WYOMING DEPARTMENT OF EDUCATION | SEPTEMBER 2019

*Developed in 2018 by the Wyoming Department of Education and Digital Learning Guidelines Work Group Members*

**WDE Student and Teacher Resources Team:**

**Laurel Ballard**
*– Student and Teacher Resource Team Supervisor*

**Robin Grandpre**
*– Project and Performance Manager*

**Lori Thilmany**
*Virtual Education Program Manager*

**WDE Standards Team:**

**Brian Cole**
*– Math and Computer Science Consultant*

**Sharla Dowding**
*– Science and C/VE Consultant*

**Liz Gilbert**
*– English Language Arts Consultant*

**Barb Marquer**
*– Standards Team Supervisor*

**Wyoming Educators:**

**Kari Brown-Herbst**
*– Center for Excellence in Teaching Director, Laramie County Community College*

**Tracy de Ryk**
*– Peak High School Principal, Platte County School District #1*

**Diane Edgar**
*– Technology Integration Specialist, Laramie County School District #1*

**Necole Hanks**
*– Classroom and Online Teacher, Park County School District #1*

**Steve Miller**
*– Curriculum Director, Sublette County School District #1*

**Travis Moore**
*– Cooperative High Principal, Carbon County School District #1*

**Jennifer Schultze**
*– Online Teacher, Niobrara County School District #1*

**Bruce Thoren**
*– Superintendent, Fremont County School District #24*

**Lisa Williams**
*– Online Teacher, Niobrara County School District #1*

**Diane Woodard**
*– Technology Director, Teton County School District #1*

**Special Contributions made in 2019 by**

**Anna C. Baralt**
*– Director of Educational Technology, Shorecrest Preparatory School*

**LeeAnn Lindsey**
*– Founder and Principal Consultant, Edvolve*

**Welcome to the Wyoming Digital Learning Guidelines!** We hope you are able to utilize these Guidelines to assist you and your students with digital age learning.

The Wyoming Digital Learning Guidelines:

- Are based on the 2016 ISTE Standards for Students (https://www.iste.org/standards/for-students).
- Are not mandatory, will **not** be assessed, and may be adapted as needed and used on a completely voluntary basis.
- Are intended to be relevant over a span of time not knowing what new technologies may be developed prior to revisions or updates.
- Are intended to be used across all content areas to help students leverage technology to deepen and strengthen their learning experience.
- Include classroom application statements and curriculum integration examples for primary, intermediate, and secondary levels.
- Are supported by the Shorecrest K-12 Technology Skills Scope and Sequence, included in the booklet, which identify prerequisite technology skills (starting on page 16).
- Are presented with specifiers in a scope and sequence format with an ongoing continuum of Introducing, Reinforcing and Mastering.

**Of Note:** For Introducing, Reinforcing, and Mastering, the intent is at grade level, recognizing students may be adept at a skill but still have the ability to continue to increase mastery of that skill across higher grade levels.

**Background:** The Wyoming Department of Education (WDE) is required by state statute to develop and implement a statewide education technology plan ensuring equitable access to learning opportunities. In 2016, the WDE collected input from stakeholders across the state before writing the 2017-2021 Digital Learning Plan (https://1ddlxtt2jowkvs672myo6z14-wpengine.netdna-ssl.com/wp-content/uploads/2016/10/WY_DLP_100316.pdf). In response to being asked what should be included in the state Digital Learning Plan, educators asked for guidelines to assist them in knowing what education technology should be used to best prepare students at each grade level. The Digital Learning Plan goals and recommendations included development of the requested guidelines which were initially developed in 2018 by the WDE and the Digital Learning Guidelines Work Group.

In 2019, revisions and additions were made to the Digital Learning Guidelines by Dr. LeeAnn Lindsey, Founder and Principal Consultant of Edvolve. Dr. Lindsey has extensive educational technology training and background experience, including serving on the leadership team that refreshed the ISTE Standards for Students and the ISTE Standards for Educators in 2016 and 2017. Included in the additions Dr. Lindsey made to the Digital Learning Guidelines are invaluable classroom applications and examples for each standard indicator.

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# Wyoming Digital Learning Guidelines

**I - Introducing** **R - Reinforcing** **M - Mastering***

## 1. EMPOWERED LEARNER

Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

| 1.a. Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use tools and applications to set, track and complete learning goals. | I | I | I | I | R | R | R | R | M | M | M | M | M | M |
| Apply self-selected learning strategies using resources and tools that meet one's own learning needs to master curricular learning goals. | | I | I | I | I | I | R | R | M | M | M | M | M | M |
| Reflect on learning experiences for the purpose of improving future performance. | | | I | I | I | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students take an active role in choosing what and how they learn, activating prior knowledge, brainstorming authentic questions about a topic of study, or selecting a topic from a menu of options. They also reflect on their learning using tools such as digital exit tickets, journals, and video reflections.

Curriculum integration ideas:

- Primary: Digitally record a class brainstorm of questions related to a study of insects.
- Intermediate: Choose a "hero" to study and create a digital learning product; reflect on various learning strategies throughout the unit of study.
- Secondary: Identify an ethical technology dilemma to research, develop essential questions, and use multiple digital sources to investigate; reflect on new learning and develop a well-informed personal position on how the dilemma may be addressed.

| 1.b. Students build networks and customize their learning environments in ways that support the learning process. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Develop an online network of learners who can share expertise, co-learn, and inspire deeper learning. | | I | I | I | I | I | R | R | M | M | M | M | M | M |
| Seek to understand different ways learning happens and personal learning strengths and weaknesses; Customize online learning spaces to meet one's individual learning needs. | | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Recognize and use technology tools and features (e.g. audio, video, text to speech, voice command) that make learning more accessible for individuals. | I | I | I | I | R | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students select settings, extensions, and apps (e.g., text to speech, highlighting, note-taking, dictionary, calculator) that make learning accessible per their individual needs. They also use digital platforms (e.g., social media, email) to create and connect with a personal learning network (i.e., a network of people they can learn from and with).

Curriculum integration ideas:

- Primary: Select settings to hear audio narration of a digital reading passage.
- Intermediate: Independently (without teacher direction) use a variety of word processing, information organizing, and calculation tools as needed to complete learning activities and projects.
- Secondary: Select, organize, annotate, and present resources related to a topic of study; share across various social media platforms to gain feedback and develop connections with individuals who may become part of a personal learning network (PLN).

