# Technology Applications, Kindergarten

Subject: Technology Applications
Grade: KG
Expectations: 18
Breakouts: 44

(a) Introduction.

1. Technology includes data communication, data processing, and the devices used for these tasks locally and across networks. Learning to apply these technologies motivates students to develop critical-thinking skills, higher-order thinking, and innovative problem solving. Technology applications incorporates the study of digital tools, devices, communication, and programming to empower students to apply current and emerging technologies in their careers, their education, and beyond.

2. The technology applications Texas Essential Knowledge and Skills (TEKS) consist of five strands that prepare students to be literate in technology applications by Grade 8: computational thinking; creativity and innovation; data literacy, management, and representation; digital citizenship; and practical technology concepts. Communication and collaboration skills are embedded across the strands.

    a. Computational thinking. Students break down the problem-solving process into four steps: decomposition, pattern recognition, abstraction, and algorithms.

    b. Creativity and innovation. Students use innovative design processes to develop solutions to problems. Students plan a solution, create the solution, test the solution, iterate, and debug the solution as needed and implement a completely new and innovative product.

    c. Data literacy, management, and representation. Students collect, organize, manage, analyze, and publish various types of data for an audience.

    d. Digital citizenship. Students practice the ethical and effective application of technology and develop an understanding of cybersecurity and the impact of a digital footprint to become safe, productive, and respectful digital citizens.

    e. Practical technology concepts. Students build their knowledge of software applications and hardware focusing on keyboarding and use of applications and tools.

3. The technology applications TEKS can be integrated into all content areas and can support stand-alone courses. Districts have the flexibility of offering technology applications in a variety of settings, including through a stand-alone course or by integrating the technology applications standards in the essential knowledge and skills for one or more courses or subject areas.

4. Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(b) Knowledge and Skills Statements

(1) Computational thinking--foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms. The student is expected to:

(A) identify a problem or task such as making a sandwich and break it down (decompose) into smaller pieces;

(i) identify a problem or task

(ii) break [a problem or task] down (decompose) into smaller pieces

(B) identify simple patterns and make predictions based on the patterns; and

(i) identify simple patterns

(ii) make predictions based on the patterns

(C) identify algorithms (step-by-step instructions) using a sequential process such as first, next, then, and last.

(i) identify algorithms (step-by-step instructions) using a sequential process

(2) Computational thinking--applications. The student, with guidance from an educator, applies the fundamentals of computer science. The student is expected to create a sequence of code with or without technology such as solving a maze using drag-and-drop programming or creating step-by-step directions for student movement to a specific location.

(A) create a sequence of code with or without technology such as solving a maze using drag-and-drop programming or creating step-by-step directions for student movement to a specific location.

(i) create a sequence of code with or without technology

(3) Creativity and innovation--innovative design process. The student takes an active role in learning by using a design process to solve authentic problems for a local or global audience, using a variety of technologies. The student is expected to:

(A) practice personal skills, including following directions, needed to successfully implement design processes; and

(i) practice personal skills, including following directions, needed to successfully implement design processes

(B) use a design process with components such as asking questions, brainstorming, or storyboarding to identify and solve authentic problems with adult assistance.

(i) use a design process with components to identify authentic problems with adult assistance

(ii) use a design process with components to solve authentic problems with adult assistance

(4) Data literacy, management, and representation--collect data. The student defines data and explains how data can be found and collected. The student is expected to:

(A) communicate an understanding that data is information collected about people, events, or objects such as computer searches and weather patterns; and

(i) communicate an understanding that data is information collected about people, events, or objects

(B) communicate with adult assistance the idea that digital devices can search for and retrieve information.

(i) communicate with adult assistance the idea that digital devices can search for information

(ii) communicate with adult assistance the idea that digital devices can retrieve information

(5) Digital citizenship--social interactions. The student identifies appropriate ways to communicate in various digital environments. The student is expected to identify and demonstrate responsible behavior within a digital environment.

(A) identify and demonstrate responsible behavior within a digital environment.

