# Essential Standards for ASD Elementary Technology

These Alpine Technology Standards align with State CS standards, state Keyboarding standards, and encourage best practices to teach Digital Citizenship, Digital Literacy, Computer Science and to support the Alpine Vision for Learning. Essentials are highlighted with pink.

## Strand 1: Digital Citizenship

**Students will explain and demonstrate principles of digital safety, engage in safe online digital practices, and develop appropriate digital citizenship.**

### Standard 1: Media Balance and Well-being

**Objective 1: Students will find a healthy balance between their digital and non-digital lives.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.1.1a | a: Explain that media balance means using media in a way that feels healthy and in balance with other life activities (family, friends, school, hobbies, productive/unproductive, etc.) and discuss how it applies to them. | I | W | W | W | W | W | W |
| 1.1.1b | b: Collaborate and create a personalized plan for healthy and balanced media use (with other students, teachers and family) including online and offline actions. | I | W | W | W | W | W | W |
| 1.1.1c | c: Identify and safely respond to negative feelings when using technology. | I | W | W | W | W | W | W |

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### Standard 2: Digital Safety

**Objective 1: Students will explain what personal digital safety is and what information should be kept private.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.2.1a | a: Explain the difference between personal (hobbies, interests) and private information (e.g., full name, birthday, address, etc.) and why privacy matters. | I | W | W | W | W | W | W |
| 1.2.1b | b: Distinguish between safe and unsafe interactions online. | I | W | W | W | W | W | W |
| 1.2.1c | c: Explain when and with whom private information could be shared. | I | W | W | W | W | W | W |
| 1.2.1d | d: Identify phishing, scamming, and identity theft. | | | | I | W | W | W |

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**Objective 2: Students will distinguish between safe and unsafe online interactions and media and create a personal safety plan.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.2.2a | a: Identify and explain the difference between safe and unsafe interaction online. | I | W | W | W | W | W | W |
| 1.2.2b | b: Identify and explain the difference between safe and unsafe links, websites, pop-ups, and attachments. | I | I | W | W | W | W | W |
| 1.2.2c | c: Create a plan of action for when unsafe or negative sites or media are encountered. (e.g. look away, close laptop, tell a trusted adult.) | I | W | W | W | W | W | W |
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| **Objective 3: Students will apply privacy and security practices when using technology.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 1.2.3a | a: Engage in safe privacy practices (i.e. keep password, location, personal information private). | I | W | W | W | W | W | W |
| 1.2.3b | b: Create a strong password (e.g. using a combination of letters that are case sensitive, sufficient in length (8-12 character), and may include numbers, special characters, or phrases. | I | I | W | W | W | W | W |
| 1.2.3c | c: Log in and out of devices appropriately to keep information secure. | I | W | W | M | | | |
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## Standard 3: Digital Presence

| **Objective 1: Students will explain the potential consequences (good or bad) of their digital presence, identity and footprint.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 1.3.1a | a: Explain that digital presence and actions create long-term effects. | | | | I | W | W | W |
| 1.3.1b | b: Explain that information is traceable and creates a trail back to the individual. | | | | I | W | W | W |
| 1.3.1c | c: Be aware of data-collection technology used to track navigation online. | | | | I | W | W | W |
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| **Objective 2: Students are responsible for their online presence.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 1.3.2a | a: Follow the Alpine School District policy regarding technology use, and engage in positive, safe, legal and ethical behavior. | I | W | W | W | W | W | W |
| 1.3.2b | b: Understand that information is stored permanently online. | | | | I | W | W | W |
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## Standard 4: Digital Citizenship and Communication. Students will engage in appropriate online behavior and citizenship.

**Objective 1: Students will use proper online etiquette.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.4.1a | a. Use appropriate online etiquette and show respect for other people's feelings, opinions, cultures, and backgrounds. | | I | W | W | W | W | W |
| 1.4.1b | b. Use appropriate language with respect, empathy, and kindness. | | I | W | W | W | W | W |

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**Objective 2: Students will use collaborative technology to explore and find solutions to local and global problems.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.4.2a | a: Use technology to explore solutions to real-world problems. | I | W | W | W | W | W | W |
| 1.4.2b | b. Use technology to collaborate and find solutions to real-world problems. | I | W | W | W | W | W | W |

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## Standard 5: Be an Upstander - Avoid Cyberbullying. Students will identify, describe and advocate against cyberbullying.

