Digital Learning Integration Standards of Learning

for Virginia Public Schools

Board of Education
Commonwealth of Virginia

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Board of Education
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Notice to Reader

Preface

In 1995, the Virginia Board of Education published Standards of Learning in English, mathematics, science, computer technology, and history and social science for kindergarten through grade 12. Subsequently, Standards of Learning were developed for all academic content areas. The Standards of Learning provide a framework for instructional programs designed to raise the academic achievement of all students in Virginia and prepare them for postsecondary success.

The Standards of Learning are recognized as a model for other states. Pursuant to legislation from the 2000 Virginia General Assembly, the Board of Education established a seven-year cycle for review of the Standards of Learning. As a result, the 1995 Computer Technology Standards of Learning were revised in 2000, 2005, 2012, and 2020, the results of which are contained in this document. The Standards were revised with input from parents, teachers, administrators, representatives from higher education, and the business community.

The Standards of Learning set reasonable targets, expectations for what teachers must teach, and students must learn. The Standards are not intended to encompass the entire curriculum for a given grade level or course or to prescribe how the content should be taught; the Standards are to be incorporated into a broader, locally designed curriculum. Teachers are encouraged to go beyond the Standards and select instructional strategies and assessment methods appropriate for their students. Parents and guardians are encouraged to work with their children, their children's teachers, and their children's schools to help them achieve these academic Standards.

Introduction

Starting with the Standards developed in 1995 and continuing with the most recent 2012 Standards, the focus of the Computer Technology Standards of Learning has been on the use of various technologies and the related skills in the use of those technologies. While these Standards have been instrumental in students' learning experiences, focus has been on actual technologies or devices (spreadsheets, word processors, keyboard, etc.) and the use (interact, edit, open, etc.) of them more so than the integration of the technologies in the students' learning experiences. As a result, a significant amount of effort and funding has been spent on purchasing technologies without taking into consideration instructional and learning goals and the integration of technologies into content area curriculum and instruction. The adoption of the Computer Science Standards of Learning in 2017 has also led to misunderstanding of the distinctions between computer technology and computer science. Therefore, to emphasize the essential role of technologies in the deeper learning experiences of students in content areas, as digital citizens in an ever-increasing digital world, the revised 2020 *Computer Technology Standards of Learning* are renamed the 2020 *Digital Learning Integration Standards of Learning*.

Standards are identified for kindergarten through grade twelve. Throughout a student's education from kindergarten through grade twelve, specific content strands are included. The strands align with the seven student roles developed by the International Society for Technology in Education (ISTE). The content strands are:

- Empowered Learner
- Digital Citizen
- Knowledge Constructor
- Innovative Designer
- Computational Thinker
- Creative Communicator
- Global Collaborator

The Standards statements and related components for each strand progress in complexity throughout the grade bands. While the Standards are organized by strand and identified numerically and alphabetically, local curricula and pacing guides should determine the instructional sequence of the content.

The 2020 *Digital Learning Integration Standards of Learning* provide comprehensive standards statements. Additional components (learning priorities and performance indicators) are provided to assist in local implementation. In the months ahead, companion documents to the Standards are to be developed to further amplify the standards and define the content knowledge, skills, and understandings that can be measured by various assessments. Included with the companion

documents will be a glossary of terms highlighted in yellow throughout the Standards. The Standards and companion documents are not intended to encompass the entire curriculum for a given grade level or course. School divisions are encouraged to incorporate the standards and companion documents into a broader, locally designed curriculum. All activities performed and technologies used in implementing the Standards should fall within the acceptable use, student conduct, and all other school and school division policies. The companion documents will delineate in greater specificity the minimum content that all teachers should teach and all students should learn. Teachers are encouraged to go beyond the Standards as well as to select instructional strategies and assessment methods appropriate for all students.

Digital Learning

Access to and the effective use of current and emerging technologies are essential elements for contributing to a deeper learning experience for students. The use of the term "technologies" within these Standards includes the different facets, tools, apps, and applications that support and enable students. Digital learning has the potential to empower students as learners by improving their functional literacy as digital citizens capable of constructing knowledge, designing innovative works, thinking computationally, creatively communicating, and collaborating with others locally, regionally, and globally.