(i) identify responsible behavior within a digital environment

(ii) demonstrate responsible behavior within a digital environment

(6) Digital citizenship--ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources. The student is expected to:

(A) demonstrate acceptable use of digital resources and devices as outlined in local policies or acceptable use policy (AUP); and

(i) demonstrate acceptable use of digital resources as outlined in local policies or acceptable use policy (AUP)

(ii) demonstrate acceptable use of digital devices as outlined in local policies or acceptable use policy (AUP)

(B) communicate an understanding that all digital content has owners.

(i) communicate an understanding that all digital content has owners

(7) Digital citizenship--privacy, safety, and security. The student practices safe, legal, and ethical digital behaviors to become a socially responsible digital citizen. The student is expected to:

(A) identify ways to keep a user account safe, including not sharing login information and logging off accounts and devices; and

(i) identify ways to keep a user account safe, including not sharing login information

(ii) identify ways to keep a user account safe, including logging off accounts

(iii) identify ways to keep a user account safe, including logging off devices

(B) identify and discuss what information is safe to share online such as hobbies and likes and dislikes and what information is unsafe such as identifying information.

(i) identify what information is safe to share online

(ii) identify what information is unsafe to share online

(iii) discuss what information is safe to share online

(iv) discuss what information is unsafe to share online

(8) Practical technology concepts--skills and tools. The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:

(A) use a variety of applications, devices, and online learning environments to engage with content;

(i) use a variety of applications to engage with content

(ii) use a variety of devices to engage with content

(iii) use a variety of online learning environments to engage with content

(B) identify basic computer hardware, including a variety of input and output devices, and software using accurate terminology;

(i) identify basic computer hardware, including a variety of input devices using accurate terminology

(ii) identify basic computer hardware, including a variety of output devices using accurate terminology

(iii) identify basic computer software using accurate terminology

(C) perform software application functions such as opening an application and modifying, printing, and saving digital artifacts using a variety of developmentally appropriate digital tools and resources;

(i) perform software application functions using a variety of developmentally appropriate digital tools

(ii) perform software application functions using a variety of developmentally appropriate digital resources

(D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions; and

(i) practice ergonomically correct keyboarding techniques

(ii) practice developmentally appropriate hand positions

(iii) practice developmentally appropriate body positions

(E) identify, locate, and practice using keys on the keyboard, including letters, numbers, and special keys such as space bar and backspace.

(i) identify keys on the keyboard, including letters

(ii) identify keys on the keyboard, including numbers

(iii) identify keys on the keyboard, including special keys

(iv) locate keys on the keyboard, including letters

(v) locate keys on the keyboard, including numbers

(vi) locate keys on the keyboard, including special keys

(vii) practice using keys on the keyboard, including letters

(viii) practice using keys on the keyboard, including numbers

(ix) practice using keys on the keyboard, including special keys

# Technology Applications, Grade 1

Subject: Technology Applications
Grade: 01
Expectations: 20
Breakouts: 54

(a) Introduction.

1. Technology includes data communication, data processing, and the devices used for these tasks locally and across networks. Learning to apply these technologies motivates students to develop critical-thinking skills, higher-order thinking, and innovative problem solving. Technology applications incorporates the study of digital tools, devices, communication, and programming to empower students to apply current and emerging technologies in their careers, their education, and beyond.

2. The technology applications Texas Essential Knowledge and Skills (TEKS) consist of five strands that prepare students to be literate in technology applications by grade 8: computational thinking; creativity and innovation; data literacy, management, and representation; digital citizenship; and practical technology concepts. Communication and collaboration skills are embedded across the strands.

    a. Computational thinking. Students break down the problem-solving process into four steps: decomposition, pattern recognition, abstraction, and algorithms.

    b. Creativity and innovation. Students use innovative design processes to develop solutions to problems. Students plan a solution, create the solution, test the solution, iterate, and debug the solution as needed, and implement a completely new and innovative product.

    c. Data literacy, management, and representation. Students collect, organize, manage, analyze, and publish various types of data for an audience.

    d. Digital citizenship. Students practice the ethical and effective application of technology and develop an understanding of cybersecurity and the impact of a digital footprint to become safe, productive, and respectful digital citizens.

    e. Practical technology concepts. Students build their knowledge of software applications and hardware focusing on keyboarding and use of applications and tools.