**Objective 1: Students will identify characteristics of an upstanding digital citizen.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.5.1a | a: Define an upstanding digital citizen, as one who is kind, shows respect, is aware, and encourages others. | | | | I | W | W | W |
| 1.5.1b | b: Show ways to be an upstander, not a bystander. | | | | I | W | W | W |

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**Objective 2: Students will identify and explain the effects of cyberbullying.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.5.2a | a: Define cyberbully (e.g. difference between being mean, inflammatory speech, digital drama, and bullying, what it looks like, feels like, etc.) | | | | I | W | W | W |
| 1.5.2b | b. Explain the effects of cyberbullying. | | | | I | W | W | W |

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**Objective 3: Students will report cyberbullying.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1.5.3a | a: Explain how to report cyberbullying. | | | | I | W | W | W |
| 1.5.3b | b: Advocate for myself and have the courage to stand up for others when needed. | | | | I | W | W | W |
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## Strand 2: Foundational Technology Skills

Students will demonstrate foundational technology skills which include keyboarding, identification and use of hardware and software, file management, and digital research.

**Standard 1: Keyboarding. Students will demonstrate proper keyboarding and accuracy in typing. Emphasizing technique and keyboarding by touch, rather than speed, is foundational. (It is understood that students in lower grades may not be physically capable of full dexterity or classroom setup may not permit adequate accommodations for proper technique.)**

Reference: https://www.schools.utah.gov/file/76e366de-4553-4f1a-bb36-f9cbad42ec7a