Learning goals, including students' personal learning goals, along with availability of technologies, should guide the appropriateness of technologies used. The term "appropriate technologies" used throughout the Standards is intended to be inclusive of all technologies, programming/coding tools, and resources in an effort to allow for flexibility in local implementation and to lessen the impact of ever emerging technologies on learning and instruction. The technologies should be readily available and regularly used as an integral and ongoing part of students' deeper learning experiences. Available technologies should include those oriented toward the learning of the various content area concepts, skills, and processes. However, available technologies may not be limited to traditional technologies of content areas such as robotics, video-microscopes, graphing calculators and utilities, probe ware, geospatial technologies, spreadsheets, and programming/coding. Additional machine-based and web-based technologies should also be considered. While availability of technologies will vary by school and school division based on a number of factors, local schools and school divisions should view the Standards as aspirational standards to be used as leverage for local innovation efforts. Proficiency in the use of technologies should not be regarded as a substitute for a student's understanding of content area concepts and skills. In consideration of concerns about student screen time and technology dependence, especially at the K-2 level, the use of nondigital or unplugged activities is suggested in the Standards when deemed appropriate.

In various grade band performance indicators, students are asked to learn based on guidance from an educator. In other grade band performance indicators, they are requested to learn

through collaboration with an educator. The intent of both indicators is the gradual development of student agency starting with direct guidance, when appropriate, and progressing to a student experience of shared decision-making based on the complexity of the learning priority. In certain performance indicators the phrase "learn about" is used and "explore" is used in other performance indicators. Learning about is applicable when specific knowledge or skill (i.e., ownership and sharing information, respect the work of others, or personal data) is necessary. Whereas, exploring is applicable when considering information (i.e., technologies, real-world issues and problems, or possible solutions)

The development of the Standards occurred with significant effort toward alignment with content area standards. Digital learning should be the shared responsibility of teachers at all grade levels and reflected in the "instructional strategies" generally developed at the school and division levels. The use of technologies in digital learning should remain "transparent" unless it is the actual focus of the instruction.

Positive, Safe, Legal, and Ethical Online Behavior

While no comprehensive list exists to cover all situations, the following should be reviewed to avoid potential unsafe, illegal, and unethical behaviors. Appropriate safe, legal, and ethical online behavior should include the following:

- respecting the communication and perspective of others; disagreeing politely;
- using self-created written and other works and giving attribution to the works of others;
- obtaining permission to download and/or use the works of others when required;
- keeping usernames and passwords private;
- avoiding interaction with online strangers;
- keeping personally identifiable information private;
- visiting age-appropriate websites only;
- using respectful, appropriate language;
- reporting unsafe, illegal, and unethical behavior;
- thinking before posting, texting, or sharing;
- evaluating the accuracy and validity of digital sources; and
- prioritizing time and activities online and offline.

Content Strands and The Profile of a Virginia Graduate

The Profile of a Virginia Graduate was developed to describe the knowledge, skills, experiences, and attributes that students must attain to be successful in college and/or the workforce and to be "life ready."

The Board determined that a life-ready Virginia graduate must:

- Achieve and apply appropriate academic and technical knowledge (content knowledge);
- Demonstrate productive workplace skills, qualities, and behaviors (workplace skills);
- Build connections and value interactions with others as a responsible and responsive citizen (community engagement and civic responsibility); and
- Align knowledge, skills, and personal interests with career opportunities (career exploration).

In developing the profile, the Board considered "5 C's":

- critical thinking,
- creative thinking,
- collaboration,
- communication, and
- citizenship.

Throughout the *Digital Learning Integration Standards of Learning*, correlation to the 5 C's is documented as "5 C's Connections" below each learning priority. Five of the seven content strands of the *Digital Learning Integration Standards of Learning* correlate to the 5 C's as shown in Table 1 and Figure 1.

Profile of a Virginia Graduate Competency	Digital Learning Integration Standards Content Strands
Critical Thinking	Computational Thinker
Creative Thinking	Innovative Designer
Collaboration	Global Collaborator
Communication	Creative Communicator
Citizenship	Digital Citizen

Table 1: Five of the seven Digital Learning Integration Content Strands aligned to the Profile of a Virginia Graduate.