3. The technology applications TEKS can be integrated into all content areas and can support stand-alone courses. Districts have the flexibility of offering technology applications in a variety of settings, including through a stand-alone course or by integrating the technology applications standards in the essential knowledge and skills for one or more courses or subject areas.

4. Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(b) Knowledge and Skills Statements

(1) Computational thinking--foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms. The student is expected to:

(A) identify and discuss a problem or task and break down (decompose) the solution into sequential steps;

(i) identify a problem or task

(ii) discuss a problem or task

(iii) break down (decompose) the solution [to a problem or task] into sequential steps

(B) identify the simple patterns found in the solutions to everyday problems or tasks; and

(i) identify the simple patterns found in the solutions to everyday problems or tasks

(C) create a simple algorithm (step-by-step instructions) for an everyday task.

(i) create a simple algorithm (step-by-step instructions) for an everyday task

(2) Computational thinking--applications. The student, with guidance from an educator, applies the fundamentals of computer science. The student is expected to create a sequence of code that solves a simple problem with or without technology.

(A) create a sequence of code that solves a simple problem with or without technology.

(i) create a sequence of code that solves a simple problem with or without technology

(3) Creativity and innovation--innovative design process. The student takes an active role in learning by using a design process to solve authentic problems for a local or global audience, using a variety of technologies. The student is expected to:

(A) practice personal skills and behaviors, including following directions and mental agility, needed to implement a design process successfully; and

(i) practice personal skills and behaviors, including following directions, needed to implement a design process successfully

(ii) practice personal skills and behaviors, including mental agility, needed to implement a design process successfully

(B) use a design process with components such as asking questions, brainstorming, or storyboarding to identify and solve authentic problems with adult assistance.

(i) use a design process with components to identify authentic problems with adult assistance.

(ii) use a design process with components to solve authentic problems with adult assistance.

(4) Creativity and innovation--emerging technologies. The student understands that technology is dynamic and impacts different communities. The student is expected to identify examples of how technology has impacted different communities.

(A) identify examples of how technology has impacted different communities.

(i) identify examples of how technology has impacted different communities

(5) Data literacy, management, and representation--collect data. The student defines data and explains how data can be found and collected. The student is expected to:

(A) explore and collect many types of data such as preferences or daily routines of people, events, or objects; and

(i) explore many types of data

(ii) collect many types of data

(B) conduct a basic search using provided keywords and digital sources with adult assistance.

(i) conduct a basic search using provided keywords with adult assistance.

(ii) conduct a basic search using digital sources with adult assistance.

(6) Digital citizenship--social interactions. The student identifies appropriate ways to communicate in various digital environments. The student is expected to describe and demonstrate respectful behavior within a digital environment.

(A) describe and demonstrate respectful behavior within a digital environment.

(i) describe respectful behavior within a digital environment

(ii) demonstrate respectful behavior within a digital environment

(7) Digital citizenship--ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources. The student is expected to:

(A) explain and demonstrate the importance of acceptable use of digital resources and devices as outlined in local policies or acceptable use policy (AUP); and

(i) explain the importance of acceptable use of digital resources as outlined in local policies or acceptable use policy (AUP)

(ii) explain the importance of acceptable use of digital devices as outlined in local policies or acceptable use policy (AUP)

(iii) demonstrate the importance of acceptable use of digital resources as outlined in local policies or acceptable use policy (AUP)

(iv) demonstrate the importance of acceptable use of digital devices as outlined in local policies or acceptable use policy (AUP)

(B) communicate an understanding that all digital content has owners and explain the importance of respecting others' belongings as they apply to digital content and information.

(i) communicate an understanding that all digital content has owners

(ii) explain the importance of respecting others' belongings as they apply to digital content and information.