** For Introducing, Reinforcing, and Mastering, the intent is at grade level, recognizing students may be adept at a skill but still have the ability to continue to increase the mastery of that skill across higher grade levels.*

I - Introducing R - Reinforcing M - Mastering*

| 1.c. Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identify feedback provided by a system or within applications (e.g., spell check, track changes, markup, accessibility) and make appropriate corrections. | | | I | I | R | R | R | R | M | M | M | M | M | M |
| Utilize digital feedback to improve academic projects (e.g., cloud-based document or project review with audio, written or drawing feedback from teacher and peers). | | | I | I | R | R | R | R | M | M | M | M | M | M |
| Seek feedback from a local or global audience about content, ideas, and learning products using digital tools (e.g., blogging, content-based forums, online experts, peer review). | | I | I | I | I | I | R | R | M | M | M | M | M | M |
| Create digital learning artifacts (e.g., digital posters, digital stories, blog posts) to demonstrate learning. | I | I | I | I | I | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students use feedback mechanisms that are built in to technology (e.g., spell check, learning analytics) to understand and improve their own practice (e.g.,writing, projects, problem-solving strategies); they also use digital communication tools to connect with others (e.g., peers, parents, experts) who can provide meaningful feedback.

Curriculum integration ideas:

- Primary: Email student-created questions about bugs to a professor of entomology at the local university.
- Intermediate: Create e-portfolios of class work to share with parents during student-led conferences.
- Secondary: Write blog posts about the economic cost and benefits of using credit and send the link to various professionals (e.g., bankers, financial advisors) for feedback.

| 1.d. Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transfer digital skills to other devices or programs (e.g., how to format text across multiple applications). | | I | I | I | I | R | R | M | M | M | M | M | M | M |
| Integrate tools (e.g., embed media into a presentation or website, use photo editing to enhance video creation projects) to achieve a desired result from technology use. | | | I | I | I | R | R | M | M | M | M | M | M | M |
| Apply prior technical knowledge and experiences to figure out how new technologies or applications work. | | | I | I | I | I | R | R | M | M | M | M | M | M |
| Develop knowledge of basic troubleshooting techniques and apply them when system or application problems emerge. | | | I | I | I | I | I | R | M | M | M | M | M | M |

**Classroom Application**

Students understand the basic operation of technology and various applications such that they can perform basic troubleshooting techniques and apply their prior knowledge as they learn new tools and applications that become part of the learning process.

Curriculum integration ideas:

- Primary: Apply previous knowledge of “dropping and dragging” to an online activity matching shapes and their attributes.
- Intermediate: Apply experience using a text editor to a new tool such as an online book creator to publish personal narratives.
- Secondary: Apply digital skills from multiple tools to create a multi-page digital artifact presenting information about economic decisions during colonization.

# Wyoming Digital Learning Guidelines

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## 2. Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

| 2.a. Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Build and maintain a positive digital footprint/reputation across platforms and devices. | | I | I | I | I | I | I | I | R | R | R | R | M | M |
| Be purposeful with digital actions (e.g., social media tagging, leaving online reviews, social bookmarking) that contribute to one's online presence. | | I | I | I | I | I | I | I | I | I | R | R | M | M |
| Communicate thoughtfully, respectfully, and authentically in all digital interactions. | I | I | I | R | R | R | M | M | M | M | M | M | M | M |
| Demonstrate an understanding of the permanence and reach of digital actions and implications of digital actions now and in the future. | | I | I | I | I | I | R | R | R | R | R | M | M | M |

**Classroom Application**

As a class or individually, students use digital tools and platforms (e.g., social media, class website, portfolio application) to post appropriate information, questions, and ideas to increasingly open audiences. They may also create "mock" profiles and posts using analog tools as they learn about positive online participation and permanence of their digital activity.

Curriculum integration ideas:

- Primary: Determine and post a "picture of the week" on the class website that reflects something positive and learning-focused.
- Intermediate: Create "mock" social media profiles and posts for various characters within a book/story.
- Secondary: Create a digital presence/profile on a social media platform to share with college admissions and/or potential employers.

| 2.b. Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Practice digital behaviors that help preserve the safety of one's identity. (e.g., understand the role of authentication factors, create strong passwords, understand the importance of cycling passwords). | | | I | I | I | I | I | I | R | R | M | M | M | M |
| Identify digital behaviors that have legal implications (e.g., copyright law, file-sharing and/or copying digital products, hacking into networks, etc.). | | | I | I | I | I | R | R | R | M | M | M | M | M |
| Develop appropriate strategies to respond to unsafe or inappropriate behaviors in online interactions or within digital environments (e.g., cyber bullying, self harm, inappropriate posts). | | I | I | I | R | R | R | R | R | R | R | R | R | R |
| Recognize how technology use can influence one's mental, physical and emotional health. | I | I | I | I | I | I | R | R | R | R | R | R | M | M |

**Classroom Application**

Students use good judgment when using technology. They make decisions about how, when, and how much they use it, the amount of personal information they provide to others, their use of others' online content, and the manner in which they interact with others digitally.

Curriculum integration ideas:

- Primary: Determine how much time each student gets to use the computer so everyone gets a turn; use a timer to self-regulate.
- Intermediate: Provide meaningful feedback to a peer within a digital classroom community space; stay on topic and follow digital use guidelines.
- Secondary: Create a cell phone policy for high school students, using input from students, teachers, administrators, and parents, as well as research about the use of cell phones in school. Present the cell phone policy at a school board meeting.

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| 2.c. Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adhere to guidelines and licenses that specify how content can be used (e.g., Copyright law, Fair Use guidelines, Creative Commons licenses). | | I | I | I | R | R | R | R | R | R | R | M | M | M |
| Locate required citation information on web pages and other digital resources and cite in the age-appropriate style. | | I | I | I | I | R | R | R | R | R | M | M | M | M |
| Obtain permission for using copyrighted content (e.g., images, music, video, etc.) and use sites/ resources that share content with permission to be used. | | | | I | I | I | R | R | R | R | R | M | M | M |
| Grant permission for others to use one's original content by using an appropriate Creative Commons license. | | | | I | I | I | R | R | R | R | R | R | R | R |

**Classroom Application**
Students understand and adhere to copyright and fair use as they create digital learning products such as slide decks, videos, and formatted documents. They use copyright-friendly content (e.g., images, audio), cite sources, and ask the content creator's permission when needed. They also apply Creative Commons licensing to their own digital content.