Citizenship (Digital Citizen)
- Recognize the rights, responsibilities and opportunities in digital world
- Act in ways that are safe, legal, and ethical

Collaboration (Global Collaborator)
- Broaden perspectives and enrich learning by collaborating using technologies
- Work effectively in teams locally and globally

Creative Thinking (Innovative Designer)
- Use technologies in a design process
- Create new, useful, and imaginative solutions or iterations

Communication (Creative Communicator)
- Communicate clearly and express creatively using technologies

Critical Thinking (Computational Thinker)
- Develop and employ strategies for understanding and solving problems
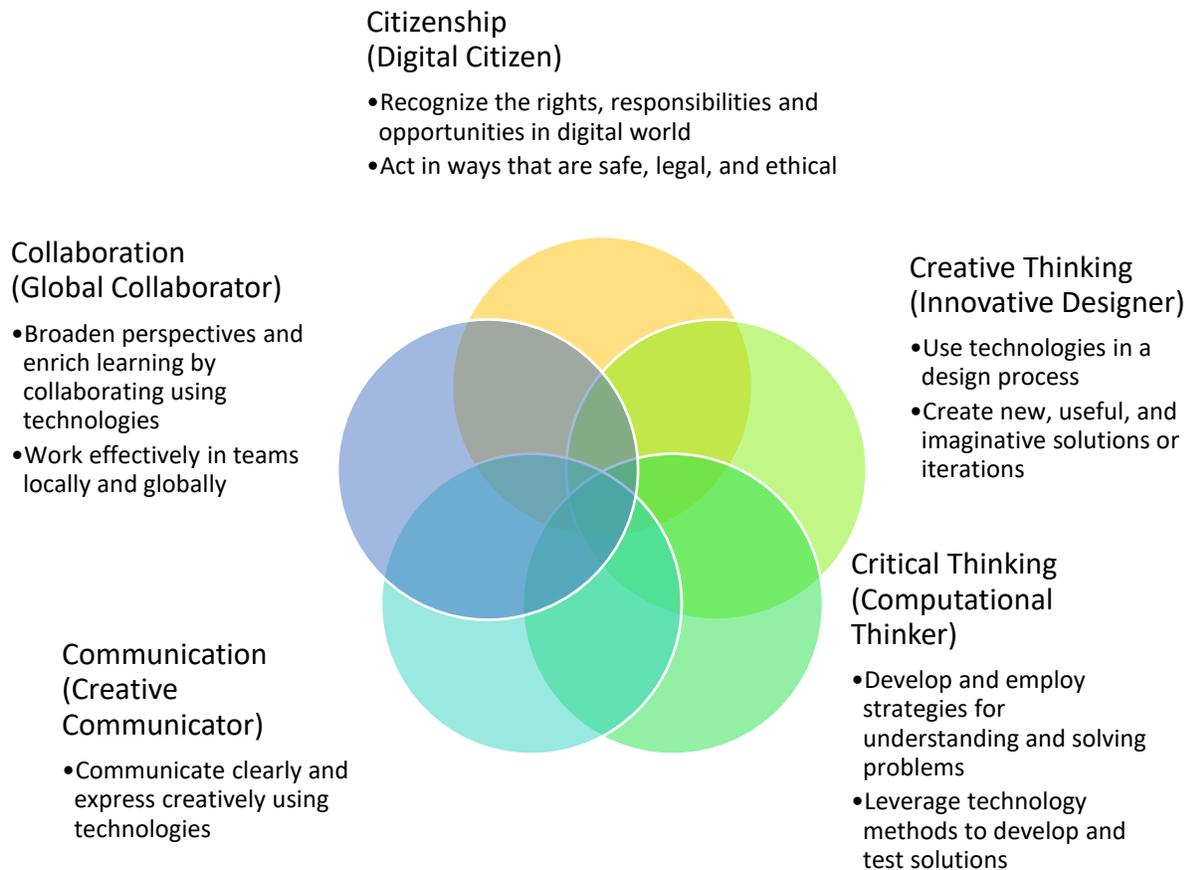- Leverage technology methods to develop and test solutions

Figure 1: Visual representation of five of the seven Digital Learning Integration Content Strands aligned to the Profile of a Virginia Graduate.

Interpreting the *Digital Learning Integration (DLI) Standards of Learning*

The *Digital Learning Integration Standards of Learning* are formatted to support educators in reading and interpreting them. There are seven content strands, informed by the 2016 ISTE Standards for Students that delineate roles that students take on during the learning process. Within each strand are standards. The Standards are comprehensive statements that explain foundational knowledge and skill expectations of what students are expected to know or be able to do. For each standard statement there are learning priorities which break down standard statements into manageable learning parts. The learning priorities expound upon the standards statements to explain the skills that students need to develop. The learning priorities are broken down into performance indicators which show a measurable learning progression of skills from grade band to grade band. Grade bands of K-2, 3-5, 6-8 and 9-12 align to typical elementary, middle, and high school grade levels. They are represented in the standards coding with "e" (K-2),"i" (3-5), "m" (6-8), and "h" (9-12) respectively.