**Objective 1: Students demonstrate proper keyboarding techniques while using a digital device.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 2.1.1a | a: Students will be introduced to proper keyboarding techniques with a focus on home row.<br>● fingers curved and resting on home row keys<br>● sit up straight<br>● feet on the floor (if possible)<br>● body centered with the “g” and “h” keys<br>● elbows at sides | I | I | W | | | | |
| 2.1.1b | b: Students will be introduced to home row keys and placement<br>● Students can locate and identify home row keys<br>● Students will be able to identify each which finger strikes which home row key<br>○ Left pinky strikes **A**,<br>○ Left ring finger strikes **S**<br>○ Left middle finger strikes **D**<br>○ Left pointer finger strikes **F**<br>○ Right pointer finger strikes **J**<br>○ Right middle finger strikes **K**<br>○ Right ring finger strikes **L**<br>○ Right pinky strikes **;** | | I | W | W | W | M | M |
| 2.1.1c | c: Students will demonstrate proficiency of proper keyboarding techniques using the entire keyboard.<br>● fingers curved and resting on home row keys<br>● sit up straight | | | | I | W | M | M |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | • feet on the floor (if possible)<br>• body centered with the “g” and “h” keys<br>• wrist level (not resting on keyboard)<br>• elbows at sides<br>• eyes on the copy or screen, not on keys<br>• correct fingers used for keystrokes.<br>• key with smooth rhythm and quiet hands. | | | | | | | |
| 2.1.1d | d: Students will know and understand the purpose of correct keyboarding techniques and correct posture.<br>• Advantages: increase speed, decrease errors<br>• Disadvantages: less productive, computer related health problems (musculoskeletal problems, vision problems, repetitive stress injuries, headaches, etc.) | | | | **I** | **W** | **M** | **M** |
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| **Objective 2: Students will demonstrate key by touch proficiency.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.1.2a | Indicator a: Students will be able to key by touch (typing without looking at the keyboard and/or hands) **using correct fingering.**<br>• Students will be able to key by touch all alphabet letters.<br>• Students will be able to key by touch:<br>  ○ spacebar with thumb<br>  ○ enter/return with the right pinky<br>  ○ left shift when capitalizing right hand letters<br>  ○ right shift when capitalizing left hand letters<br>  ○ tab with left pinky<br>• Students will be able to key by touch: period, comma, question mark, exclamation point.<br>• Students will be introduced to correct fingering when using the number keys located on the top row (not the keypad). | | | **I** | **I** | **W** | **M** | **M** |
| 2.1.2b | b. Students will be able to demonstrate proper spacing using common punctuation marks. | | **I** | **I** | **I** | **W** | **M** | **M** |
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| **Objective 3: Students will key by touch from a variety of sources.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.1.3a | a: Students will key by touch: alphabet letters, short words, and phrases from dictation. | | | | **I** | **W** | **M** | **M** |
| 2.1.3b | b: Students will key from printed materials and digital copies. | | | | **I** | **W** | **W** | **W** |
| 2.1.3c | c: Students will compose at the computer. | | | | **I** | **W** | **W** | **W** |
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|---|---|---|---|---|---|---|---|---|
| **Objective 4: Students will demonstrate correct keyboarding techniques using a variety of timed writings. See assessment options HERE** | | | | | | | | |
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.1.4a | a: Students will improve accuracy. | | | | **I** | **W** | **W** | **W** |
| 2.1.4b | b: Students will improve speed<br>● 30 second timed writings Grades 3-4<br>● 1 minute timed writings Grades 5-6 | | | | **I** | **W** | **W** | **W** |
| 2.1.4c | c: Students will set goals and evaluate personal improvement<br>● Organize and present collected data to support progress<br>● Use data to set new goals, predict outcomes and record results. | | | | **I** | **W** | **M** | **M** |
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## Standard 2: Software and Hardware. Students will identify basic computer parts and explain how they work. Students will use application software.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Objective 1: Students will identify basic computer parts and how they work. (align w/ 3.CS.2)** | | | | | | | | |
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.2.1a | a. Identify the functions of and appropriately use common hardware (e.g. mouse, keyboard, trackpad, monitor/touch-screen, headphones, etc). | **I** | **W** | **W** | **M** | | | |
| 2.2.1b | b. Students will be able to identify additional components of a computing system. (e.g. printer, USB port, speakers, projector, camera, etc. | | | | **I** | **W** | **W** | **M** |
| 2.2.1c | c. Identify connectivity (e.g. WiFi, Bluetooth, etc.) | | | | **I** | **W** | **W** | **M** |
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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Objective 2: Students will use K-6 district supported applications for learning.** | | | | | | | | |
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.2.2a | a. Use technology to extend learning in multiple content areas. | **I** | **W** | **W** | **W** | **W** | **W** | **W** |
| 2.2.2b | b. Create by using digital tools (e.g. word processing, spreadsheets, and presentation software). | **I** | **W** | **W** | **W** | **W** | **W** | **W** |
| 2.2.2c | c. Compose, edit, and proofread text. | **I** | **I** | **W** | **W** | **W** | **W** | **W** |
| 2.2.2d | d. Format text (bold, underline, change font, change size, alignment, etc). | | **I** | **W** | **W** | **W** | **W** | **M** |
| 2.2.2e | e. Use keyboard shortcuts (e.g. save, quit, print, copy, paste, cut, undo). | | **I** | **W** | **W** | **W** | **W** | **W** |
| 2.2.2f | f. Insert multimedia, pictures, tables, and hyperlinks. | | **I** | **W** | **W** | **W** | **M** | |
| 2.2.2g | g. Use technology tools to collaborate (e.g. share settings, comments, suggesting mode, etc.) | | | **I** | **I** | **W** | **W** | **M** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2.2.2h | h. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal. | | | I | I | W | W | M |
| | | | | | | | | *I-Introduced W-Working On M-Expected Mastery by the end of the year* |

| **Objective 3: Students will key by touch from a variety of sources.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.2.3a | a. Produce a digital project (story, report, etc.) using multimedia. | | **I** | **W** | **W** | **W** | **W** | **M** |
| 2.2.3b | b. Improve a project with illustrations, clipart, video, sound, animations, hyperlinks, etc. | | **I** | **W** | **W** | **W** | **M** | |
| 2.2.3c | c. Revise a technology project (i.e. proofread, edit, rearrange, modify). | | **I** | **W** | **W** | **M** | | |
| | | | | | | | | *I-Introduced W-Working On M-Expected Mastery by the end of the year* |