Curriculum integration ideas:
- Primary: Use copyright-friendly platform to find images to illustrate a story.
- Intermediate: Create a video "commercial" as a component of their state report that incorporates images and/or video snippets.
- Secondary: Create an original marketing campaign as a project for business class/club including logos, fliers, social media posts, and video PSAs.

| 2.d. Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Create robust passwords and effectively manage password privacy (i.e., keep passwords confidential and change them if compromised), especially on shared or networked devices. | | | I | I | R | R | R | M | M | M | M | M | M | M |
| Protect personally-identifying information (e.g., phone number, address, parents name, birth date) by sharing safe and appropriate photos, screen names, and other content across platforms, web pages, videos, etc. | | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Articulate how personal data is shared with others and the current and potential impact on individuals and society. | | | | | | | | I | I | R | R | R | R | R |
| Identify digital behaviors that contribute to data tracking (tagging, checking in to locations, "liking" pages, etc.) and identify strategies for curbing one's own data tracking. | | | | I | I | I | I | I | R | R | R | M | M | M |
| Articulate how digital devices and data-collection technology track personal information (e.g., cookies, location services, searching algorithms, etc.), and find/adjust settings to manage personal data tracking. | | | | | | | | I | I | R | R | R | R | R |
| Demonstrate understanding of privacy policies for digital tools, services, and apps, and make informed decisions about technology use. | | | | | I | I | I | I | R | R | R | R | R | R |

**Classroom Application**
As students create accounts for and use digital tools, they make conscientious decisions about the amount and type of personal information they give. They are familiar with how data is tracked and used by those who collect it. They also apply practices that help keep passwords and accounts safe and secure.

Curriculum integration ideas:
- Primary: Using guided questions, create a mock account and profile following privacy and security guidelines.
- Intermediate: As a class, create a collection of everyday technology that collects/tracks personal information or data.
- Secondary: Research the ethical dilemmas associated with data collection and share tips for maintaining privacy with others.

# Wyoming Digital Learning Guidelines

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## 3. KNOWLEDGE CONSTRUCTOR

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

| 3.a. Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Recognize various online research tools (e.g., online catalogs, databases, search engines) and the pros and cons for using each. | I | I | I | I | I | I | R | R | R | R | R | R | M | M |
| Identify effective keywords and search terms for a specific online search or query. | I | I | I | I | I | R | R | R | M | M | M | M | M | M |
| Conduct effective information searches using a variety of techniques to narrow search results (e.g., boolean searches, use of operators, file-type searches). | | | I | I | I | R | R | R | R | R | M | M | M | M |
| Demonstrate an understanding of search results (e.g., discern ads from information, look beyond the first results page). | | | I | I | I | I | R | R | R | M | M | M | M | M |

**Classroom Application**

Students use a variety of digital resources (e.g., school database, online search engines) to locate relevant and accurate information about topics of study/inquiry. They use advanced search techniques such as boolean operators, exact phrase matching, and file-type searches to locate quality and credible sources of information.

Curriculum integration ideas:

- Primary: Locate information to use for animal reports using a kid-friendly search engine.
- Intermediate: Use the Library of Congress database to find primary sources on the Civil War.
- Secondary: Locate reliable sources for information and research related to Sustainable Development Goals (SDGs).

| 3.b. Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Describe and recognize different types of misinformation that can be found online (e.g., satire, outdated, manipulated content). | | | | I | I | I | R | R | R | R | R | M | M | M |
| Evaluate websites and online resources for accuracy, perspective, credibility and relevance (e.g., identifiable author, currency, biases, etc.). | | | I | I | I | I | R | R | R | R | R | M | M | M |
| Employ strategies to verify information (e.g., use fact-checking sites, lateral reading, tracking back to original source). | | | | I | I | I | R | R | R | R | R | M | M | M |
| Understand bias (including personal bias) and its impact on one's perception of media and information. | | | | I | I | I | I | I | R | R | R | R | M | M |

**Classroom Application**

Students apply a variety of techniques to examine the currency, relevance, authority, accuracy, and purpose of a selected website, to fact-check, and to judge whether the content is appropriate for use based on their intended purpose.

Curriculum integration ideas:

- Primary: Analyze and evaluate online websites and media provided by the teacher, including a hoax site about a fake animal.
- Intermediate: Fact-check online articles about current events.
- Secondary: Write an editorial about a political candidate after fact-checking his/her claims during a televised debate.

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| 3.c. Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Digitally collect, crowd-source, and share resources with co-learners. | | | I | I | I | I | R | R | R | R | M | M | M | M |
| Use digital tools to organize online resources, information, and media into useful collections. | | | I | I | I | I | I | I | R | R | R | R | M | M |
| Organize digital resources in meaningful ways (e.g., graphic organizers, flowcharts of people, historical events, time-lines, storyboards). | | I | I | I | I | R | R | R | M | M | M | M | M | M |

**Classroom Application**
Students select and organize digital resources, then use a variety of technology and digital tools (e.g., resource management, annotation and note-taking, citation-creation) to showcase learning through an assemblage of content and/or artifacts (e.g., portfolio, website, multimedia).

Curriculum integration ideas:
- Primary: Create a slide deck to illustrate the water cycle.
- Intermediate: Create an interactive digital exhibit to showcase a historical figure.
- Secondary: Identify a controversial topic to research and develop a position; create a website designed to increase support for the position/stance.

| 3.d. Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Seek to understand issues affecting local and global communities by exploring digital news, information, and online community participation. | | I | I | I | I | R | R | R | R | R | R | M | M | M |
| Engage in appropriate online dialogue to further one's understanding of issues, events, and problems, and to propose solutions. | | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Use a variety of resources (e.g., telescopes, seismic monitors, robotics) to gather, monitor, document, or conduct research. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Design and participate in collaborative inquiries and research projects. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |

**Classroom Application**
Students tap into their own natural curiosity as well as current real-life issues to drive learning; they use digital tools and resources to increase understanding, develop perspective, and create solutions.

Curriculum integration ideas:
- Primary: Investigate student-driven questions about state history including the state's indigenous tribes using online resources.
- Intermediate: Use social media to propose and elicit feedback on ideas to increase the community's application of the 3 Rs (Recycle, Reduce, Reuse).
- Secondary: Use effective online search techniques to research solutions to create a more sustainable earth and champion the environment.

# Wyoming Digital Learning Guidelines

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## 4. INNOVATIVE DESIGNER

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

| 4.a. Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Leverage digital tools to define a problem, inquiry, or design challenge. | | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Identify and seek to understand the audience for a digital project or solution. | | | I | I | I | I | R | R | M | M | M | M | M | M |
| Use digital tools to develop, test, and refine design projects and solutions. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Share findings and solutions with targeted audience using digital tools. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |

**Classroom Application**

Students intentionally apply a process for solving problems and designing solutions that includes defining the problem, brainstorming ideas, and creating and testing prototypes (e.g., computer programs, 3D print product, robotics, virtual simulations).