(8) Digital citizenship--privacy, safety, and security. The student practices safe, legal, and ethical digital behaviors to become a socially responsible digital citizen. The student is expected to:

(A) identify ways to keep a user account safe, including not sharing login information and logging off accounts and devices;

(i) identify ways to keep a user account safe, including not sharing login information

(ii) identify ways to keep a user account safe, including logging off accounts

(iii) identify ways to keep a user account safe, including logging off devices

(B) identify and discuss what information is safe to share online such as hobbies and likes and dislikes and what information is unsafe such as identifying information; and

(i) identify what information is safe to share online

(ii) identify what information is unsafe to share online

(iii) discuss what information is safe to share online

(iv) discuss what information is unsafe to share online

(C) discuss and define cyberbullying with teacher support and guidance.

(i) discuss cyberbullying with teacher support and guidance

(ii) define cyberbullying with teacher support and guidance

(9) Practical technology concepts--skills and tools. The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:

(A) select and use a variety of applications, devices, and online learning environments to create an original product;

(i) select a variety of applications to create an original product

(ii) select a variety of devices to create an original product

(iii) select a variety of online learning environments to create an original product

(iv) use a variety of applications to create an original product

(v) use a variety of devices to create an original product

(vi) use a variety of online learning environments to create an original product

(B) describe basic computer hardware, including a variety of input and output devices, and software using accurate terminology;

(i) describe basic computer hardware, including a variety of input devices using accurate terminology

(ii) describe basic computer hardware, including a variety of output devices using accurate terminology

(iii) describe basic computer hardware, including a variety of software using accurate terminology

(C) perform software application functions such as file management, collaboration, and the creation and revision of digital artifacts using a variety of developmentally appropriate digital tools and resources;

(i) perform software application functions using a variety of developmentally appropriate digital tools and resources

(D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions; and

(i) practice ergonomically correct keyboarding techniques

(ii) practice developmentally appropriate [keyboard] hand positions

(iii) practice developmentally appropriate [keyboard] body positions

(E) identify, locate, and practice using keys on the keyboard, including upper- and lower-case letters, numbers, and special keys such as space bar, shift, and backspace.

(i) identify keys on the keyboard, including upper- and lower-case letters

(ii) identify keys on the keyboard, including numbers

(iii) identify keys on the keyboard, including special keys

(iv) locate keys on the keyboard, including upper- and lower-case letters

(v) locate keys on the keyboard, including numbers

(vi) locate keys on the keyboard, including special keys

(vii) practice using keys on the keyboard, including upper- and lower-case letters

(viii) practice using keys on the keyboard, including numbers

(ix) practice using keys on the keyboard, including special keys

# Technology Applications, Grade 2

Subject: Technology Applications
Grade: 02
Expectations: 23
Breakouts: 71

(a) Introduction.

1. Technology includes data communication, data processing, and the devices used for these tasks locally and across networks. Learning to apply these technologies motivates students to develop critical-thinking skills, higher-order thinking, and innovative problem solving. Technology applications incorporates the study of digital tools, devices, communication, and programming to empower students to apply current and emerging technologies in their careers, their education, and beyond.

2. The technology applications Texas Essential Knowledge and Skills (TEKS) consist of five strands that prepare students to be literate in technology applications by grade 8: computational thinking; creativity and innovation; data literacy, management, and representation; digital citizenship; and practical technology concepts. Communication and collaboration skills are embedded across the strands.

    a. Computational thinking. Students break down the problem-solving process into four steps: decomposition, pattern recognition, abstraction, and algorithms.

    b. Creativity and innovation. Students use innovative design processes to develop solutions to problems. Students plan a solution, create the solution, test the solution, iterate, and debug the solution as needed, and implement a completely new and innovative product.

    c. Data literacy, management, and representation. Students collect, organize, manage, analyze, and publish various types of data for an audience.

    d. Digital citizenship. Students practice the ethical and effective application of technology and develop an understanding of cybersecurity and the impact of a digital footprint to become safe, productive, and respectful digital citizens.

    e. Practical technology concepts. Students build their knowledge of software applications and hardware focusing on keyboarding and use of applications and tools.