Standards Formatting

- Strand: Role that students take on during the learning process.
- Standard: Comprehensive statement that explains what students are expected to know or be able to do.
- Learning Priority: Breaks down the standard statement into manageable learning parts.
- Performance Indicator by Grade Band: Measurable progression to which a standard has been developed or met.
- Grade bands of K-2, 3-5, 6-8 and 9-12 align to elementary (e), intermediate (i), middle (m), and high school (h) levels.

Standards Coding

Each DLI standard code can be broken into parts by: content strand, standard number, learning priority letter, grade band performance indicator. Figure 2 below refers to the standards code for the Empower Learner content strand, standard, learning priority A, and grade band performance indicator e, i, m, and h.

Content Strand: Empowered Learner (EL)				
Standard: Students leverage technologies, including assistive technologies, to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** (e)	**3 - 5** (i)	**6 - 8** (m)	**9 - 12** (h)
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. (5 C's Connection - Collaboration, Communication, and Critical Thinking)	In collaboration with an educator, students consider and set *personal learning goals* and use appropriate technologies to demonstrate knowledge and reflection of the learning process.	In collaboration with an educator, students develop and articulate *personal learning goals* to achieve their goals reflecting on and revising the learning process as needed.	Students articulate *personal learning goals,* select and use appropriate technologies to achieve them, and reflect on their successes and different areas of improvement in working toward their goals.	Students articulate and set *personal learning goals,* develop strategies using appropriate technologies to achieve them, and reflect on the learning process itself to improve learning outcomes.

Figure 2: Standards Code for Content Strand, Standard Learning Priority, and Grade Band Performance Indicator; EL.A.e, i, m, and h.

Content Strand: Empowered Learner (EL)				
Standard: Students leverage technologies, including assistive technologies, to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
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. (5 C's Connection - Collaboration, Communication, and Critical Thinking)	In collaboration with an educator, students consider and set *personal learning goals* and use appropriate technologies to demonstrate knowledge and reflection of the learning process.	In collaboration with an educator, students develop and articulate *personal learning goals* to achieve their goals reflecting on and revising the learning process as needed.	Students articulate *personal learning goals,* select and use appropriate technologies to achieve them, and reflect on their successes and different areas of improvement in working toward their goals.	Students articulate and set *personal learning goals*, develop strategies, advocate for the appropriate technologies needed to achieve them, and reflect on the learning process itself to improve learning outcomes.

Content Strand: Empowered Learner (EL)				
Standard: Students leverage technologies, including assistive technologies, to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2 (e)**	**3 - 5 (i)**	**6 - 8 (m)**	**9 - 12 (h)**
B. Build networks and customize their *learning environments* in ways that support the learning process. (5 C's Connection - Communication, Collaboration, and Critical Thinking)	With guidance from an educator, students explore various technologies that can be used to connect to others or customize *learning environments* to enhance their learning.	With guidance from an educator, students use a *network of experts* and peers and customize their learning environment to enhance their learning.	In collaboration with an educator, students identify and develop *digital learning communities* and customize their *learning environments* in ways that support their learning.	Students autonomously customize and build their learning community and environments in ways that support the learning process.
C. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways. (5 C's Connection - Communication, Collaboration, and Critical Thinking)	With guidance from an educator, students recognize feedback from both people and technologies, make improvements, and use appropriate technologies to share their learning.	Students seek feedback from people, technologies, and staff familiar with assistive technologies to make improvements, and use appropriate technologies to share and demonstrate learning.	Students seek feedback from people, including peers, teachers, staff familiar with assistive technologies, and functionalities embedded in technologies to make changes to improve and demonstrate their learning.	Students seek feedback from people and staff familiar with assistive technologies, and evaluate and use appropriate technologies for additional feedback to make changes to improve and demonstrate their learning.