Curriculum integration ideas:

- Primary: Assemble circuits to turn a light on and off.
- Intermediate: Program a simple math game for younger students to practice addition and subtraction.
- Secondary: Digitally design, create, and test an object that improves an aspect of everyday life.

| 4.b. Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use technology and digital resources to plan and ideate (e.g., brainstorm, graphic organizer, storyboard) solutions according to specifications and constraints. | I | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Use technology and digital resources to manage projects (e.g., project management, task tracking, time-lines). | | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Use technology and digital resources to coordinate teamwork and communication (e.g., email, team communication applications, file management and sharing). | | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Use technology and digital resources to facilitate decision-making processes. | | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Determine which technology tools can accomplish various project tasks most effectively. | | I | I | I | R | R | R | R | R | M | M | M | M | M |

**Classroom Application**

Within a design process/project, students use digital tools (e.g., flow charts, design software, project management tools) to systematically examine (i.e., observe and track) and assess constraints such as time, money, and potential barriers, and use judgment to make decisions accordingly.

Curriculum integration ideas:

- Primary: Observe and record notes on an online notepad, about lunchtime cafeteria cleanup in order to create solutions to reduce cafeteria litter and improve recycling efforts.
- Intermediate: Using a nutrition app and a spreadsheet, analyze nutrition information in order to create an "ideal" eating plan for an elite athlete.
- Secondary: Use online survey and data analysis tools to understand school activity engagement trends in order to create a plan for increasing participation.

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| 4.c. Students develop, test and refine prototypes as part of a cyclical design process. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use digital tools to create models and presentations that demonstrate solutions and ideas. | I | I | I | I | I | R | R | M | M | M | M | M | M | M |
| Create prototypes using digital tools and applications (e.g., 3D printers, cameras and video equipment, presentation software, circuits, coding software/outputs). | I | I | I | I | I | R | R | R | M | M | M | M | M | M |
| Test solutions using digital tools and applications (e.g., survey, poll, spreadsheet, data analysis software, notes and annotation) to collect and analyze data. | | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Refine prototypes based on previous tests. | | I | I | I | I | R | R | R | R | M | M | M | M | M |

**Classroom Application**
Within a design process/project, students create "light" versions of solutions (i.e., prototypes), then test, reflect, and refine them in subsequent iterations to improve the product/solution.

Curriculum integration ideas:

- Primary: Use sensors and color coding to move a simple robot through a maze.
- Intermediate: Build a tool to move pollen from one flower to another to simulate pollination.
- Secondary: Use the engineering design process to design, build and test a prosthetic hand that can perform one function to help improve the quality of life for individuals missing a hand(s).

| 4.d. Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apply effort and persistence when solving open-ended problems. | I | I | I | I | R | R | R | M | M | M | M | M | M | M |
| Seek feedback from a variety of sources (e.g., peers, teacher, self, community members, digital co-learners). | I | I | I | I | R | R | R | M | M | M | M | M | M | M |
| Learn from mistakes and failed attempts (i.e., "fail forward). | I | I | I | I | R | R | R | M | M | M | M | M | M | M |
| Evaluate the products and processes, make edits, retry. | | | I | I | I | R | R | M | M | M | M | M | M | M |

**Classroom Application**
Students grapple with open-ended problems that may not have a clear "right" or "wrong" answer. They work creatively with an open mind, and "keep going" when proposed solutions don't work as planned. They adopt a mindset of using failed attempts as learning opportunities.

Curriculum integration ideas:

- Primary: Investigate questions such as: How often should we water our garden?
- Intermediate: Investigate questions such as: What could be done to reduce the amount of trash left on the cafeteria tables and floor?
- Secondary: Investigate questions such as: What can we do to positively influence voter turnout in our community?

# Wyoming Digital Learning Guidelines

I - Introducing R - Reinforcing M - Mastering*

## 5. COMPUTATIONAL THINKER

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

| 5.a. Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ask questions in order to understand and specify a problem. | I | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Thoroughly and precisely describe a problem. | | I | I | I | I | I | I | R | R | R | M | M | M | M |
| Identify problems that can be solved more efficiently through the use of technology. | | | | I | I | I | I | R | R | R | M | M | M | M |
| Describe how technology supports data analysis, model development, and algorithmic thinking. | | | | I | I | I | R | R | R | R | M | M | M | M |

**Classroom Application**

Students identify and clearly communicate problems whose solutions have been/can be assisted by technology (e.g., automation, statistical analysis). Younger students may recognize and discuss existing solutions and the problems that prompted them, while older students may define problems and identify ways in which technology can assist finding solutions.

Curriculum integration ideas:

- Primary: Discuss an everyday technological solution such as a cash register, the problem(s) that it solves and the value it provides.
- Intermediate: As part of a unit on the Industrial Revolution, students research, then write about the impact of assembly line manufacturing (i.e., automation) on the economy.
- Secondary: As part of a sustainability project, use a survey tool and data analysis software to collect and analyze large sets of data related to current electricity practices at school and identify potential solutions for reduction.

| 5.b. Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Collect data from a variety of sources (e.g., surveys, measurement, observations, existing data sets). | I | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Analyze data using digital tools (e.g., spreadsheets, data visualization tools, mapping applications) to identify patterns and/or draw conclusions. | | | | I | I | I | R | R | R | R | M | M | M | M |
| Use digital tools to organize and present data in ways that are useful in decision-making and problem-solving (e.g., graphs, charts, words, images). | | I | I | I | I | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students use digital tools (e.g., surveys, forms) to collect data OR locate online sources of data (e.g., government databases, live data); they use digital tools (e.g., spreadsheet, word count application, statistical analysis software) to analyze data; they use digital tools to create a meaningful depiction of the data (e.g., data visualization, chart, graph, word cloud, interactive data map) to assist with decision-making.

Curriculum integration ideas:

- Primary: Document the weather for three weeks on a spreadsheet, then create a graph that assists in predicting the weather for the next week.
- Intermediate: Using survey and data analysis tools, find out about students' favorite candy and use that information to select which candy to offer in the school store.
- Secondary: Develop and distribute an online survey to the student body about bullying on campus; access bullying data available online; analyze the data, synthesize results, and share with the school community to create an appropriate anti-bullying campaign.

** For Introducing, Reinforcing, and Mastering, the intent is at grade level, recognizing students may be adept at a skill but still have the ability to continue to increase the mastery of that skill across higher grade levels.*

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| 5.c. Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Break complex problems into a series of smaller, more manageable problems (i.e., decomposition). | I | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Identify common features of problems that have been previously solved (i.e., pattern recognition, generalization). | | I | I | I | I | I | I | R | R | M | M | M | M | M |
| Identify relevant and useful information to reduce complexity and better understand the problem (i.e., abstraction). | | | | | I | I | I | R | R | R | R | M | M | M |
| Generate representations to foster deeper understanding of the problem and possible solutions (i.e., simulation). | | | | | I | I | I | I | R | R | R | R | M | M |

**Classroom Application**
Given a large problem to solve, students break it down into smaller, more manageable problems; they recognize information that is necessary vs. extraneous to solving a problem; they develop models that illustrate complex and interdependent systems.