3. The technology applications TEKS can be integrated into all content areas and can support stand-alone courses. Districts have the flexibility of offering technology applications in a variety of settings, including through a stand-alone course or by integrating the technology applications standards in the essential knowledge and skills for one or more courses or subject areas.

4. Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(b) Knowledge and Skills Statements

(1) Computational thinking--foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms. The student is expected to:

(A) identify and communicate a problem or task and break down (decompose) multiple solutions into sequential steps;

(i) identify a problem or task

(ii) communicate a problem or task

(iii) break down (decompose) multiple solutions into sequential steps

(B) identify complex patterns and make predictions based on the pattern;

(i) identify complex patterns

(ii) make predictions based on the pattern

(C) analyze a plan with adult assistance that outlines the steps needed to complete a task; and

(i) analyze a plan with adult assistance that outlines the steps needed to complete a task

(D) create and troubleshoot simple algorithms (step-by-step instructions) that include conditionals such as if-then statements as they apply to an everyday task.

(i) create simple algorithms (step-by-step instructions) that include conditionals as they apply to an everyday task

(ii) troubleshoot simple algorithms (step-by-step instructions) that include conditionals as they apply to an everyday task

(2) Computational thinking--applications. The student, with guidance from an educator, applies the fundamentals of computer science. The student is expected to:

(A) identify and explore what a variable is in a sequence of code; and

(i) identify what a variable is in a sequence of code

(ii) explore what a variable is in a sequence of code

(B) use a design process to create a sequence of code that includes loops to solve a simple problem with or without technology.

(i) use a design process to create a sequence of code that includes loops to solve a simple problem with or without technology

(3) Creativity and innovation--innovative design process. The student takes an active role in learning by using a design process to solve authentic problems for a local or global audience, using a variety of technologies. The student is expected to:

(A) demonstrate personal skills and behaviors, including effective communication, following directions, and mental agility, needed to implement a design process successfully; and

(i) demonstrate personal skills and behaviors, including effective communication, needed to implement a design process successfully

(ii) demonstrate personal skills and behaviors, including following directions, needed to implement a design process successfully

(iii) demonstrate personal skills and behaviors, including mental agility, needed to implement a design process successfully

(B) apply a design process with components such as testing and reflecting to create new and useful solutions to identify and solve for authentic problems.

(i) apply a design process with components to create new solutions to identify authentic problems

(ii) apply a design process with components to create new solutions to solve for authentic problems

(iii) apply a design process with components to create useful solutions to identify authentic problems

(iv) apply a design process with components to create useful solutions to solve for authentic problems

(4) Creativity and innovation--emerging technologies. The student demonstrates an understanding that technology is dynamic and impacts different communities. The student is expected to identify and analyze how technology impacts different communities.

(A) identify and analyze how technology impacts different communities.

(i) identify how technology impacts different communities

(ii) analyze how technology impacts different communities

(5) Data literacy, management, and representation--collect data. The student defines data and explains how data can be found and collected. The student is expected to:

(A) identify and collect non-numerical data, such as weather patterns, preferred reading genres, and holidays; and

(i) identify non-numerical data

(ii) collect non-numerical data

(B) conduct a basic search independently using provided keywords and digital sources.

(i) conduct a basic search independently using provided keywords

(ii) conduct a basic search independently using provided digital sources

(6) Data literacy, management, and representation--communicate and publish results. The student communicates data through the use of digital tools. The student is expected to use a digital tool to individually or collaboratively create and communicate data visualizations such as pictographs and bar graphs.

(A) use a digital tool to individually or collaboratively create and communicate data visualizations such as pictographs and bar graphs.

(i) use a digital tool to individually or collaboratively create data visualizations

(ii) use a digital tool to individually or collaboratively communicate data visualizations

(7) Digital citizenship--social interactions. The student identifies appropriate ways to communicate in various digital environments. The student is expected to participate in digital environments to develop responsible and respectful interactions.

