a spreadsheet workbook using advanced computational and graphic components such as complex formulas, basic functions, data types, and chart generation;
  - (iii) a database by manipulating components such as defining fields, entering data, and designing layouts appropriate for reporting; and
  - (iv) a digital publication using relevant publication standards;
- (M) plan and create non-linear media projects using graphic design principles; and
- (N) integrate two or more technology tools to create a new digital product.

*Source: The provisions of this §126.15 adopted to be effective September 26, 2011, 36 TexReg 6263.*

### **§126.16. Technology Applications, Grade 8, Beginning with School Year 2012-2013.**

- (a) General requirements. Districts have the flexibility of offering technology applications in a variety of settings. Districts are encouraged to offer technology applications in all content areas. This content may also be offered in a specific class while being integrated in all content areas.
- (b) Introduction.
  - (1) The technology applications curriculum has six strands based on the National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.
  - (2) Through the study of technology applications, students make informed decisions by understanding current and emerging technologies, including technology systems, appropriate digital tools, and personal learning networks. As competent researchers and responsible digital citizens, students use creative and computational thinking to solve problems while developing career and college readiness skills.
  - (3) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

- (c) Knowledge and skills.
- (1) Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge, generate new ideas, and create products. The student is expected to:
    - (A) identify, create, and use files in various formats, including text, raster and vector graphics, video, and audio files;
    - (B) create, present, and publish original works as a means of personal or group expression;
    - (C) explore complex systems or issues using models, simulations, and new technologies to develop hypotheses, modify input, and analyze results; and
    - (D) analyze trends and forecast possibilities.
  - (2) Communication and collaboration. The student collaborates and communicates both locally and globally to reinforce and promote learning. The student is expected to:
    - (A) create and manage personal learning networks to collaborate and publish with peers, experts, or others using digital tools such as blogs, wikis, audio/video communication, or other emerging technologies;
    - (B) communicate effectively with multiple audiences using a variety of media and formats; and
    - (C) create and publish products using technical writing strategies.
  - (3) Research and information fluency. The student acquires, analyzes, and manages content from digital resources. The student is expected to:
    - (A) create a research plan to guide inquiry;
    - (B) plan, use, and evaluate various search strategies, including keyword(s) and Boolean operators;
    - (C) select and evaluate various types of digital resources for accuracy and validity; and
    - (D) process data and communicate results.
  - (4) Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:
    - (A) identify and define relevant problems and significant questions for investigation;
    - (B) plan and manage activities to develop a solution, design a computer program, or complete a project;
    - (C) collect and analyze data to identify solutions and make informed decisions;
    - (D) use multiple processes and diverse perspectives to explore alternative solutions;
    - (E) make informed decisions and support reasoning; and
    - (F) transfer current knowledge to the learning of newly encountered technologies.
  - (5) Digital citizenship. The student practices safe, responsible, legal, and ethical behavior while using technology tools and resources. The student is expected to:
    - (A) understand, explain, and practice copyright principles, including current laws, fair use guidelines, creative commons, open source, and public domain;
    - (B) practice and explain ethical acquisition of information and standard methods for citing sources;
    - (C) practice and explain safe and appropriate online behavior, personal security guidelines, digital identity, digital etiquette, and acceptable use of technology; and

- (D) understand and explain the negative impact of inappropriate technology use, including online bullying and harassment, hacking, intentional virus setting, invasion of privacy, and piracy such as software, music, video, and other media.
- (6) Technology operations and concepts. The student demonstrates a thorough understanding of technology concepts, systems, and operations. The student is expected to:
  - (A) define and use current technology terminology appropriately;
  - (B) evaluate and select technology tools based on licensing, application, and support;
  - (C) identify, understand, and use operating systems;
  - (D) understand and use software applications, including selecting and using software for a defined task;
  - (E) identify, understand, and use hardware systems;
  - (F) apply troubleshooting techniques, including restarting systems, checking power issues, resolving software compatibility, verifying network connectivity, connecting to remote resources, and modifying display properties;
  - (G) implement effective file management strategies such as file naming conventions, location, backup, hierarchy, folder structure, file conversion, tags, labels, and emerging digital organizational strategies;
  - (H) evaluate how changes in technology throughout history have impacted various areas of study;
  - (I) evaluate the relevance of technology as it applies to college and career readiness, life-long learning, and daily living;
  - (J) use a variety of local and remote input sources;
  - (K) use keyboarding techniques and ergonomic strategies while building speed and accuracy;
  - (L) create and edit files with productivity tools, including:
    - (i) a word processing document using digital typography standards such as page layout, font formatting, paragraph formatting, mail merge, and list attributes;
    - (ii) a spreadsheet workbook using advanced computational and graphic components such as complex formulas, advanced functions, data types, and chart generation;
    - (iii) a database by manipulating components, including defining fields, entering data, and designing layouts appropriate for reporting; and
    - (iv) a digital publication using relevant publication standards and graphic design principles;
  - (M) plan and create non-linear media projects using graphic design principles; and
  - (N) integrate two or more technology tools to create a new digital product.

*Source: The provisions of this §126.16 adopted to be effective September 26, 2011, 36 TexReg 6263.*