Content Strand: Empowered Learner (EL)				
Standard: Students leverage technologies, including assistive technologies, to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2 (e)**	**3 - 5 (i)**	**6 - 8 (m)**	**9 - 12 (h)**
D. Understand the various fundamental concepts of technology operations, demonstrate the ability to choose, use, and troubleshoot technologies and transfer knowledge to explore *emerging technologies*. (5C's Connection – Creative Thinking and Critical Thinking)	With guidance from an educator, students use a variety of appropriate technologies that help them in their learning and begin to demonstrate an understanding of how knowledge can be transferred between technologies.	Students use a variety of appropriate technologies, collaborate with each other to troubleshoot technologies, and begin to transfer their knowledge to explore *emerging technologies*.	Students use a variety of appropriate technologies, troubleshoot appropriate technologies, and transfer their knowledge to explore *emerging technologies*.	Students understand the various fundamental concepts of appropriate technologies; demonstrate the ability to choose, use, and troubleshoot technologies, and transfer knowledge to explore *emerging technologies*.

Content Strand: Digital Citizen (DC)				
Standard: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act in ways that are safe, legal, and ethical.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
A. Cultivate and manage their *digital identity* and reputation and are aware of the permanence of their actions in the digital world. (5 C's Connection - Citizenship, Communication, and Critical Thinking)	Students practice responsible use of technology through teacher-guided online activities and interactions to understand how the *digital space* impacts their life.	Students demonstrate an understanding of a *digital identity*, the role it plays in the digital world, and learn the permanence of their decisions when interacting online.	Students manage their *digital identities* and reputations, including demonstrating an understanding of their *digital footprints*.	Students autonomously curate their *digital identities* and portfolio while acknowledging and understanding the long-term effects of their virtual actions.
B. Engage in *positive, safe, legal, and ethical behavior* when using technology, including social interactions online or when using networked devices. (5 C's Connection - Citizenship and Communication)	Students learn how to be careful when using devices and how to be safe online, follow safety rules when using the Internet, and collaborate with others.	Students engage, identify, and advocate in *positive, safe, legal, and ethical behavior* with support from an educator when using technology and interacting online.	Students demonstrate and advocate for positive, safe, legal, and ethical habits (established behaviors) when using technology and interacting with others online.	Students participate in collaboration and communication with local and/or global communities using positive, safe, legal, and ethical habits (established behaviors).

Content Strand: Digital Citizen (DC)				
Standard: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act in ways that are safe, legal, and ethical.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
C. Demonstrate an understanding of and respect for the rights and obligations of using and sharing *intellectual property*. (5 C's Connection - Citizenship, Communication, and Critical Thinking)	Students learn about ownership and sharing of information, and how to respect the work of others.	Students articulate, demonstrate, and respect *intellectual property* with both print and digital media when using and sharing the work of others.	Students demonstrate and advocate for an understanding of *intellectual property* with both print and digital media—including *copyright, permission, and fair use*.	Students appropriately use, cite, and share digital and print *intellectual property* according to copyright / Fair Use Doctrine.
D. Manage their *personal data* to maintain digital privacy and security and are aware of data-collection technology used to track their activity online. (5 C's Connection - Citizenship and Communication)	Students learn about *personal data* and demonstrate an understanding that technology is all around them and the importance of keeping their *personal data* private.	Students identify *personal data*, demonstrate how to keep it private, and understand how it might be shared, such as *data collection and tracking*, within a variety of networks.	Students demonstrate an understanding of what *personal data* is, how data collection technologies work, tradeoffs of sharing *personal data*, and best practices for keeping it private and secure.	Students practice safe and responsible sharing of their *personal data* online while learning how it is collected, stored online, and what is publicly available.

Content Strand: Knowledge Constructor (KC)

Standard: Students critically curate a variety of *digital resources* using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.

Learning Priority and 5 C's Connection	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
	K - 2 (e)	3 - 5 (i)	6 - 8 (m)	9 - 12 (h)
A. Plan and employ effective research strategies to locate information and other *digital sources* for their intellectual or creative pursuits. (5 C's Connection - Collaboration and Critical Thinking)	Students learn how to use *digital sources* contained within a classroom platform or otherwise provided by the teacher, to find information on topics of academic and personal interests.	Students plan and employ appropriate research techniques with guidance to locate *digital sources* that support the learning process on topics of academic and personal interest.	Students practice and demonstrate the ability to effectively use research strategies to locate appropriate primary and secondary *digital sources* in a variety of formats to support their academic and personal learning and create a research product.	Students plan and employ effective research strategies to deepen content knowledge, connect academic learning with the real world, pursue personal interests, and investigate opportunities for personal growth.
B. Evaluate the *accuracy, perspective, credibility, and relevance* of information, media, data, and other digital sources. (5 C's Connection - Critical Thinking)	Students learn how to evaluate *digital sources* using an age appropriate criteria.	Students learn how to evaluate *digital sources for accuracy, perspective, credibility, and relevance*.	Students practice and demonstrate the ability to evaluate *digital sources* for *accuracy, perspective, credibility, and relevance*, including considerations of *social and cultural context* and bias.	Students assess the quality of evidence and data found in selected *digital sources* based on accuracy, validity, appropriateness for needs, importance, and *social and cultural context*. Students evaluate information and graphics for prejudice, false data,