## Standard 3: File Management and IT Basics. Students will use file management and device navigation skills.

| **Objective 1: Students will manage files and folders on a device and identify and explain the functionality and limitations of the device.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.3.1a | a. Manage files and folders (ie. name, save, move, rename, share). | **I/ W** | **W** | **W** | **W** | **W** | **W** | **W** |
| 2.3.1b | b. Identify and explain the functionality and limitations (e.g. when to download, attach, share, save) of various devices (e.g.Chromebooks, iPads, desktop computers). | | | | **I** | **W** | **W** | **W** |
| | | | | | | | | *I-Introduced W-Working On M-Expected Mastery by the end of the year* |

| **Objective 2: Students will use technology to communicate** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.3.2a | a. Use email (compose, reply, reply all, forward) to create, collaborate, and communicate. | | | | **I** | **W** | **W** | **M** |
| 2.3.2b | b. Share files with appropriate settings. (e.g. email, G suite, Google Classroom, Google Drive, etc.) | | | | **I** | **W** | **W** | **M** |
| | | | | | | | | *I-Introduced W-Working On M-Expected Mastery by the end of the year* |

| **Objective 3: Students will successfully navigate applications and websites.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2.3.3a | a. Navigate applications and websites using mouse, touch-pad, and/or touch screens (e.g. open and close applications, use back and reload button, open a new tab or window, click on a website link, etc). | **I** | **W** | **W** | **M** | | | |
| 2.3.3b | b. Download and save files. | | | | **I** | **W** | **M** | |
| 2.3.3c | c. Locate, identify, and use appropriate menus in applications. | **I** | **I** | **W** | **M** | | | |
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## Standard 4: Digital Research Strategies. Students will conduct research using digital tools and strategies.

**Objective 1: Students will evaluate and select information sources using digital tools based on the task.**

| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|---|---|
| 2.4.1a | a. Choose relevant information sources. | | **I** | **W** | **W** | **W** | **W** | **W** |
| 2.4.1b | b. Evaluate the accuracy, perspective, validity, and relevance of online information, and make sure it is up-to-date.. | | **I** | **W** | **W** | **W** | **W** | **W** |
| 2.4.1c | c. Evaluate fact versus opinion in search results. | | | | **I** | **W** | **W** | **W** |
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**Objective 2: Students will search effectively and efficiently using digital tools.**

| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|---|---|
| 2.4.2a | a. Use authenticated academic websites for research. | | | | **I** | **W** | **W** | **W** |
| 2.4.2b | b. Use multiple strategies when identifying reliable sources within search results. | | | | **I** | **W** | **W** | **W** |
| 2.4.2c | c. Search effectively and efficiently, limit search as needed, and use the 'find' tool. | | | | **I** | **W** | **W** | **W** |
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**Objective 3: Students will curate information from digital resources.**

| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|---|---|
| 2.4.3a | a. Use a variety of tools and methods to make meaningful connections and conclusions in research (e.g. outlines, mind maps etc.) | | | | **I** | **W** | **W** | **W** |
| 2.4.3b | b. Curate information from digital resources using a variety of tools and methods (e.g. outlines, mind maps, etc.). | | | | **I** | **W** | **W** | **W** |
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| **Objective 4: Students will engage in appropriate and ethical online research, citation and publication practices.** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 2.4.4a | a. Define plagiarism. | | | | **I** | **W** | **W** | **W** |
| 2.4.4b | b. Explain why it is important to cite sources. | | | | **I** | **W** | **W** | **W** |
| 2.4.4c | c. Distinguish between files that can be used and those that are protected by copyright | | | | **I** | **W** | **W** | **W** |
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## Strand 3: Computer Science

**Students will learn basic computer science principles and practice computational thinking and problem solving skills.**

### *New Utah State Elementary Computer Science Standards*

Visit the K-5 State Standards document and 6 Gr Standards Document to see detailed descriptions of the core concepts and practices, essential learnings, exemplars, and definitions. Yellow cells indicate there are specific state standards/practices emphasized in that grade. Also see details and exemplars in a spreadsheet here.