Curriculum integration ideas:

- Primary: Count money in a jar (big problem) by creating a plan for breaking it into smaller tasks (e.g., sort coins, count each type of coin, calculate amount for each coin type, add together).
- Intermediate: Understand and create potential solutions to a big problem such as parent pick up taking too long by creating a model of the inter-related problems/complexities, and creating solutions for smaller problems (e.g., moving bike racks, open more gates.
- Secondary: Understand and create potential solutions to a massive and complex problem such as global warming by creating a model of inter-related problems/complexities, and identifying smaller problems/contributing factors (e.g., human consumption, bio-waste); then, create models for the contributing factors that break them down into even smaller components for which to propose solutions.

| 5.d. Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Define an algorithm as a sequence of instructions or rules to follow. | I | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Describe how technology can efficiently repeat a series of steps or rules (i.e., automation). | | | | I | I | R | R | R | R | M | M | M | M | M |
| Develop a series of steps or rules to solve a specific problem (i.e., algorithm design). | | | I | I | I | R | R | R | R | M | M | M | M | M |
| Test automated solutions, troubleshoot, and revise as necessary. | | | | I | I | R | R | R | R | M | M | M | M | M |

**Classroom Application**
Students identify repetitive tasks; they develop ordered steps, then create and test a technological solution that automates the task.

Curriculum integration ideas:

- Primary: Identify multiple routines (e.g., brushing teeth, bedtime routine) as an "algorithm" and list their steps.
- Intermediate: Create a program that solves a two-step math equation using a set of repeated steps.
- Secondary: Build an app that tells the user which literary character he/she is most like based on their answers to specific questions.

# Wyoming Digital Learning Guidelines

**I - Introducing** **R - Reinforcing** **M - Mastering***

## 6. CREATIVE COMMUNICATOR

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

| 6.a. Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Compare a variety of digital communication platforms and their audiences. | | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Evaluate the effectiveness of digital platforms and tools to meet a variety of communication needs (e.g., to express one's thoughts, to teach something, to build a relationship, to collaborate on a task). | | I | I | I | I | R | R | R | R | R | M | M | M | M |
| Use a variety of digital communication tools (e.g., email, social media, discussion forums, web conferencing tools) appropriately, respectfully, and effectively. | | I | I | R | R | R | M | M | M | M | M | M | M | M |

**Classroom Application**

Students explore a variety of digital communication and creation tools (e.g., blog, video creation, graphic organizer, info-graphic, presentation applications). Students then use appropriate tools to communicate with specific intent (e.g., to document a process, tell a story, persuade, share their learning).

Curriculum integration ideas:

- Primary: Document the process of evaporation using a slow motion video tool.
- Intermediate: Publish and illustrate a personal narrative.
- Secondary: Identify a problem with a building or learning space in the school, design a solution, and use digital communication tools to pitch the solution to administrators.

| 6.b. Students create original works or responsibly re-purpose or remix digital resources into new creations. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use previously created digital assets in new ways. | | | I | I | I | I | R | R | R | M | M | M | M | M |
| Combine existing and new digital assets to create new products. | | | I | I | I | I | R | R | R | M | M | M | M | M |
| Design and develop original digital products. | I | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Transfer the information learned from online sources into one's own words. | | | I | I | I | R | R | R | R | R | R | M | M | M |
| Adhere to the rules and guidelines for remixing and re-purposing digital resources (e.g., obtain permission from creators, cite sources, use open source content). | | | | I | I | I | I | R | R | R | R | M | M | M |

**Classroom Application**

Students develop digital products (e.g., videos, presentations, digital posters) that show what they've learned, illuminate their thinking, or provide an outlet for creativity.

Curriculum integration ideas:

- Primary: Write and illustrate a story using a kid-friendly writing app or digital storytelling tool.
- Intermediate: Create a video "commercial" as a component of their state report, responsibly using images and/or video snippets.
- Secondary: Develop a podcast about a historical event, responsibly using primary source material.

** For Introducing, Reinforcing, and Mastering, the intent is at grade level, recognizing students may be adept at a skill but still have the ability to continue to increase the mastery of that skill across higher grade levels.*

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| 6.c. Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explore systems and ideas though the use of models or simulations. | I | I | I | I | I | R | R | M | M | M | M | M | M | M |
| Use a variety of hardware (e.g., cameras, recording equipment) and software (e.g., multimedia, video editing, design) to produce digital objects. | I | I | I | I | I | R | R | R | M | M | M | M | M | M |
| Create digital visualizations (e.g., info-graphics, word clouds, data map), models (e.g., concept maps, flowcharts), and simulations (imitation systems) that clearly communicate sophisticated ideas. | | I | I | I | I | R | R | R | M | M | M | M | M | M |

**Classroom Application**
Students create various digital products (e.g., graphic organizer, word cloud, 3D model, sketchnote, blueprint or replication) to represent and communicate big ideas, data, processes, or the relationship among ideas.

Curriculum integration ideas:
- Primary: Use a graphic organizer with images and texts to show the life cycle of the butterfly.
- Intermediate: Create an augmented reality experience covering human organ systems.
- Secondary: Create a digital model depicting the cell cycle and cell division.

| 6.d. Students publish or present content that customizes the message and medium for their intended audiences. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Select platform and tool that most effectively conveys a message for a targeted audience. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Use digital tools to clearly and creatively express ideas and demonstrate learning. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Select a digital platform (e.g., social media, video sharing platform, web presentation) for presenting or publishing work to an intended audience. | | I | I | I | I | I | R | R | R | R | M | M | M | M |
| Demonstrate appropriate adherence to the guidelines, receptiveness of audience and process of the platforms where digital content is published (e.g., requirements and copyright of video sites). | | | | I | I | I | R | R | R | R | R | M | M | M |

**Classroom Application**
Students communicate with an authentic audience (e.g., parents, administrators, peers, community members). They consider the content and tools that will most effectively convey the message to the audience.

Curriculum integration ideas:
- Primary: Post a "daily learning" paragraph on the class blog for parents.
- Intermediate: Create a video PSA as part of an anti-bullying campaign for students in younger grades.
- Secondary: Develop a digital documentary about an influential member of the school community to share during a board meeting.

# Wyoming Digital Learning Guidelines

I - Introducing R - Reinforcing M - Mastering*

## 7. GLOBAL COLLABORATOR

Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

| 7.a. Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use synchronous (e.g., video conferencing, web meeting) and asynchronous (e.g., social media, discussion forums, e-mail) communication tools to connect with others from diverse cultures and geographic areas. | I | I | I | I | R | R | R | R | M | M | M | M | M | M |
| Demonstrate cultural open-mindedness and respect for different perspectives within the global workspace. | | I | I | I | R | R | R | R | M | M | M | M | M | M |
| Use digital tools (e.g., translation tools) to break down communication barriers such as language differences. | I | I | I | I | R | R | R | R | R | M | M | M | M | M |
| Engage in meaningful online academic dialogue to advance learning (e.g., discussion forums, social media, blogs, student response tools to support in-class discussion). | | I | I | I | R | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students initiate and/or engage in digital communication (e.g., email, chat, video conference, discussion board) with others who have different backgrounds in order to understand a different point of view or learn something new about a given topic.