Content Strand: Knowledge Constructor (KC)				
Standard: Students critically curate a variety of *digital resources* using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
				misrepresentation, and misleading data.
C. Curate information from *digital sources* using a variety of tools and methods to create collections of resources that demonstrate meaningful connections or conclusions. (5 C's Connection - Critical Thinking and Creative Thinking)	Students have opportunities to explore a variety of teacher-selected tools to organize information and make connections to their learning.	Students use a variety of strategies to organize information and make meaningful connections between *digital resources*.	Students locate and collect *digital resources* from a variety of *digital sources* and organize resources into collections for a wide range of projects and purposes.	Students locate, collect, and evaluate a variety of *digital sources* and organize resources into themes in ways that are coherent and shareable to multiple audiences.

Content Strand: Knowledge Constructor (KC)

Standard: Students critically curate a variety of *digital resources* using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.

	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2 (e)**	**3 - 5 (i)**	**6 - 8 (m)**	**9 - 12 (h)**
D. Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions. (5 C's Connection - Collaboration, Communication, Creative Thinking, Critical Thinking, and Citizenship)	Students explore and discuss real-world issues and problems and share their ideas about them with others.	Students use *digital resources* and tools to explore real-world issues and problems and collaborate with others to find answers or solutions.	Students use *digital resources* and tools to explore real-world issues and problems and actively pursue solutions.	Students use knowledge, information skills, and *digital resources* and tools to engage in public conversation and/or debate real-world issues.

Content Strand: Innovative Designer (ID)

Standard: Students use a variety of technologies, including assistive technologies, within a *design process* to identify and solve problems by creating new, useful or imaginative solutions or iterations.

	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2 (e)**	**3 - 5 (i)**	**6 - 8 (m)**	**9 - 12 (h)**
A. Know and use appropriate technologies in a purposeful *design process* for	With guidance from an educator, students use appropriate *digital and nondigital*	With guidance from an educator, students use appropriate technologies to	In collaboration with an educator, students use appropriate technologies in a	Students autonomously select and use appropriate technologies in a

Content Strand: Innovative Designer (ID)				
Standard: Students use a variety of technologies, including assistive technologies, within a *design process* to identify and solve problems by creating new, useful or imaginative solutions or iterations.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
generating ideas, testing theories, creating innovative digital works, or solving authentic problems. (5 C's Connection - Creative Thinking, Communication, and Critical Thinking)	*technologies* to ask questions, suggest solutions, test ideas to solve problems, and share their learning through a creative *artifact*.	explore and practice how a *design process* works to generate ideas, consider solutions, plan to solve a problem, or create innovative products that are shared with others.	*design process* to generate ideas, create innovative products, or solve authentic problems.	*design process* to generate ideas, create, document, test, revise, and present innovative products or solve authentic problems.
B. Select and use appropriate technologies to plan and manage a *design process* that considers design constraints and calculated risks. (5 C's Connection - Creative Thinking, Communication, and Critical Thinking)	With guidance from an educator, students select and use appropriate *digital and nondigital technologies* in a *design process* and are aware of the systematic process of designing.	With guidance from an educator, students select and use appropriate technologies to plan and manage a *design process*.	In collaboration with an educator, students select and use appropriate technologies to plan and manage a *design process* that identifies design constraints and trade-offs and weighs risks.	Students autonomously select and use appropriate technologies to plan and manage a *design process* that identifies design constraints and trade-offs and weighs risks.