Core Practices:
1 - Fostering an Inclusive Computing Culture
2 - Collaborating Around Computing
3 - Recognizing and Defining Computation Problems
4 - Developing and Using Abstractions
5 - Creating Computational Artifacts
6 - Testing and Refining Computational Artifacts
7 - Communicating About Computing

## Standard 1: Computing Systems (CS)

### CS Objective 1: Devices

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.CS.1a | a. Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. | X | X | | | | | |

### CS Objective 2: Hardware and Software

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.CS.2a | a. Explore the functions of common hardware and software components of computing systems. | | X | | | | | |
| 3.CS.2b | b. Describe and model how computing devices connect to other components to extend their capabilities and for a system. hardware and software work together as a system to accomplish tasks. | | | | X | | | |
| 3.CS.2c | c. Demonstrate how computer hardware and software work together as a system to accomplish a task. | | | | | X | | |

### CS Objective 3: Troubleshooting

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.CS.3a | a. Describe and solve basic hardware and software problems. (Troubleshoot by: checking power/battery, checking cord connections, closing/reopening program, restart device, etc.) | | | X | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.CS.3b | b. Create potential solutions to solve hardware and software problems using common troubleshooting strategies. | | | | | | X | |
| 3.CS.3c | c. Utilize troubleshooting strategies to resolve hardware and software issues in a logical order. | | | | | | | X |

## Standard 2: Network and the Internet (NI)

### NI Objective 1: Network Communication and Organization

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.NI.1a | a. Model and describe how people connect to other people, places, information and ideas through a network. | X | | | | | | |
| 3.NI.1b | b. Create patterns with pictures, symbols, objects or words to communicate a message. | X | | | | | | |
| 3.NI.1c | c. Model how information is broken down into smaller pieces, called packets (data groups) and transmitted through multiple devices over physical or wireless paths and reassembled at the destination. | | | | | X | X | |

### NI Objective 2: Cybersecurity

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.NI.2a | a. Explain what a password or passphrase is, why it is used, and be able to create a secure password. | | | X | | | | |
| 3.NI.2b | b. Describe physical and digital security measures for protecting personal information. | | | | X | | | |
| 3.NI.2c | c. Develop personal patterns of behavior to protect information from unauthorized access. | | | | X | | | |
| 3.NI.2d | d. Explain potential security threats and practice protective measures to reduce these threats. | | | | | | | X |

## Standard 3 : Data and Analysis (DA)

### DA Objective 1: Storage

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.DA.1a | a. Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions. | X | | | | | | |
| 3.DA.1b | b. Demonstrate how to store, copy, search. retrieve, modify, and delete information using a computing device, and define the information stored as data. | | | X | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.DA.1c | c. Organize and present collected data visually to highlight relationships and support a claim. | | | | X | | | |
| 3.DA.1d | d. Explain how the amount of space required to store data differs based on the type of data and/or level of detail, and that the utility of that data varies. | | | | | | X | |
| 3.DA.1e | e. Represent a single data set in multiple ways using words, symbols, manipulatives, charts, diagrams, and visuals. | | | | | | | X |

| **DA Objective 2: Collection, Visualization, and Transformation** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3.DA.2a | a. Collect and present data in various formats. | | X | X | | | | |
| 3.DA.2b | b. Organize and present collected data visually to highlight relationships and support a claim. | | | | X | | | |
| 3.DA.2c | c. Select, organize, and categorize data and represent that data visually to provide clarity or support a claim. | | | | | X | | |
| 3.DA.2d | d. Organize and share collected data visually using computational tools to highlight relationships and support a claim. | | | | | | X | |

| **DA Objective 3: Inference and Models** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3.DA.3a | a. Identify and describe patterns in data visualizations (unplugged or digital), such as charts or graphs, to make predictions. | | X | X | | | | |
| 3.DA.3b | b. Use data to communicate ideas, highlight and/or propose relationships, or predict outcomes. | | | | X | X | | |
| 3.DA.3c | c. Prioritize, analyze and use data to communicate ideas, highlight relationships and predict outcomes. | | | | | | X | |