Curriculum integration ideas:

- Primary: Use a class social media account to participate with other students nationwide sharing photos of local plant and animal life.
- Intermediate: Hold a digital book club with students from another part of the world.
- Secondary: Digitally discuss a current political event or conflict with others from different countries; compare perspectives and make meaningful connections to culture, geography, and other factors.

| 7.b. Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Utilize a variety of synchronous and asynchronous tools to communicate and learn from others (e.g., students in another class, school, or country, community members, subject experts, authors). | I | I | I | I | R | R | R | R | M | M | M | M | M | M |
| Use appropriate and effective online discussion strategies that encourage respectful sharing of diverse perspectives. | | I | I | I | R | R | R | R | M | M | M | M | M | M |

**Classroom Application**

Students engage in online or technology-assisted discussion and debate (e.g., online forum, email, teleconference, social media engagement) around a topic of interest/study with a variety of individuals who have different perspectives, in order to understand an issue and/or potential solutions more deeply.

Curriculum integration ideas:

- Primary: Participate in a video conference with an aquaponics farmer to learn about the daily care and harvesting of an aquaponics garden to help feed the community.
- Intermediate: Ask targeted questions about a controversial issue such as energy (e.g., conservation, sources, jobs) to individuals with opposing views through electronic communication.
- Secondary: Using a web meeting tool, connect with a variety of individuals (e.g., politicians, community members, school leaders, local business alliance) to better understand the pros and cons of urban development.

** For Introducing, Reinforcing, and Mastering, the intent is at grade level, recognizing students may be adept at a skill but still have the ability to continue to increase the mastery of that skill across higher grade levels.*

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| 7.c. Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Solicit and provide collegial feedback to advance learning or improve solutions. | | | I | I | I | R | R | R | M | M | M | M | M | M |
| Participate as an accountable team member in each specific/assigned roles to accomplish group goals. | | | | I | R | R | R | R | M | M | M | M | M | M |
| Use digital tools to manage collaborative work (e.g., track tasks, manage time-lines, store information, take notes). | | | | I | I | I | R | R | R | R | R | M | M | M |
| Work with others toward common goals (e.g., digital pen pals, school partnership projects, multi-player video games). | | I | I | I | I | I | R | R | R | M | M | M | M | M |
| Engage in online collaborative projects with students in other classrooms and schools. | I | I | I | I | R | R | R | R | R | M | M | M | M | M |

**Classroom Application**
Students use digital tools to collaborate (e.g., provide feedback, communicate, manage/track tasks, make collaborative decisions) on a project or to support a common goal (e.g., improve a written draft, complete a presentation, solve a problem); they contribute productively to teams.

Curriculum integration ideas:
- Primary: Groups video record their process for solving an addition problem using Base 10 blocks.
- Intermediate: Groups create a slide deck about the ancient civilization they studied.
- Secondary: Using an online project management tool, group members collaborate to design a water desalination tool/device small enough to carry in a hiking pack.

| 7.d. Students explore local and global issues and use collaborative technologies to work with others to investigate solutions. | PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Digitally interact with experts in a particular field to further learning, examine a global issue, and/or develop solutions. | | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Use digital resources to collaborate with authentic audiences (e.g., virtual guest speakers, career field interviews). | I | I | I | I | I | R | R | R | R | M | M | M | M | M |
| Leverage technology (e.g. virtual field trips, webcam, AR/VR) to interact with places and content otherwise not easily accessible. | I | I | I | I | I | R | R | R | R | M | M | M | M | M |

**Classroom Application**
Students use digital tools to support the investigation of (e.g., research, connection/communication with others, collaborative/action projects) and potential solutions to real world issues.

Curriculum integration ideas:
- Primary: Use social media and other digital communication tools to help organize a school-wide food drive for the local food bank.
- Intermediate: Digitally collect data from students and families about their recycling habits; develop a campaign to encourage participation.
- Secondary: Conduct extensive online research about a worldwide problem, such as lack of access to quality education for all students; use digital communication tools to meet with and learn from others who are working on real-life solutions to the problem.

# K-12 Technology Skills Scope and Sequence

The K-12 Technology Scope and Sequence was developed by the Educational Technology Faculty at Shorecrest Preparatory School. Shorecrest is a preschool through high school non-sectarian, co-ed independent school in St. Petersburg, Florida where empathy becomes action, inquiry sparks intellectual independence and students find their futures. Proven results since 1923.

This graphic shows the foundational technology skills expected to meet the learning goals embedded in the ISTE Standards for Students. Additionally, these skills can increase productivity and enhance basic technical competence.

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B - Beginning D - Developing S - Secure

| Basic Operations and Concepts | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identify the basic components of the computer: monitor, keyboard, mouse, headphones, ports and printers. | B | D | S | S | S | S | S | S | S | S | S | S | S |
| Turn on/off a computer, laptop and/or hand-held device and login. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Use a mouse or track pad to manipulate shapes, icons; click on URLs, radio buttons, check boxes; use scroll bar. | B | B | D | D | D | S | S | S | S | S | S | S | S |
| Use desktop icons, windows and menus to open and close applications and documents; understand difference between closing and quitting applications. | B | B | B | B | B | D | D | S | S | S | S | S | S |
| Use shortcuts to operate the computer (i.e. Command-P, Command-C, Command-V). | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Use gestures to navigate hand-held devices. | B | B | B | B | D | D | S | S | S | S | S | S | S |
| Use the print dialog box to select local printers and change settings (i.e. number of copies, color, paper size, orientation, scale, one-sided vs. two-sided). | | B | B | B | B | B | D | D | S | S | S | S | S |
| Utilize basic troubleshooting steps to solve technical problems independently. | | | B | B | B | B | D | S | S | S | S | S | S |
| Apply prior technical knowledge and experiences to figure out how new technologies or applications work. | | B | B | B | B | D | D | S | S | S | S | S | S |
| Manage and deploy software updates. | | | | | | B | D | D | S | S | S | S | S |
| **Logins/File Management** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use login credentials for access to network devices, accounts, servers, printers and cloud services. | | B | B | B | D | D | S | S | S | S | S | S | S |
| Name documents with appropriate file names and understand where files are being saved. | | B | B | B | B | D | D | D | S | S | S | S | S |
| Create, save, edit, copy and rename files and folders to organize documents and materials. | | B | B | B | B | B | D | D | S | S | S | S | S |
| Delete files and folders; recover files and folders from the trash; empty trash. | | | B | B | B | B | D | D | S | S | S | S | S |
| Retrieve previous file revisions/access revision history for documents located in cloud services. | | | | B | B | B | D | D | S | S | S | S | S |
| Download, upload, attach and zip files and folders via email or cloud services. | | | | B | B | B | D | D | S | S | S | S | S |
| Use search tools to locate files and applications. | | B | B | D | D | S | S | S | S | S | S | S | S |
| Can associate document extensions with appropriate file types. | | | B | B | B | D | D | S | S | S | S | S | S |
| Understand how cloud computing is different from using software applications. | | | B | B | D | D | D | S | S | S | S | S | S |
| Is able to upload/download/retrieve files to and from the cloud. | | | B | B | D | D | D | S | S | S | S | S | S |
| **Personal Data Management** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Protect accounts by logging out of shared equipment. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Keep passwords confidential, and be proactive if they are compromised. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Use pass-codes/passwords to secure individual devices. | | B | B | D | D | S | S | S | S | S | S | S | S |
| Create robust passwords and effectively manage password privacy. | | B | D | D | D | D | S | S | S | S | S | S | S |
| Find and adjust privacy settings. | | | | | B | B | D | D | D | S | S | S | S |