Content Strand: Innovative Designer (ID)				
Standard: Students use a variety of technologies, including assistive technologies, within a *design process* to identify and solve problems by creating new, useful or imaginative solutions or iterations.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
C. Use appropriate technologies to develop, test, and refine prototypes as part of a *cyclical design process*. (5 C's Connection - Creative Thinking and Critical Thinking)	With guidance from an educator, students use the appropriate *digital and nondigital technologies* in a *cyclical design process* to develop ideas or creations, test, and refine if necessary.	With guidance from an educator, students use appropriate technologies in a *cyclical design process* to develop prototypes and reflect on the role of trial and error.	In collaboration with an educator, students use appropriate technologies in a *cyclical design process* to develop prototypes and demonstrate the use of setbacks as potential opportunities for improvement.	Students autonomously select and use appropriate technologies in a *cyclical design process* to develop, test, and refine prototypes understanding the role of trial and error and setbacks as potential opportunities for improvement.
D. Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems. (5 C's Connection - Collaboration, Communication, Creative Thinking, Critical Thinking, and Citizenship)	With guidance from an educator, students learn how to *persevere* when working to complete a challenging task.	With guidance from an educator, students demonstrate perseverance when working with open-ended problem.	In collaboration with an educator, students demonstrate an ability to *persevere* and handle greater *ambiguity* as they work to solve open-ended problems.	Students autonomously demonstrate an ability to *persevere* through difficulties and *ambiguity* in solving open-ended problems.

Content Strand: Computational Thinker (CT)				
Standard: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
A. Formulate problem definitions suited for technology-assisted methods such as *data analysis, modeling* and *algorithmic thinking* in exploring and finding solutions. (5 C's Connection - Critical Thinking)	With the guidance of an educator, students create, identify, explore, and solve problems by using appropriate technologies to design and test their solutions.	With guidance from an educator, students create, identify, explore, and solve problems by selecting technology-assisted methods such as *data analysis, modeling,* and *algorithmic thinking.*	Students create, identify, explore, and solve problems using technology-assisted methods such as *data analysis, modeling,* or *algorithmic thinking.*	Students demonstrate how to identify, explore, and solve a real-world problem using technology-assisted methods such as *data analysis, modeling, or algorithmic thinking.*
B. Collect data or identify relevant data sets, use appropriate technologies to analyze them, and represent data in various ways to facilitate problem-solving and decision-making. (5 C's Connection - Critical Thinking)	Students analyze appropriate data and look for similarities in order to identify patterns and categories.	Students select and use appropriate technologies to represent data, which will be used for interpretation and evidence-based decision making.	Students find or organize data and use appropriate technologies to interpret, analyze, and represent data to construct models, predict outcomes, solve problems, and make evidence-based decisions.	Students use appropriate technologies to collect, organize, interpret, and analyze data sets to predict outcomes, draw conclusions, solve problems, and make evidence-based decisions.

Content Strand: Computational Thinker (CT)				
Standard: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
C. Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving. (5 C's Connection - Critical Thinking and Creative Thinking)	Students learn strategies to break a problem into parts and identify ways to solve the problem using *digital and nondigital technologies,* when appropriate.	Students break down problems into smaller parts, identify key information, and propose solutions using technologies, when appropriate.	Students break problems into component parts, identify key pieces and use that information to problem solve using technologies, when appropriate.	Students evaluate a task in terms of sub problems needed and make changes to address issues or changing task needs using technologies, when appropriate.
D. Understand how *automation* works and use *algorithmic thinking* to develop a sequence of steps to create and test automated solutions. (5 C's Connection - Critical Thinking)	Students understand how technology is used to make a task easier or repeatable and can identify real-world examples.	Students explore and understand basic concepts related to *automation,* patterns, and *algorithmic thinking*.	Students demonstrate an understanding of how *automation* works and use *algorithmic thinking* to design and automate solutions.	Students evaluate a task to be automated and describe the technology used in the process.

Content Strand: Creative Communicator (CC)				
Standard: Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
A. Choose the appropriate technologies and resources for meeting the desired objectives of their creation or communication. (5 C's Connection - Critical Thinking and Communication)	Students learn how to select and use appropriate technologies to create products or for communicating with others.	Students recognize, select, and use the features and functions of a variety of appropriate creation and communication technologies to create products or communicate with others.	Students select and use appropriate technologies to create, share, and communicate their work effectively, considering the audience.	Students select and use appropriate technologies to meet their communication needs considering goals, audience, content, available technologies or devices, and timing of communication.
B. Create original works or responsibly *repurpose* or *remix digital resources* into new creations. (5 C's Connection - Creative Thinking)	Students use appropriate technologies to create original works.	Students use appropriate technologies to create original works and learn strategies for remixing other digital works to create new digital works.	Students use appropriate technologies to create new digital works or responsibly *repurpose* or *remix* other digital works into new digital works.	Students use multiple appropriate technologies to create new digital work or *repurpose*/*remix* other digital work into new digital works to support a point of view.