## Standard 4: Algorithms and Programming (AP)

| **AP Objective 1: Algorithms** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3 AP.1a | a. Model processes by creating and following algorithms to complete tasks. | X | | | | | | |
| 3.AP.1b | b. Compare and refine multiple algorithms for the same task using computer and non-computer languages, and determine which is the most appropriate. | | | | | X | X | |
| 3.AP.1c | c. Design and illustrate algorithms to efficiently solve complex problems by utilizing pseudocode and/or other descriptive methods. | | | | | | | X |

| **AP Objective 2: Variables** |
|---|

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.AP.2a | a. Demonstrate understanding of the way programs store and manipulate data as variables, such as numbers, words, colors, and images. | | X | | | | | |
| 3.AP.2b | b. Modify a previously created program that uses variables to store and modify data. | | | | X | | | |
| 3.AP.2c | c. Create naming conventions for variables that support the debugging process and incorporate these variables into a simple program. | | | | | | | X |

| **AP Objective 3: Control** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3.AP.3a | a. Create programs with sequences (steps) of commands and simple loops (repeated patterns), to express ideas or address a problem | | X | | | | | |
| 3.AP.3b | b. Create programs that include events, sequences, loops, and simple conditionals to express ideas or address a problem. | | | | X | | | |
| 3.AP.3c | c. Create programs that include events, loops, and conditionals. | | | | | X | | |
| **AP Objective 4: Modularity** | | | | | | | | |
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3.AP.4a | a. Break down (deconstruct) algorithms and list the steps needed to solve a problem into a sequence of tasks and sub-tasks. | | X | | | | | |
| 3.AP.4b | b. Deconstruct the steps needed to solve a task into a sequence of instructions. | | | X | | | | |
| 3.AP.4c | c. Create programs by incorporating smaller portions of existing programs, to develop something new or add more advanced features. | | | | X | | X | |
| 3.AP.4d | d. Decompose problems into smaller, manageable tasks which may then be broken down further. | | | | | X | | |
| 3.AP.4e | e. Decompose problems into smaller, manageable tasks which may themselves be deconstructed and analyzed. | | | | | | X | |
| 3.AP.4f | f. Create programs by incorporating smaller portions of existing programs, to develop something new or add more advanced features. | | | | X | | X | |
| **AP Objective 5: Program Development** | | | | | | | | |
| | | **K** | **1** | **2** | **3** | **4** | **5** | **6** |
| 3.AP.5a | a. Collaboratively develop plans that describe a program's sequence of events, goals, and expected outcomes. | | | X | | | | |
| 3.AP.5b | b. Properly credit others when using their ideas and creations while developing programs. | | | X | | | | |
| 3.AP.5c | c. Debug and solve simple problems and errors within an algorithm or program that includes sequences and simple loops. | | | X | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.AP.5d | d. Summarize the steps taken and choices made during the iterative process of program development. | | | X | | | | |
| 3.AP.5e | e. Test and debug a program or algorithm to ensure it accomplishes the intended task. | | | | X | X | | |
| 3.AP.5f | f. Perform different roles when collaborating with peers during the design, implementation, and review stages of program development. | | | | X | | | |
| 3.AP.5g | g. Use an iterative design process to plan and develop a program by considering the perspectives and preferences of others. | | | | X | | X | |
| 3.AP.5h | h. Recognize and observe intellectual property rights and give appropriate attribution when creating, remixing, or combining programs. | | | | | | X | |
| 3.AP.5i | i. Describe choices made during program development using code comments, presentations, and demonstrations. | | | | | | X | |
| 3.AP.5j | j. Annotate programs in order to document their use and improve readability, testing, and debugging. | | | | | | | X |

## Standard 5: Impacts of Computing (IC)

### IC Objective 1: Culture

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.IC.1a | a. Describe how technology has impacted society over time. | | | X | | | | |
| 3.IC.1b | b. Evaluate how computing technologies have changed the world, and express how those technologies influence, and are influenced by, cultural practices. | | | | X | X | | |
| 3.IC.1c | c. Propose ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. | | | | | X | X | |
| 3.IC.1d | d. Recognize and discuss issues of bias and accessibility in existing technologies | | | | | | | X |
| 3.IC.1e | e. Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options. | | | | | | | X |