# K-12 Technology Skills Scope and Sequence

B - Beginning  D - Developing  S - Secure

| Online Safety | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use technology independently and with peers responsibly and make safe choices. | | B | B | D | D | D | S | S | S | S | S | S | S |
| Understand how to be safe online and in a digital world. | B | B | B | B | B | D | D | D | D | D | D | S | S |
| Understand the importance of not sharing personal information online. | B | B | B | B | B | D | D | D | D | S | S | S | S |
| Understand how to practice safe Internet searches. | | | B | B | B | D | D | D | D | D | D | S | S |
| Evaluate whether sources/websites are safe to conduct research. | | | B | B | B | D | D | D | D | D | D | S | S |
| Understand the positive and negative effects social media sites can have on one's life. | | | | B | B | B | B | D | D | D | D | S | S |
| **Digital Identity** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Recognize how overuse of technology can impact one's mental, physical and emotional health. | | B | B | B | B | D | D | D | D | D | D | D | D |
| Set appropriate profile pictures and other profile content across social media, web pages, blogs, etc. | | | | B | B | B | B | B | B | B | D | D | S |
| Understand that digital content is permanent and cannot be deleted. | | | B | B | B | B | B | D | D | D | D | S | S |
| Build a positive digital footprint/reputation. | | | B | B | B | B | B | D | D | D | D | D | D |
| Recognize the difference between active and passive data collection when using the Internet and social media sites. | | | | | | | B | B | D | D | D | D | D |
| Understand how browser settings such as cookies track personal information. | | | | | | | B | B | D | D | D | D | D |
| **Keyboarding** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use keyboarding programs and games to assist in development of skills. | B | B | D | D | D | D | D | S | S | S | S | S | S |
| Use proper posture and ergonomics. | B | B | D | D | D | D | S | S | S | S | S | S | S |
| Locate and use letter and number keys with correct left and right hand placement (home row). | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Locate and use correct finger/hand for space bar, return/enter and shift key. | B | B | D | D | D | S | S | S | S | S | S | S | S |
| Gain proficiency and speed in touch typing. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Learn to use special characters as needed (i.e. accents, tilda) | | | B | B | B | B | D | D | S | S | S | S | S |
| **Painting and Drawing Programs** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use basic drawing tools including pencil, paint brush, shape, line, undo, redo and eraser. | B | B | D | S | S | S | S | S | S | S | S | S | S |
| Use color palette/color wheel to change tool color. | B | D | S | S | S | S | S | S | S | S | S | S | S |
| Use selection tools to copy, paste, move and modify work. | | | B | D | D | D | D | S | S | S | S | S | S |
| Use text tool to add text features to artwork. | B | D | S | S | S | S | S | S | S | S | S | S | S |
| Use basic design principles (i.e. whitespace, color, balance, texture) | | | | | | B | D | D | S | S | S | S | S |

B - Beginning D - Developing S - Secure

| Communication & Collaboration Tools | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Is polite and respectful in all communications and collaborations using technological tools, using appropriate language at all times. | B | B | D | D | D | S | S | S | S | S | S | S | S |
| Use email, messaging and other tools to share information and communicate ideas with others. | | | B | D | D | D | S | S | S | S | S | S | S |
| Compose and send an email. | | | B | D | D | D | S | S | S | S | S | S | S |
| Understand the difference between Reply Send, Reply All and Forward when responding to an email. | | | B | B | D | D | D | S | S | S | S | S | S |
| Understand the difference between CC (carbon copy) and BCC (blind carbon copy) and use them appropriately. | | | | | | B | B | D | D | D | D | S | S |
| Attach a document or file to an email. | | | | | B | B | D | S | S | S | S | S | S |
| Use a course or learning management system to access class pages, class calendars, portfolios and grades. | | | B | D | D | D | S | S | S | S | S | S | S |
| Use features of a course or learning management system such as discussion forums, polls, wikis, dropbox, etc. to access and complete assignments. | | | B | D | D | D | S | S | S | S | S | S | S |
| Access calendar and student pages on school website as needed. | | | B | B | D | D | D | S | S | S | S | S | S |
| Use audience response tools and apps to participate in class discussions. | B | B | B | B | B | D | D | D | S | S | S | S | S |
| Set up, share and utilize collaborative workspaces, documents, or other digital tools for asynchronous and synchronous collaboration. | | | B | D | D | D | D | S | S | S | S | S | S |
| Use synchronous collaboration tools such as video conferencing, interactive television and voice over IP to connect with others. | B | B | D | D | D | D | S | S | S | S | S | S | S |
| Use virtual world and gaming tools to work collaboratively toward common goals. | | B | B | B | D | D | D | D | D | S | S | S | S |
| Use social media tools to connect, collaborate, and share. | | | | B | B | D | D | S | S | S | S | S | S |
| Use digital tools such as blogs, websites and social media to crowd-source, crowd-fund, and mobilize a community toward a goal. | | | B | B | B | B | B | D | D | D | D | S | S |
| Create and maintain a digital portfolio or collection of works related to one's learning. | B | B | D | D | D | D | D | D | D | S | S | S | S |
| **Word Processing** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use a word processing application to write, edit, print and save assignments. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Use the menu/tool bar functions to format, edit and print a document. | | B | D | D | D | D | D | S | S | S | S | S | S |
| Highlight, copy and paste text within a document or from an outside source. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Insert and resize images within a document. | | | B | D | D | D | S | S | S | S | S | S | S |
| Copy, paste and resize images found from outside sources. | | | B | B | D | D | S | S | S | S | S | S | S |
| Use the menu/toolbar functions to format a paper using MLA, APA or other appropriate style. | | | | | B | B | B | D | S | S | S | S | S |
| Proofread and edit writing using built-in resources (i.e. dictionary, spell checker, thesaurus, grammar check). | | B | B | D | D | D | D | S | S | S | S | S | S |