(A) participate in digital environments to develop responsible and respectful interactions.

(i) participate in digital environments to develop responsible interactions

(ii) participate in digital environments to develop respectful interactions

(8) Digital citizenship--ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources. The student is expected to:

(A) explain and demonstrate the importance of acceptable use of digital resources and devices as outlined in local policies or acceptable use policy (AUP); and

(i) explain the importance of acceptable use of digital resources as outlined in local policies or acceptable use policy (AUP)

(ii) explain the importance of acceptable use of digital devices as outlined in local policies or acceptable use policy (AUP)

(iii) demonstrate the importance of acceptable use of digital resources as outlined in local policies or acceptable use policy (AUP)

(iv) demonstrate the importance of acceptable use of digital devices as outlined in local policies or acceptable use policy (AUP)

(B) communicate an understanding that all digital content has owners and explain the importance of respecting others' belongings as they apply to digital content and information.

(i) communicate an understanding that all digital content has owners

(ii) explain the importance of respecting others' belongings as they apply to digital content and information

(9) Digital citizenship--privacy, safety, and security. The student practices safe, legal, and ethical digital behaviors to become a socially responsible digital citizen. The student is expected to:

(A) demonstrate account safety, including creating a strong password and logging off accounts and devices;

(i) demonstrate account safety, including creating a strong password

(ii) demonstrate account safety, including logging off accounts

(iii) demonstrate account safety, including logging off devices

(B) compare and contrast private and public information and discuss what is safe to be shared online and with whom; and

(i) compare and contrast private information

(ii) compare and contrast public information

(iii) discuss what is safe to be shared online

(iv) discuss with whom it is safe to share online

(C) discuss cyberbullying and identify examples.

(i) discuss cyberbullying

(ii) identify examples [of cyberbullying]

(10) Practical technology concepts--skills and tools. The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:

(A) select and use a variety of applications, devices, and online learning environments to create and share content;

(i) select a variety of applications to create content

(ii) select a variety of devices to create content

(iii) select a variety of online learning environments to create content

(iv) select a variety of applications to share content

(v) select a variety of devices to share content

(vi) select a variety of online learning environments to share content

(vii) use a variety of applications to create content

(viii) use a variety of devices to create content

(ix) use a variety of online learning environments to create content

(x) use a variety of applications to share content

(xi) use a variety of devices to share content

(xii) use a variety of online learning environments share content

(B) identify, compare, and describe the function of basic computer hardware, including a variety of input and output devices, and software applications using accurate terminology;

(i) identify the function of basic computer hardware, including a variety of input devices using accurate terminology

(ii) identify the function of basic computer hardware, including a variety of output devices using accurate terminology

(iii) identify the function of basic computer hardware, including a variety of software applications using accurate terminology

(iv) compare the function of basic computer hardware, including a variety of input devices using accurate terminology

(v) compare the function of basic computer hardware, including a variety of output devices using accurate terminology

(vi) compare the function of basic computer hardware, including a variety of software applications using accurate terminology

(vii) describe the function of basic computer hardware, including a variety of input devices using accurate terminology

(viii) describe the function of basic computer hardware, including a variety of output devices using accurate terminology

(ix) describe the function of basic computer hardware, including a variety of software applications using accurate terminology

(C) operate a variety of developmentally appropriate digital tools and resources to perform software application functions such as reviewing digital artifacts and designing solutions to problems;

(i) operate a variety of developmentally appropriate digital tools and resources to perform software application functions

(D) practice ergonomically correct keyboarding techniques and developmentally appropriate hand and body positions; and

(i) practice ergonomically correct keyboarding techniques

(ii) practice developmentally appropriate [keyboard] hand positions

(iii) practice developmentally appropriate [keyboard] body positions

(E) identify, locate, and practice using keys on the keyboard, including secondary actions of different keys such as "@," "#," "$," and "?".

(i) identify keys on the keyboard, including secondary actions of different keys

(ii) locate keys on the keyboard, including secondary actions of different keys

(iii) practice using keys on the keyboard, including secondary actions of different keys