### IC Objective 2: Social Interactions

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.IC.2a | a. Develop and demonstrate the ability to work respectfully and responsibly with others when communicating face-to-face or digitally. | | X | | | | | |
| 3.IC.2b | b. Seek and explain the impact of diverse perspectives for the purpose of improving computational artifacts. | | | | | | X | |

### IC Objective 3: Safety, Law, and Ethics

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.IC.3a | a. Describe rationales for keeping login information private, and for logging off of devices appropriately. | | | X | | | | |
| 3.IC.3b | b. Describe the reasons creators might limit the use of their work. | | | | X | | | |

## Standard 6: Computational Thinking (CT)

CT Objective 1: Students will be able to use the foundational skills and vocabulary of coding and programming, and begin to see ways it can be used to support problem-solving across all disciplines.

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 3.CT.1a | a. Define and use domain specific vocabulary. (e.g. algorithm, conditionals, data, debugging, decompose, event, iterative, loop, remix, sequence, troubleshooting, variables etc.) | I | I | W | W | M | M | M |
| 3.CT.1b | b. Decompose problems into smaller manageable parts to better understand them. (P3) | X | | | | | | |
| 3.CT.1c | c. Determine the steps needed to solve a problem and develop a sequence of instructions. (P3) | | X | | | | | |
| 3.CT.1d | d. Recognize similarities between new problems and problems that have been solved in the past. (P3) | | X | | | | | |
| 3.CT.1e | e. Decompose problems into smaller manageable tasks which may themselves be decomposed. | | | | X | | | |
| 3.CT.1f | f. Recognize common patterns between problems and recurring patterns within problems. | | | | X | | | |
| 3.CT.1g | g. Determine specific aspects of patterns between or within problems that can be abstracted out to leave only the common or important elements. | | | | | X | | |
| 3.CT.1h | h. Develop algorithms in computer programs to solve problems, including unique and repeated sub-tasks within a larger program. | | | | | | X | |

## Strand 4: Creativity and Innovation

**Students will create original works using technology that allow for creative expression and innovation.**

### Standard 1: Engage in a design process. Students will engage in a design process to identify and address a need.

**Objective 1: Students will use technology to engage in the design process and or create original works.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.1.1a | a. Identify a need that can be met using technology (technology is any tool that is used to solve a problem.) | I | W | W | W | W | W | W |
| 4.1.1b | b. Research possible solutions to meet identified needs. | I | W | W | W | W | W | W |
| 4.1.1c | c. Identify criteria and constraints. | I | W | W | W | W | W | W |
| 4.1.1d | d. Create a plan based on the needs of the intended audience. | I | W | W | W | W | W | W |

**Objective 2: Students will generate a variety of ideas.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.1.2a | a. Brainstorm ideas including referencing ideas of others. | I | W | W | W | W | W | W |
| 4.1.2b | b. Use planning tools (e.g. brainstorming, mind maps, storyboarding, graphic organizers, sketches, etc) to make connections to innovative solutions and thinking. | I | W | W | W | W | W | W |
| 4.1.2c | c. Research, describe, and synthesize other people's ideas. | | I | W | W | W | W | W |
| 4.1.2d | d. Collect and organize information to appropriately attribute sources. | | | | I | W | W | W |

### Standard 2: Create original works. Students will engage in a design process to create original works using technology.

**Objective 1: Students will plan and organize their project to accomplish their desired purpose or objective.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.2.1a | a. Develop a plan for an original work. | I | W | W | W | W | W | W |
| 4.2.1b | b. Identify and choose appropriate digital platform(s), tool(s), format(s), and medium(s) for the creation. | | | I | W | W | W | W |

**Objective 2: Students will create innovative solutions, ideas, and products to meet the goal/purpose.**

| | | K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 4.2.2a | a. Create a project to meet the goal. | I | W | W | W | W | W | W |
| 4.2.2b | b. Persevere through challenges and failures to solve problems and create original works. | I | W | W | W | W | W | W |
| 4.2.2c | c. Evaluate and improve work. | | | I | W | W | W | W |
| 4.2.2d | d. Present work to an authentic audience. | | | I | W | W | W | W |
| 4.2.2e | e. Receive and evaluate feedback to inform and improve where needed. | | | I | W | W | W | W |