# K-12 Technology Skills Scope and Sequence

B - Beginning D - Developing S - Secure

| Problem Solving and Computational Thinking | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use technology tools to represent solutions to problems in a variety of ways including text, sounds, pictures, and numbers. | B | B | B | D | D | D | D | D | S | S | S | S | S |
| Use technology resources and tools to solve age-appropriate computing problems or for independent learning. | B | B | B | D | D | D | D | D | S | S | S | S | S |
| Define an algorithm as a sequence of instructions and use the basic steps of algorithmic thinking to solve problems and design solutions. | B | B | B | D | D | D | D | D | S | S | S | S | S |
| Use a block-based visual programming interface to build a game, tell a story, or solve a problem. | B | B | B | B | B | D | D | D | S | S | S | S | S |
| Use 2D design tools to create prototypes, models and simulations to demonstrate solutions and ideas. | B | B | D | D | D | D | D | D | S | S | S | S | S |
| Use 3D design tools to create prototypes, models and simulations to demonstrate solutions and ideas. | B | B | B | B | B | B | D | D | D | D | D | S | S |
| **Spreadsheets and Databases** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Understand that spreadsheets, databases, and other specialized data tools are used to collect, manage, analyze and visualize data. | | | B | B | B | D | D | D | S | S | S | S | S |
| Identify and explain terms and concepts related to spreadsheets (i.e. cell, column, row, values, labels, chart, graph) | | | | B | B | B | D | D | S | S | S | S | S |
| Enter/edit data and text into a spreadsheet and format spreadsheet to accommodate data. | | | | B | B | B | D | D | S | S | S | S | S |
| Calculate numerical equations using spreadsheet formulas and functions. | | | | | | | B | D | D | S | S | S | S |
| Designate the format of a cell to accommodate different kinds of text and numerical data. | | | | | B | B | D | D | S | S | S | S | S |
| Utilize spreadsheet data to create tables, charts and graphs. | | | | | B | B | D | D | S | S | S | S | S |
| Identify and explain terms and concepts related to database systems (i.e. field, set, subset, query, ordered, sorted). | | | B | B | B | D | D | D | S | S | S | S | S |
| Enter/edit data and/or text into a database and use queries to find information. | | | | B | B | B | D | D | S | S | S | S | S |
| Use spreadsheets and databases to make predictions, solve problems and draw conclusions. | | | | | | B | B | D | D | S | S | S | S |
| **Acceptable Use, Copyright and Plagiarism** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Locate required citation information on web pages and other digital resources and cite in the appropriate style. | | B | B | B | D | D | D | D | D | S | S | S | S |
| Use age-appropriate guidelines to evaluate websites and other resources for accuracy, perspective, credibility and relevance. | | B | B | B | D | D | D | D | D | S | S | S | S |
| Transfer the information learned from online sources into your own words. | | B | B | B | D | D | D | D | D | D | S | S | S |
| Understand all rules and guidelines in the school's Responsible Use Policy. | B | B | B | D | D | D | D | D | D | D | S | S | S |
| Understand Fair Use guidelines and its application to all forms of work. | | | B | B | B | B | D | D | D | D | S | S | S |

B - Beginning D - Developing S - Secure

| Multimedia and Presentation Tools | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use a digital camera, video camera, or camera on a hand-held devices to take pictures and videos. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Capture images that incorporate rules of photography. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Use photo and video editing tools to adjust images and add effects. | B | B | B | B | D | D | D | S | S | S | S | S | S |
| Save images in multiple formats. | | | | | B | B | D | D | S | S | S | S | S |
| Use recording and editing equipment to record, edit and publish audio. | B | B | B | B | D | D | D | S | S | S | S | S | S |
| Create, edit and format text, visuals and audio within a multimedia presentation. | B | B | B | D | D | D | S | S | S | S | S | S | S |
| Create a series of slides and organize them to present research or convey an idea. | B | B | D | D | D | D | S | S | S | S | S | S | S |
| Copy/paste or import graphics within a multimedia presentation. Be able to change their size and position on a slide. | | | B | B | D | D | S | S | S | S | S | S | S |
| Insert songs, videos or other media on slides. | | B | B | B | D | D | D | S | S | S | S | S | S |
| Add a working hyper-link to a multimedia presentation. | | | B | B | D | D | D | S | S | S | S | S | S |
| **Internet Searching and Online Databases** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use refresh, forward and back buttons to navigate a web browser. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Use tab browsing to navigate multiple pages. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Create bookmarks and add frequently used sites to the bookmark bar. | | | B | B | D | D | D | S | S | S | S | S | S |
| Locate the URL of a website and make a distinction between the suffixes .org, .com, .edu, .net, .gov and international domains. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Use age-appropriate search engines to find information. | B | B | B | B | D | D | D | S | S | S | S | S | S |
| Use browser search tools and advanced search features to find information. | | B | B | B | D | D | D | S | S | S | S | S | S |
| Use a browser's History feature to locate previously visited sites. | | | B | B | D | D | D | S | S | S | S | S | S |
| Identify and use hyper-links within web pages or documents. | B | B | D | D | S | S | S | S | S | S | S | S | S |
| Use digital tools or platforms to organize, display, annotate and/or share a curated collection. | | | | | B | B | B | D | D | D | D | S | S |
| Locate and add browser or other web apps or add ons to customize learning. | | | | | B | B | D | D | S | S | S | S | S |
| Access online catalogs and databases for research. | | | B | B | B | B | D | D | D | D | S | S | S |
| **Organizational and Project Tools** | **K** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| Use a calendar, task manager, or other tools to organize one's self as well as manage projects. | | | B | B | B | D | D | D | D | S | S | S | S |
| Use age-appropriate note taking tools. | B | B | B | D | D | D | D | S | S | S | S | S | S |
| Use graphic organizers, brainstorming applications, or other digital tools to gather and organize information. | B | B | D | D | D | D | S | S | S | S | S | S | S |
| Use digital tools to create time-lines of people, historical events, etc. to organize information sequentially. | | | B | B | B | B | D | D | D | D | D | S | S |

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DEPARTMENT OF EDUCATION

122 W. 25TH STREET, SUITE E200 | CHEYENNE, WY 82002
307-777-7675 | https://edu.wyoming.gov/