Content Strand: Creative Communicator (CC)				
Standard: Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6 - 8** **(m)**	**9 - 12** **(h)**
C. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or *simulations*. (5 C's Connection - Creative Thinking and Communication)	Students share and communicate ideas in a variety of ways—visual, audio, etc.	Students create digital works to communicate ideas visually and graphically.	Students communicate complex ideas clearly using appropriate technologies to convey the concepts orally, textually, visually, graphically, etc.	Students use design technologies to create and communicate various representations of a complex idea in a subject area.
D. Publish or present content that customizes the message and medium for the intended audiences. (5 C's Connection - Critical Thinking and Communication)	Students select and use appropriate technologies to share ideas with different people.	Students select and use appropriate technologies to design and publish content while considering the audience when creating digital works and presentations.	Students select and use appropriate technologies to design, publish, and present content that effectively convey their ideas, conclusions, and evidence for specific audiences.	Students collaborate with available experts on final presentations, especially with the analysis and evaluation of how audiences receive or interpret content.

Content Strand: Global Collaborator (GC)

Standard: Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

Learning Priority and 5 C's Connection	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
	K - 2 (e)	3 - 5 (i)	6-8 (m)	9-12 (h)
A. Use appropriate technologies to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning. (5 C's Connection - Collaboration and Communication)	With the guidance of an educator, students explore appropriate technologies to safely connect with friends and people outside their neighborhood, city, and areas beyond.	Students use appropriate technologies to connect with a digital community that includes different backgrounds and cultures.	Students use appropriate technologies to connect with others to develop a richer understanding of different perspectives, backgrounds, and cultures.	Students use appropriate technologies to connect with others in places around the world for broader understanding and learning toward common goals.
B. Use *collaborative technologies* to work with others, including peers, experts, and community members to examine issues and problems from multiple viewpoints.	Students use *collaborative technologies* to work with others, including peers, school/division personnel, experts, and local community members to consider the perspective of others.	Students use *collaborative technologies* to work with others, including peers, experts, and online community members to learn the perspective of others.	Students use *collaborative technologies* to work with others, including peers, experts, and online community members to gain broader perspectives as they examine issues, problems, and opportunities.	Students use *collaborative technologies* to work with others, including peers, experts, and online community members to gain global perspectives as they examine issues, problems, and opportunities.

Content Strand: Global Collaborator (GC)				
Standard: Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.				
	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2** **(e)**	**3 - 5** **(i)**	**6-8** **(m)**	**9-12** **(h)**
(5 C's Connection - Collaboration and Communication)				
C. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal. (5 C's Connection - Collaboration, Communication, Creative Thinking, Critical Thinking, and Citizenship)	Students take on different team roles and use appropriate technologies to complete projects.	Students take on a variety of assigned team roles and use appropriate technologies to complete a project and work toward a common goal.	Students determine their role on a team based on their knowledge of content and technologies, as well as personal preference, and use appropriate technologies to track team progress toward a common goal.	Students determine their role on a team and use project management tools to organize and monitor individual and group work and reflect on participation and completion of a common goal.
D. Explore local and global issues and use *collaborative technologies* to work with others to investigate solutions.	Students use *collaborative technologies* to work with others to understand problems and suggest solutions.	Students use *collaborative technologies* to work with others understand problems and investigate solutions to local and global issues.	Students use *collaborative technologies* to work with others to understand problems, investigate and develop solutions related to local and global issues.	Students use *collaborative technologies* to understand problems, investigate, and develop solutions related to local and global issues, and advocate for

Content Strand: Global Collaborator (GC)				
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	Performance Indicator - By Grade Band (Italicized terms will be defined in glossary of upcoming companion documents)			
Learning Priority and 5 C's Connection	**K - 2 (e)**	**3 - 5 (i)**	**6-8 (m)**	**9-12 (h)**
(5 C's Connection - Collaboration, Communication, Creative Thinking, Critical Thinking, and Citizenship)				implementation of solutions.